

SOUND ON SOUND

EUROPE'S No.1 HI-TECH MUSIC RECORDING MAGAZINE

SOUND ON SOUND



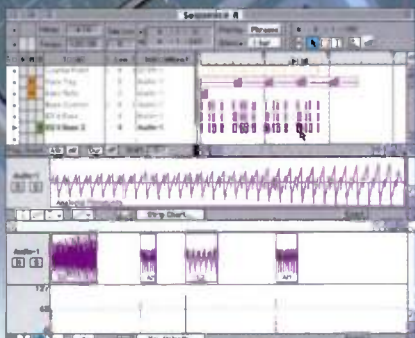
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- Power Computing Mac Clone
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- Quasimidi Raven Synthesizer
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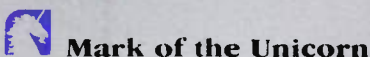
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Media House, Burrell Road, St. Ives
Cambridgeshire PE17 4LE.

Telephone

01480 461244

Facsimile

01480 492422

E-Mail

CompuServe 100517,1113

Internet 100517.1113@compuserve.com

The winter NAMM show is traditionally held in Anaheim, California, just a block away from Disneyland, 'the friendliest place on earth'. In every hotel and restaurant, the staff are over-polite to the point of nausea — but before you can get to the show, you have to make it through the airport, and that's quite a different story.

After enduring a three-hour flight delay, followed by a sleepless 11-hour flight, we faced the inevitable one-hour shuffle through immigration, where all bets about politeness are off. Though the actual wording

to do with microchips.

For those who haven't visited a music show of this magnitude, it's a revelation (see show news, starting page 22). We all assume that hi-tech is where the action is, but for every synth or mixer manufacturer, there are 10 or 20 guitar, drum or guitar amp manufacturers exhibiting, and you can't help noticing that they all seem to be having a lot of fun. On the hi-tech stands, frowning people peer myopically into tiny LCD windows, while on the guitar and amp booths, people are trying out instruments, playing music and, in the

Stranger in a strange land...



was slightly different to the following, the gist was along the lines of "All you suspicious alien scum get in these lines", and if your paperwork isn't completed 100% correctly, you get sent

to the back again. When you're finally called, it takes a whole five minutes to go through your passport, process your immigration documents and quiz you on when you'll be going back home. After all this, they have the cheek to wish you a nice stay in the USA. Still, we made it, and after braving the freeway traffic, got to our hotel.

Once inside the show, it's a different world, but uniquely to American shows, especially those involving guitars, many of the stands are fronted by young ladies who've obviously been hired as set-dressing for the occasion; we came to the conclusion that these girls must get into their undersized costumes in the morning, then get themselves inflated by an extra 10 psi, to the point where one weak seam could spell disaster for anyone within 20 feet! At least now I think I know how silicon valley got its name, and believe me, it's nothing

main, enjoying themselves. Next door on the keyboard booth, a lot of serious-looking people stand, isolated from the world by their headphones, cruising the preset buttons hoping for the sound that's going to inspire their next magnum opus.

The trouble is, I can't keep my hands off this technology stuff, and while my main instrument is still the electric guitar, I can't help but think Leo Fender got it pretty much right all those decades ago. Yes, you guessed it, I was one of those cruising the presets, checking out the software upgrades and eyeing up the new digital recorders and effects units. Seeing our corner of the industry in perspective does make you think though, and it does invite the question as to whether we pay as much attention to our music-making as those guys with the guitars. The electronic keyboard is indisputably an instrument, but all the rest of the stuff we play with really comes into the category of tools.

There's a great danger that you spend so long getting to know your tools, that you forget about the craft you're supposed to be pursuing. Whatever else I learned from the show, when I got back home, the first thing I did was spend a couple of hours playing my guitar: no crashes, no glitches, no corrupted files, just honest (if rusty) rock and roll.

Paul White Editor

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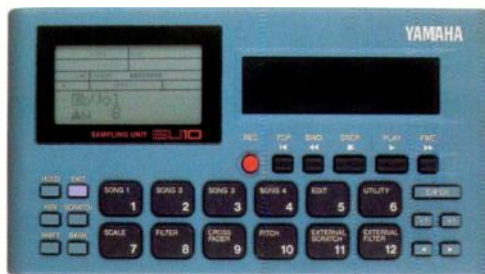
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Power Computing Mac Clone p38
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Crosstalk

Send your letters, tips and comments to: The Editor, Sound On Sound, Media House, St Ives, Cambridgeshire, PE17 4LE. Or email us — from CompuServe on 100517,1113 or from outside CompuServe, on 100517.1113@compuserve.com

OUT OF (SOUTH) AFRICA

I'm a South African who will be visiting the UK soon, and I would like to spend some time looking for second-hand synths. I found your recent articles on vintage buys (Bargain Basement, SOS July and August 1995) very interesting and informative, especially since I just cannot tear myself away from those '80s sounds! I was wondering if you could offer any advice on how to pick up bargains on some of the vintage synths that are often covered in SOS.

My problem is essentially that many of these older synths are difficult to track down in South Africa, and when they do turn up, are very expensive — new gear costs about 55 percent more than in the UK, and second-hand about 45 percent more. My knowledge of synths is very scant — so far, I have only a Yamaha TX81Z, a Roland SC55 II, a PC and a Casio VL1 VL-Tone (seriously!). I'm interested in Casio CZ/NZ instruments, as well as the Evolution EVS1 and CheetaH MS6. Thanks for your help. Ian Wilson Durban, South Africa

Derek Johnson replies: *Finding instruments such as those featured in the Bargain Basement article and in the regular retro reviews that appear in SOS is largely a matter of trial and error. UK inhabitants would normally start with SOS's Readers' Ads, but most hi-tech dealers carry second-hand stock. While generally (but not exclusively) more expensive than private sales, shopping at dealers does offer a number of advantages: you may get a guarantee of some kind, the instrument will almost certainly have had a check-up and a service, and you will often have a choice of instruments to try side by side — an ideal situation for you, since you want to hear what these instruments sound like.*

In your case, it looks as though the small price difference between private and dealer sales isn't going to amount to much given the state of your domestic market, in which case we can make a couple of recommendations. First of all, get the latest copy of SOS on your arrival in the UK, and check out the shop ads. There are a couple of places that specialise in second-hand gear, and that may well

include less fashionable instruments as well as the classics. Some names we could drop include Music Control (01270 883779, or in London 0171 729 4100), Turnkey/Soho Soundhouse, who have a special second-hand department (0171 379 5148), as do Marks Music in East Anglia (01473 287872). Retail chains such as Music Village (0181 598 9506), Carlsbro (01623 645501), ABC Music (0181 974 5505), Sound Control (0800 525260) and Music Connections (01245 354777) carry stocks of trade-in gear; between them, they should offer a branch local to just about anyone in the UK. Start with these — their branch phone numbers can be found in their regular SOS ads, which themselves can be located using the ad index at the back of SOS.

That's not to say that we especially recommend these dealers at the expense of all others; they're just a starting point, located after a quick look through SOS. As mentioned earlier, a careful browse through the mag (including the extensive classifieds at the back) will reveal a wide range of outlets.

You also asked many specific questions (which we don't have room to print, unfortunately) regarding the sound of different synths and how they compare to one another — questions that can only be addressed inadequately on paper, and at best in a subjective manner. Synths need to be played and heard, and the best judge of what's good or bad in an instrument is you. I can say, however, that Casio's CZ synths do have FM-like qualities, with a hint of the warmth and fatness of analogue; editing isn't easy as such, but can be rewarding for the intrepid. The VZ series offers a similar sound to the CZ series, with the advantage of easier editing.

More background information could be obtained from a book: Julian Colbeck's Keyfax 4 offers a good insight into a wide range of synths ancient and modern, and is available from SOS's Book Shop (order code B201, price £12.95, postage £1.95 UK, £5.50 Europe, £8.50 rest of the world). It's entirely subjective, but Julian offers good insights and is seldom unfair. A basic spec is included for every synth covered. □

AKAI NA TAKE THE CREDIT

Many thanks for the review of the Akai SG01v synth module in the Feb (or should that be Feb?) issue of SOS. Great care was taken to make the module sound as authentic as possible, and it would seem our efforts paid off. I must also thank Paul White for his kind

comments regarding my efforts. However, whilst I am extremely grateful for this ego massage, I can't take all the credit for the SG's sounds! It's true that I did create the ROM samples, a selection of raw synth waveforms and combinations taken from old

beauts like the Sequential Prophet 5, Oberheim SEM, Minimoog, Roland Jupiter 6, PPG Wave 2.2, ARP Solina and others. It is also true that I made up a lot of the final sounds in the SG01v, but credit must also go to Mr Hoshi and the engineers and programmers at Akai's R&D studio in Tokyo, who also created many of the noises Paul so obviously enjoyed playing with. As with all Akai products, the SG01v is a team effort, drawing on the skills and talents of many individuals, and it's not really fair that I should be singled out to take all the glory.

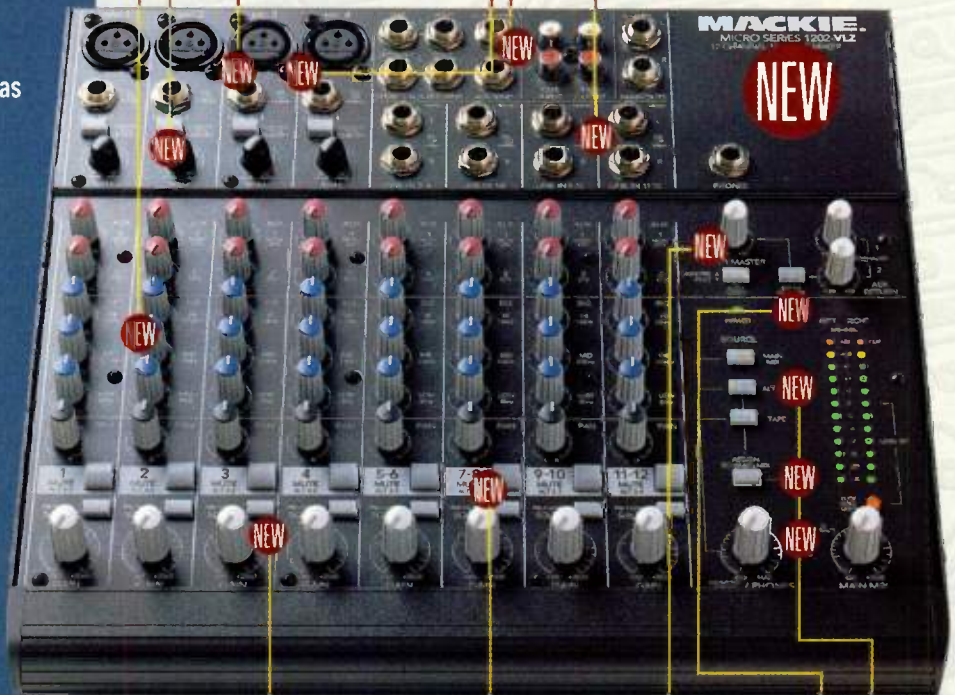
It is nice, though...
Steve Howell
Akai Professional Division □



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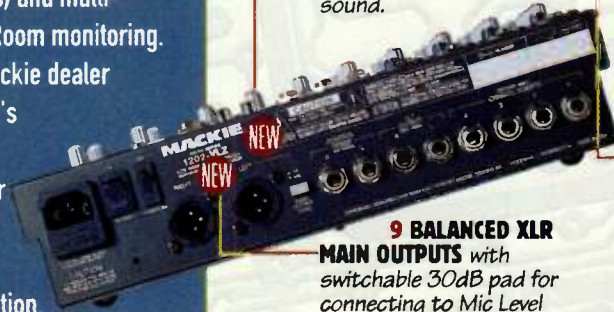
For 5 years, our Micro Series 1202 12-ch. mixer has toured with superstars, gathered network news, pinch hit next to mega-consoles... and has been the main mixer in a lot of home studios.

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Shape of THINGS TO COME

By Derek Johnson & Debbie Poyser

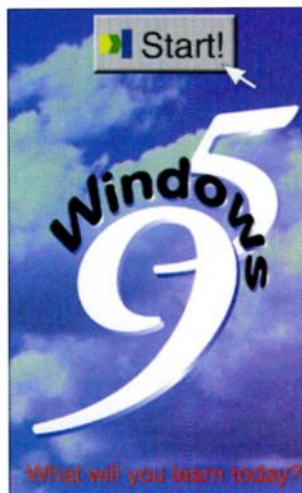
REPENT, ALL YE WINNERS (OH, OK, JUST TAKE THE PRIZE INSTEAD)



As promised in last month's 'Shape', this month saw another competition winner plucked from a mass of entries and elevated to the status of Extremely Fortunate Person. This month fortune shone on Alan Martin of Scotland (pictured above), who won himself a fantastic Allen & Heath G51 mixer in our August '95 competition. The prize turned out to be most timely, as Alan was just about to buy a new desk to replace his previous ailing Allen & Heath! Many thanks to Harman Audio (0181 207 5050) for donating the prize. Once again, there'll be more draws announced next month, so keep those entries coming!

SOS can be reached on CompuServe; our e-mail address is 100517,1113. Our full Internet address is 100517.1113@compuserve.com.

NAVIGATE THE PC MAZE



Training and educational video specialists Labyrinth International have a brand-new video dedicated to Windows 95. *Windows 95: What will you learn today?* is aimed at new Windows 95 users and goes from basic to in-depth advice, covering topics

such as minimum hardware requirements and common

problems, and providing useful tips and tuition. The video also features Labyrinth's Video Index System to help the user locate particular topics, by means of on-screen timecode and an index booklet.

Also part of the package is the *PC Starter Video*, a 30-minute introductory tape which clarifies the technology and jargon associated with PCs. The two-video set is written by computer journalist Ian Waugh. You can buy it from SOS Mail Order for £19.99, plus £1.75 p&p (UK) or £4.95 (overseas).

A Sound On Sound Ltd, Media House, Burrol Road, St Ives, Cambs PE17 4LE.

T 01480 461244.

F 01480 492422.

Music and recording equipment insurance specialists Sound Insurance have sent us the happy news that their rates for 1996 remain the same as 1995 — and with many musicians and home/project studio owners becoming better informed about the requirements of insuring their gear, many premiums will be down, as a result of improved security arrangements and no-claims discounts. Sound Insurance also inform us that they have negotiated special motor and household insurance schemes for members of Equity and the Musicians' Union

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A Hencilla Conworth Insurance Group, Insurance House, 27/29 Brighton Road, Croydon CR2 6EB.

T 0181 686 5050.

SOUNDFIELD'S SPATIAL SPECIAL

SoundField are celebrating their 20th anniversary year with the launch of a "competitively priced" mic. Although, at £1875 plus VAT (£2203.13 including VAT), the SPS422 is priced more like a premium condenser mic, it is based on the same principles as the more expensive microphones in the SoundField range. The system comprises a multi-capsule mic and a 1U rack processor, and allows the user to adjust all mic parameters from the control room. The mic allows accurate recordings, whether



mono or wide-image stereo, to be made with complete control over all spatial parameters. Look out for a review in SOS soon.

A SoundField, Charlotte Street Business Centre, Charlotte Street, Wakefield, W Yorkshire WF1 1UH.

T 01924 201089.

F 01924 201618.

E sales@soundfield.co.uk

W http://www.proaudio.co.uk/sndfield.htm

VG8 TWO-CARD TRICK

Two new data cards have been released, priced £80 each, for Roland's VG8 V-Guitar system. The VG8D-1 Traditional 1 contains country, folk, blues and jazz sounds, whilst the VG8D-2 Modern 1 has a collection of rock, metal and fusion patches. Both cards contain 64 patches each. Also available, but absolutely free, is a disk of VG8 patches created by Roland demonstrator Nick Cooper. Half the 64-voice set have been created by Variable Guitar Modelling, which is a reproduction of traditional guitar/amp/speaker/effects setups, and the rest by Harmonic Restructure Modelling. The data on the disk is stored as System Exclusive information in Standard MIDI File format, so a sequencer or MIDI File player is needed to load them into the VG8. VG8 owners who would like the disk should contact Joe Farler on extension 2572, at the number below.

A Roland UK Ltd, Atlantic Close, Enterprise park, Swansea, W Glamorgan SA7 9FJ.

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MINI MACKIE GETS FADERS!

Here's a new addition to the Mackie family of mixers, in the shape of the MS1402 VLZ, a compact unit with six line inputs and four stereo inputs. Features include:

- Six low-noise, high-headroom mic preamps.
- 3-band EQ.
- 60mm faders on Channels, Control Room, and Main Mix.
- PFL/AFL (Solo In Place) on every channel (globally switchable).
- Low-cut filter on channels 1-6, useful for eliminating noise below 75Hz, such as mic thumps and stage rumble.



- Balanced Inputs and Outputs (except for RCA tape, phones and channel inserts).
- Balanced XLR main outputs.
- Very low impedance (VLZ) architecture, as introduced on the Mackie 8-Buss consoles.
- Mute/Alt 3-4 switch on every channel, providing an extra stereo buss, creating two stereo pairs for 4-track recording.

Mackie specifically highlight the inclusion of faders on the new desk (their other new compact, the 1202VLZ, features rotary

controls instead), and their high-quality construction: they have a new wiper design incorporating a moisture-resistant and durable material, and a new lip seal which forms a 'dust cover' for improved reliability. The 1402 VLZ is expected to retail for £549 inc VAT.

A Key Audio Systems Ltd, Unit D, Chelford Court, Robjohns Road, Chelmsford CM1 3AG.

T 01245 344001.

F 01245 344002.



I-SPY A NEW MODULE FROM KORG

It might look like Uhura's communications control panel from the Starship Enterprise, but don't be fooled: Korg's new i5M Interactive Music Module contains the interactive auto-accompaniment system used in the popular i-series workstations, in a stand-alone unit that can be used with any MIDI instrument, or alone as a backing module for solo artists.

The new module uses Korg's AI2 synthesis to produce its sounds — 128 programs plus one drum set in GM format, plus an extra 192 programs and 13 drum kits; optional disks from the Korg sound library offer 64 extra sound programs and two drum programs. There's a built-in effects processor, providing 47 digital effects. Arrangements are accessed via colour-coded buttons,

and an Interactive Composition function can automatically analyse notes and create a suitable accompaniment, including chords, as you play. There's also a Backing Sequence mode, which allows real-time recording, and a step-time record function. Accompaniments and performances can be stored in Standard MIDI File format. The i5M has a retail price of £899 including VAT.

A Korg UK Ltd, 9 Newmarket Court, Kingston, Milton Keynes MK10 0AU.

T 01908 857100.

F 01908 857199.

MOSTLY MIDI

SOS Amiga Notes columnist Paul Overaa has a new book in print. *Making the Most of MIDI*, from Bookmark Publishing, explains the fundamentals of MIDI and MIDI sequencing for the beginner, and also "goes much, much further, dealing with issues that will be of help to the more established user." Contents include advice on MIDI fault-finding, expert tricks, help for musicians using sequencers live, and explanations of the structure of MIDI messages and MIDI files. For the more advanced, MIDI and MIDI

File programming material is provided. *Making the Most of MIDI* runs to 243 pages, costs £14.95, and will be available via the usual book channels shortly, with an ISBN number 1-85550-006-X. The SOS Bookshop will be stocking copies as soon as the book becomes available — please phone for details.

A Sound On Sound Ltd, Media House, Burrell Road, St Ives, Combs PE17 4LE.

T 01480 461244.

F 01480 492422.

A Bookmark Publishing Ltd, The Old School, Greenfield, Bedford MK45 5DE.

T 01525 713671.

F 01525 713716.

Shape of THINGS TO COME

Unfortunately, *SOS* was quoted the wrong price before going to print with the Audio Technica AT4050 review last month. The correct retail prices (including VAT) are £925 (£995 with a shockmount) for the AT4050 and £621.95 (£694.95 with the shockmount) for the AT4033. Apologies to any eager readers who were misled!

T Audio Technica
0113 277 1441.

Digital Media are a new company incorporated to take over distribution (for the UK and France, anyway) of the C-Lab Falcon and all related hard disk recording products. So new are the company that their ad on page 151 of last month's *SOS* barely squeaked into the issue before it went to press, and during the rush, the STD code in the company phone number was printed incorrectly. The full correct number is 01422 340875 — apologies to all who reached the disconnected Mercury phone on the wrong number! For more information on Digital Media, check out this month's Atari Notes, on page 154.

Those of you who have tried to contact Inter Manual Rescue lately may have noticed that the company have moved. In fact, IMR have been expanding their business as well as their premises; in addition to being an authorised Waldorf service centre and the exclusive UK service centre for all Linn Electronics products, they are now also handling repairs and sales of Fairlight CMI systems. Following the auction of Keith Emerson's unwanted keyboards last year (see *SOS* May '95), IMR have received a further shipment of Keith's old gear to dispose of via auction; contact them for details. Finally, plans for a vintage synths bass sample CD are also nearing fruition. Oh — and they still deal in old manuals, of course!

T 01842 862620.
F 01842 862620.

T here is still plenty of interest in that prototypical electronic musical instrument, the theremin — it even gets mentions in *New Scientist* magazine. Bob Moog's current company, Big Briar, actually specialises in theremins, and the company's first new product for 1996 is a Theremin kit.

The kit is reasonably priced and easy to build: the printed circuit board comes ready-assembled and tested, so all you have to do is assemble the panel and cabinet, and connect a few wires. The resulting instrument is claimed to be faithful to the tone colour and playing characteristics of Leon Theremin's original

DIY THEREMIN FROM BIG BRIAR

designs, yet is compact enough to carry and set up on a table or mic stand — it even comes with brass antennae, just like the real thing. The whole package costs just \$229 in the US, and includes Lydia Kavina's instructional video, Clara Rockmore's *Art of the Theremin* CD, and Bob Moog's own illustrated booklet of theremin history and technology; contact Big

Briar for shipping details outside the US.

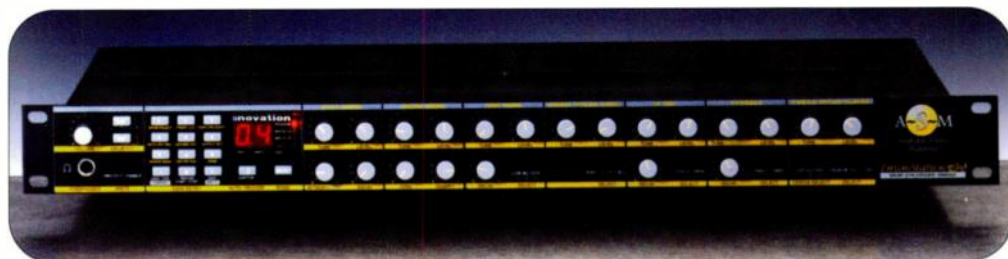
The Lydia Kavina video is also available separately; Kavina is one of the world's most accomplished (and only) thereminists, and her video offers six lessons, Kavina in performance, plus Bob Moog in a brief history of the theremin. The tape costs \$34.95; once again, contact Big Briar for shipping details. Note that this tape is in NTSC format, so be very sure that your video recorder and TV can play back NTSC tapes before ordering.

A Big Briar Inc, 554-C
Riverside Drive, Asheville,
NC 28801, USA.

T 001 704 251 0090.

F 001 704 254 6233.

E bigbriar@aol.com



NOVATION CAPTURE CLASSIC DRUMS

When Novation saw that Roland's vintage TB303 Bassline was becoming so sought-after that it was commanding a second-hand price of £500-plus, they filled a gap in many a dance musician's life by launching the BassStation (see *SOS* reviews in July '94 and July '95). Now, there's hope for those who have been yearning after the similarly rare and expensive Roland TR909 and 808 drum machines — the Novation DrumStation. This rackmount MIDI module features 909 and 808 drum sounds described by Novation as "authentic", and created by the company's own ASM (Analogue Sound Modelling) technology. All the sound editing controls featured on the original drum machines are replicated on the DrumStation front panel, for immediate live tweaking, and changes can also be recorded via MIDI. Other features include:

- Up to 12-note polyphony.
- 'Front-cut' edit feature, which allows you to

cut off the front portion (between 1 and 99 ms) of a drum sound, for added customisation potential.

- Switchable Note-off recognition for real-time control over drum sound duration. This feature allows you to specify whether a given sound should respond to MIDI Note-off commands. If set to respond, the sound's duration will be determined by how long a note is held down.
- Distortion effect for each drum sound.
- Assign feature for playing drum sounds over a wide pitch range.
- 50 'Kits'.
- Six assignable individual outputs, plus main stereo out.
- DIN sync trigger output to allow the user to control the tempo of a non-MIDI sequencer or drum machine over MIDI.
- MIDI In, Out and Thru.

The Drum Station is set to retail for just £449.99 including VAT — considerably cheaper than the combined price of an 808 and 909. Look out for an *SOS* review soon.

A Novation Electronic Music Systems Ltd, The Ice House, Dean Street, Marlow, Bucks SL7 3AB.

T 01628 481992.

F 01628 481835.

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 Dual oscillator analogue bass synth with full MIDI control £P.O.A



MACKIE

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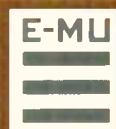
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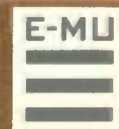
great value controller for the computer musician touch sense, pitch and mod wheels, sends all midi controllers.

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(0115) 955 2200

Shape of THINGS TO COME

Stirling Audio have made some recent sales to members (and ex-members) of Pink Floyd: Rick Wright of the band has purchased a 48-track Otari Radar hard disk recorder, for use in his studio in London and Nice, while Roger Waters has taken a package of equipment including a Lexicon 300L reverb, Lexicon 480 upgrades and a digital interface upgrade.

T 0171 624 6000.

As featured in last month's Brief Encounters (page 190 last month), Volume Five of Keyfax Software's *Twiddly Bits* building block MIDI files, a collection of country phrases and motifs, is now available, priced at £19.95. Keyfax have also released the first in the *Twiddly Bits Master Series* range — *Rabbit's Rock & Country Piano* (Master Series Volume One). Finally, just out is *Twiddly Bits Volume Six — The Funk*, featuring Dale Davis (Freakpower) on bass, Snake Davis (M People) on sax, and many more, and costing £19.95. Those with Internet access can visit Keyfax on:

<http://www.gmedia.net/keyfax>

T 01734 471382.



Roachford, the band, have made the move away from clock-watching in commercial studios and set up their own studio based around Tascam's DA88 digital 8-track. The new studio, based at a south London industrial estate, was installed by Way Out West, and includes a 24-track analogue machine alongside the DA88 — which is just as well, since main man Andrew Roachford often nips home with the DA88 to write more songs in his demo studio.

T Tascam
01923 819630.

T Way Out West
0181 744 1040.

HOT NEW MIC FROM ELECTROVOICE

The latest mic from ElectroVoice is the RE2000, a supercardioid condenser aimed at studio and sound reinforcement applications. ElectroVoice quote a flat frequency response of 70Hz to 18kHz for the RE2000, and claim high sensitivity. A novel feature in the form of a heated transformer (powered externally) is said to ensure constant output quality regardless of environmental variations. A three-stage pop filter is built in, while an external pop shield is also supplied. Handling noise should be kept to a minimum by the shockmount system. The RE2000 retails for £2055.08, including VAT.

A Shuttlesound, 4 The Willows Centre,
Willow Lane, Mitcham, Surrey CR4 4NX.
T 0181 640 9600.
F 0181 640 0106.



TIME & SPACE'S SERIAL KILLERS

Time & Space are launching a new series of sample CDs aimed directly at musicians and PC users who want to get started in sampling. *Creative Essentials* is a "totally comprehensive music construction kit" in 30 volumes, each retailing at just £19.95. Every disc in the series contains between 200 and 400 high-quality sounds, with each sound presented as audio and in WAV file CD-ROM format, for use with PC soundcards and PC music software. The first 10 volumes in the series are available now, and include *Rhythm Guitar & FX*; *Brass Elements*; *Dance Vocals*; and *Percussion Grooves*, as well as CDs devoted to synth effects, hits and textures.

Ambient dance and trance sounds, and bhanga rhythms, instruments, vocals and phrases. Volumes 11-20 will be available in May, with the final group due for release in Autumn.

A Time & Space, PO Box 306,
Berkhamsted, Herts HP4 3EP.

T 01442 870681.

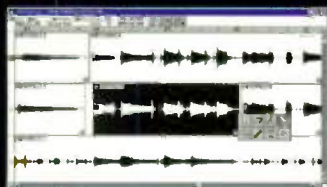
F 01442 877266.

E sales@timespace.com

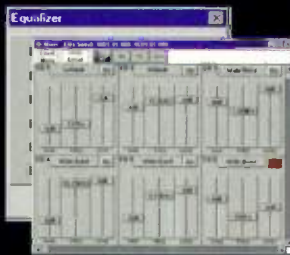
W <http://www.timespace.com>

Smart audio

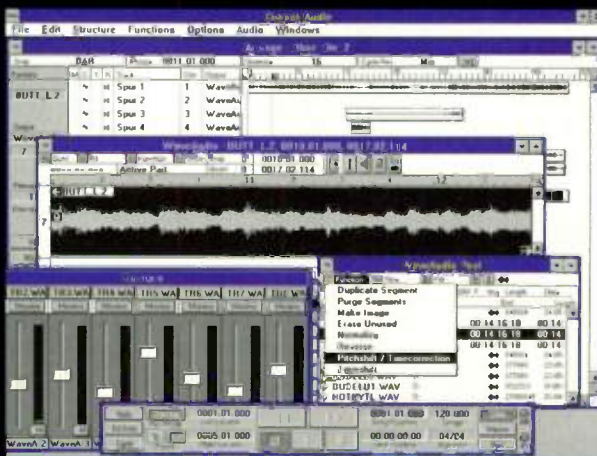
Real-time Editing:
In Cubase Audio, edit your audio as if it were MIDI: non-destructively and in real time – using the same tools in the legendary Cubase Toolbox.



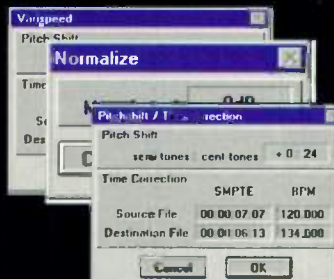
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"Flipping Fader Control" with additional real-time EQ for Session 8 and CBX D5



Audio Quantize
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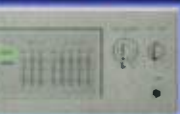


Fast and Intuitive
The highly-acclaimed Cubase user interface has unrivalled transparency and ease of use. Often copied, never equalled.

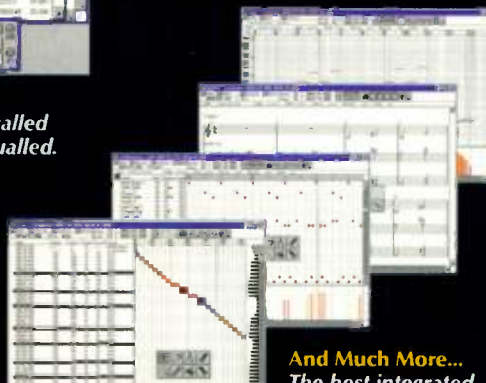


Audio Processing Tools:
Cubase Audio has exactly the right tools for professional audio processing: Hi-quality Time and Pitch Correction from the Time Bandit team, VariSpeed, Level Optimization, EQ* and various effects* – all integrated into one single program.
**hardware dependent*

Choose Your Audio Platform:
From Windows sound-cards e.g. SoundBlaster or Turtlebeach, to Digidesign Session 8 and Yamaha CBX D5/D3.



Where others are just beginning, Steinberg already has several years of experience, and an extensive product line in Windows-based MIDI and integrated Audio programs. This experience has been important in the development of Cubase Audio 1.6, the first integrated Digital Audio and MIDI recording program for Windows which supports different audio platforms. Cubase Audio gives you the right tools to be faster, more creative and more productive.



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Want to know more? Cubase Audio information is available from your dealer or from Internet: <http://www.steinberg-us.com>



Harman Audio • Unit 2 Borehamwood Industrial Park • Rowley Lane • Borehamwood • Herts WD6 5PZ • Tel: 081 207 5050 • Fax: 081 207 4572

Shape of THINGS TO COME

Analogue synth retrofit specialists Analogue Solutions now have a presence on the Internet: they can be contacted at tomc@channel.co.uk, and if you've got any queries about old synths or retrofits, give them a try.

T 01372 745494.

London club The End has chosen the Soundcraft D-Mix 1000 console for its DJs. The console was supplied by pro audio specialists LMC Audio.

T 01707 665000.

MIDI file company Baktrax now have a section on the MIDI Forum on CompuServe. They can be found in Section 18 of MIDICVEN. Readers are invited to download demo files and the complete company catalogue, plus a monthly update list and special offers. You can also visit Baktrax on the World Wide Web at: <http://www.baktrax.com>

T 01329 834692.

Donna Summer songwriter and producer Pete Belloite, whose credits also include Elton John and Janet Jackson, is using four TL Audio VI-1 Valve Interfaces (see review on page 36 this month) with his 32-track Alesis ADAT system. Says Pete: "I was amazed when I interfaced the VI-1s with my system. Drums suddenly became not just punchier but clearer and more defined. Other instruments were all given a new lease of life."

T TL Audio
01462 490600.



Tascam's DA88 digital 8-track recorder has picked up an Emmy award from the Academy of Television Arts and Sciences for "outstanding achievement in engineering development".

T TEAC UK
01923 819630.

HHB Communications have scooped European distribution rights to the acclaimed Genex Research GX2000 24-bit magneto-optical disk recorder. Designed by a team of former Decca engineers, the GX2000 is intended for very high-quality 2-track digital recording

HHB ANNEXE GENEX!



applications; it can be controlled either from its own ergonomic front panel or by Windows-based remote software. Recording capacity on a 1.3Gb rewritable MO disk is 100 minutes, but this increases to 160 minutes through the use of the GX2000's lossless data-packing record mode, which, it is claimed, maximises disk storage efficiency without affecting audio in any way. Non-destructive editing facilities are provided, and software is available that allows the GX2000 to be used as an external disk drive with popular digital editing systems such as SADiE.

Amongst the first purchasers of the GX2000 is classical recording specialist Mike Hatch at Floating Earth; Mike comments that since hi-bit consumer playback formats are on the way, most classical labels are now insisting on hi-bit recording. Mike expects his GX2000 to be only the first at Floating Earth.

A HHB Communications Ltd,
73-75 Scrubs Lane,
London NW10 6QU.

T 0181 962 5000.

F 0181 962 5050.

Steinberg continue their support for the Macintosh with the release of *Cubasis* and *Cubase v2.8* for the Mac. *Cubasis*, which retails for £129, offers the same user interface as the standard *Cubase* software, including 64 tracks, key, list and score editors. The program also offers QuickTime Movie support, score printing and MIDI synchronisation. A *Cubase Starterpac* is also available for £149, which includes *Cubasis*, *MIDI Xplained* and a MIDI interface.

Cubase v2.8 now offers full colour support, unlimited tracks, OMS 2.0 support, score printing and *StyleTrax*, the real-time pattern playback module. Tempo maps are easier to create with the new graphical mastertrack: tempo changes can be drawn in or recalculated from the MIDI track. You can actually take a

STEINBERG MAC ATTACK

part recorded without the metronome and get it to fit beats and measures without losing a performance's feel. In common with the recently announced *Cubase v2.8* for Windows, the Mac version has been reduced in price from £399 to £329. Steinberg's product line is about to be completely revamped, and the first move in this direction will be the imminent release of *Cubase Audio v3.0*. A new range of Steinberg TDM plug-ins will coincide with the launch.

A Harman Audio, PO Box 5050, Borehamwood,
Herts WD6 5PZ.

T 0181 207 5050.

F 0181 207 1662.

SAE SETS UP FOR SPRING

The School of Audio Engineering (SAE) celebrates its 20th anniversary this year, and is making preparations for the start of another year of practical audio education. SAE's London branch is already enrolling new students for a number of courses:

- The Audio Engineer Diploma course begins in March (which doesn't give you much time if you're interested!). It can be taken full-time over nine months or part-time over 18 months, and gives a solid grounding in



all aspects of studio recording techniques and broadcast work, through a mix of lectures, practical studio demonstrations and individual studio time.

- The Studio Sound Certificate is aimed at studio assistants, home



LIVE & WINNING!

Carlsbro Retail, in conjunction with Akai UK, recently ran a series of live shows in Sheffield, Nottingham, Stoke-on-Trent and Leicester, featuring electronic musician and Akai product specialist Ian Boddy. As a bonus to attendees, Carlsbro ran a free competition for a brand new Akai S2000 sampler. Pictured is the winner of the competition, Mr Sinclair of Nottingham, receiving his sampler from Ian Boddy.

A Carlsbro Retail Ltd, 182-184 Chesterfield Road North, Mensfield NG19 7JD.

T 01623 645501.

F 01623 24283.

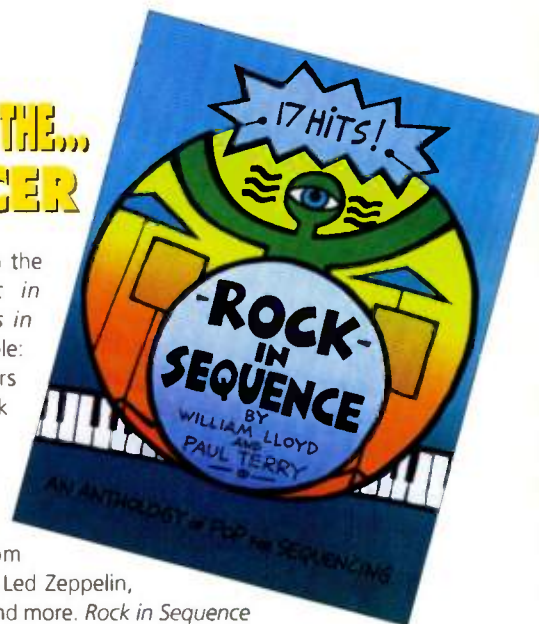
ROCK AROUND THE... SEQUENCER

The latest book from the authors of *Music in Sequence* and *Classics in Sequence* is now available: *Rock in Sequence* offers detailed scores of 17 rock and pop hits from the '50s to the present day, alongside a collection of helpful sequencing tips. Songs are included from the likes of the Beatles, Led Zeppelin, Abba, Eurythmics, Blur and more. *Rock in Sequence* runs to 112 pages, and retails for £14.95, with the ISBN number 0 9517214 5 3. It's available from SOS Bookshop, too — please call for details.

A Sound On Sound Ltd, Media House, Burrell Road, St Ives, Cambs PE17 4LE.

T 01480 461244.

F 01480 492422.



EDUCATION CORNER



studio owners, audio salespeople, and musicians who want to know more about studio recording. The course covers studio techniques, effects, mixing, MIDI, sequencing, digital technology, multitrack recording, mic techniques, and live sound.

- The Advanced Music Production course takes three months to complete and is part time; it's available to graduates of the Audio Engineer Diploma course, offering additional studio experience and covering specialised topics with the help of guest lecturers. These have included Trevor Horn, Steve Levine and David Knopfler in past years

- Pro School is an intensive training course for Digidesign's Pro Tools system, plus *SampleCell* and *Sound Designer* software. Students receive the recognised Pro Tools Operator

Certificate on completion.

If you like the look of any of the above, SAE invite you to call Cath Cranko at SAE London to arrange a tour of the facility.

T 0171 609 2653.

ENGINEERING IN ESSEX

The University of Essex's Department of Electronic Engineering is offering a post-grad course in audio systems engineering. Leading to an MSC, the course is aimed at those with an interest in audio engineering, electronics and auditory perception. The course is full time over nine months and in addition to a core of subjects covering systems design, analogue and digital systems, and perception of complex sounds, there are a number of specialist one-day seminars. Subjects include loudspeaker system design, surround sound systems, CD/DAT audio formats and interfacing systems, and analogue tape recording.

The university is also running a series of one-week post-grad short courses covering a wide range of audio-related topics, including radio frequency engineering and audio

systems engineering. Contact the university for further details.

A Postgraduate Courses Admissions Secretary, Dept of Electronic Systems Engineering, University of Essex, Colchester, Essex CO4 3SQ.

T 01206 872419.

F 01206 872900.

E esemsc@essex.ac.uk

W <http://www.essex.ac.uk/>

KEYBOARD TRAINER NOT JUST KIDS' STUFF

Keyboard Trainer is an interactive program that aims to teach the beginner keyboard and music reading skills. Although aimed at kids — teachers in 1300 UK schools are apparently using *Keyboard Trainer* — the software could be used by anyone seeking a grasp of basic musical skills. A combination of arcade-style games and traditional drills aim to improve a user's rhythm, chord playing and finger dexterity. The software runs on PC compatibles or the Atari ST; you need a MIDI interface (if you're using a PC), and the attached keyboard must be at least 5-part multitimbral. Drivers are supplied for GM and GS standard instruments, plus a

selection of non-GM Roland, Yamaha and Casio instruments.

PC users need a 386/SX25 or better with 4Mb of RAM, 3Mb hard disk space, Windows 3.1, DOS 5.0 (Windows 95 version in development), and a MIDI interface. The Atari needs 1Mb of RAM. *Keyboard Trainer* costs £69.

A Starland Ltd, 9-11 Boringdon Mill Business Park, Lister Close, Plympton, Devon PL7 4BA.

T 01752 342080.

F 01752 347598.

SOFTWARE FOR SCHOOLS

RM plc, a leading supplier of computer products and services to schools in the UK, has introduced a comprehensive selection of music software and hardware to work alongside every stage of the curriculum, from Key Stage 1 to A-Level. The company also offers a range of upgrade paths to bring PC compatibles up to full music capability,

A RM plc, New Mill House, 183 Milton Park, Abingdon, Oxon OX14 4SE.

T 01235 826000.

F 01235 826999.

Shape of THINGS TO COME

French hearing specialist Christian Meyer-Bisch warns that regular gig-going causes more long-term hearing damage than clubbing or personal stereos. *New Scientist* reports that Meyer-Bisch surveyed almost 1400 people between the ages of 14 and 40 and discovered that those who regularly attended concerts had an average permanent hearing loss of 9dB at high frequencies. While regular clubbers suffered temporary hearing loss, their hearing was not permanently affected: it is speculated that this might be because they take regular breaks from the high sound levels of the dance floor by visiting the bar and other quieter club areas. Club sound systems tended also to accentuate bass frequencies rather than the more damaging higher frequencies encountered at rock concerts.

Saturday March 16, 1996 sees the Third Alpha Centauri Electronic Music Festival, opening at 12 noon, at the Theater 3-in-1 in Huizen in Holland; a varied program includes Ian Boddy and Andy Pickford. In addition to the concert program, there will be video shows, a mini gear exhibition and plenty of chances to buy CDs, books and magazines. Contact the organisers for pricing details; they can also provide information on getting to the venue and on hotel accommodation.

A Helm 2, 1273 CB Huizen, Nederland.
T 0031 35 526 5635 (after 8.00pm).
E eric.snelders@dce.nl

Galliano are mixing their fourth album (due for May release) at Orinoco Studios using a pair of Spirit Absolute 2 nearfield monitors. Co-producer Indian Demus introduced the monitors to the sessions: "I'm really impressed with them. The bottom end is particularly good, because the cabinet is ported. They're good to listen to; far less exhausting than other monitor speakers".

T 01707 665000.

Derby's Assembly Rooms will be hosting a major festival of electronic music this April, to be headlined by no less than Klaus Schulze, he of last month's enormous *SOS* feature. The supporting bill will include David Wright and Robert Fox, performing their forthcoming collaborative CD, *For Whom The Bell...;* acclaimed electro-acoustic guitarist Mazlyn Jones, with Echo City

A GRAND DAY OUT IN DERBY

percussionist Guy Evans (ex-Van Der Graaf Generator), plus Bekki Williams and Bristol synth band Corporation. The festival is being promoted by AD Music, who also have a record label and are committed to professionally promoting traditional and new forms of electronic music in Europe and worldwide. Their recently released mid-priced CD compilation of AD artists, *1995AD*, has been greeted with positive reviews. If you'd like to check it out for yourself, you'll be pleased to hear that AD are offering a free copy each to the first five readers to order a ticket for the festival who mention *SOS*. Tickets cost £15 from the address below, and the date for your diary is Saturday 27th April. If you're not lucky enough to win one of those five copies of the CD, you can buy it for the entirely reasonable sum of £9.50 inc p&p from the same address, or from specialist retailers including Midas Records, Derby, who are also selling festival tickets. On the old information super cul-de-sac, you can obtain info about AD's activities at:

<http://tile.net/admusic>

A AD Music Ltd, PO Box 3021, Littlehampton, West Sussex BN17 7ZQ.
T 01903 725452 (business hours only).
F 01903 731377.

VIRTUALLY VINTAGE

Vintage Electronic Musical Instrument Auctions (VEMIA) are making preparations for an auction in cyberspace. At the company's previous 'live' auctions, held in Devon in July and November 1995, up to three-quarters of the revenue generated came from distant bidders, both in the UK and from locations rather further from home — Austria, Canada, France, Germany, Italy, Japan and the USA are just some examples. VEMIA have thus decided to take the logical step of holding a rolling 'virtual' auction in 1996. There will be no saleroom and no auctioneer. A catalogue will be available on the Internet, via fax-back, or through the post (for the cost of a stamped addressed C5 envelope or international reply coupons for 50g in weight). Regular updates



Mac audio plug-in specialists, Waves, have announced the release of *AudioTrack* audio processor software. *AudioTrack* combines a range of processes into a single piece of software, including 4-band parametric EQ, compression/expansion, and gating. The software will function as a native Mac plug-in or within Digidesign Sound Designer II and TDM systems. *AudioTrack* is also compatible with Emagic *Logic Audio*, Opcode *Studio Vision 3*, Steinberg *Cubase Audio*, Adobe *Premiere* and *OSC Deck 2.5*. Other Waves news concerns *WaveConvert*,

NEW WAVE SOFTWARE

a batch file multimedia audio mastering application for both Apple Mac and Windows-based computers. It converts Mac and PC audio files between sample rates, word lengths, and file types (including AIFF, SND and WAV).

Waves have also announced new links with Macromedia, who have recently acquired OSC, the first fruits of which include their new suite of Plug-Ins v2.0 which complement OSC's Deck II multitrack audio and MIDI software; Waves is now developing Xtras — Macromedia plug-ins — for Macromedia's *SoundEdit 16 v2* for Mac and Power Mac.

A Natural Audio, Kinetic Centre, Theobald Street, Borehamwood WD6 4SE.
T 0181 207 1717.
F 0181 207 2727.
E 100565.3561@compuserve.com

A Waves, PO Box 34, Newquay, Cornwall TR7 1TU.
T 01637 877170.
F 01637 850495.
E waves@waves.com
W <http://www.waves.com/waves>

will keep bidders informed about the current state of the bids. The move to the net has one other positive attribute: commission has been cut to 6% for sellers and 6% for buyers (8% if payment is by credit card).

A VEMIA, Star House, Sandford, Crediton, Devon EX17 4LR.
T 01363 774627.
F 01363 777872.
E vemia@eclipse.co.uk
W <http://www.eclipse.co.uk/vemia>

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 Tascam Porta 01 £189
 Yamaha REV 100 £199
 Alesis Microverb Really Cheap
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 Tascam Mastering Cassette Really Cheap

HURRY YOU MIGHT MISS OUT

Shape of THINGS TO COME

MUSICIANS ARE DOING IT FOR THEMSELVES

If you're a London-based musician, you could benefit from the Musicians' Network, a non-profit making, self-help collective made up of musicians, technicians, sound engineers, promoters, performers, roadies and crew. The main objective of the collective is to encourage local musical and creative activity; over the past six years, Musicians' Network have organised numerous showcase events in and around London, and have produced a compilation album which features over 20 bands associated with the Network. Open monthly meetings for 1996 are held at the Community Music House, 60 Farringdon Road, London EC1, five minutes walk from Farringdon tube station. Tel: 0171 490 2577. Meetings are

scheduled for Monday 18th February and Monday 18th March, 7-9pm, and then on the third Monday of every month.

The collective aims to enable events by pooling skills and resources, to operate an information exchange which introduces new talent to venues and also recommends 'fair play' venues to bands, to help performers retain control over their work by independently publishing and promoting, and to provide educational advice, training and employment opportunities for all musicians and technicians involved with the Network. It also publishes a regular newsletter, simultaneously available on the Internet and on a BBS.

- A** Musicians' Network, 186 Brecknock Road, London N19 5AB.
- T** 0171 701 3587/0171 209 2424.
- F** 0171 209 2423.
- E** musicians_network@phreak.intermedia.co.uk
- W** <http://www.musiciansnetwork.org.uk/mn/>

Full flight cases are the ideal when you have expensive instruments to transport, but they're not cheap. Midland Flight cases think they have the answer with their polymer cases, which they consider a "tough and economical alternative". Though polymer plastics are commonly used in commercial case building, they're not yet widely known in the music industry. They're resilient, waterproof, will not tear or shatter in use, and form tough and serviceable cases. Midland's polymer case construction includes corner reinforcements in steel or polymer, lifting handles, and strong wire reinforcement incorporated into case rims. In addition, cases can be foam-lined, and castors or

MIDLAND ON THE CASE

wheels can also be fitted if required. If you're the flamboyant type, you can also specify your polymer case in navy blue, royal blue, bright or dark red, grey, mid-green or bright yellow, as well as the inevitable black. Midland note that polymer cases are usually well under half the price of the equivalent size traditional flightcase, and a fraction of the weight. Call Stuart Ashby at Midland for more details.

- A** Midland Flight Cases, Unit 17, Enterprise Workshops, 76 Linden Street, Leicester LE5 5EE.
- T** 0116 273 3035.
- F** 0116 249 0845.

news from NAMM

Every January we trek across to the California NAMM show to see what's around the proverbial corner. This report takes the form of a few words looking at some of the general trends of the show, plus a more detailed look at what some of the larger exhibitors unveiled.

Much of what's on show each year at NAMM is predictable, and yet each year we do still come across a few products that are genuinely new and surprising. We also come across things that make us question the sanity of the company trying to market them — the combined plectrum and maraca being one of them! There are also some products that could only make it in America, such as the Digital Hymnal, which can churn out over 5,560 songs of praise at the touch of a button, at the same time as telling you which hymn book and page number to turn to!

Since the Yamaha 02R, more digital mixers have been

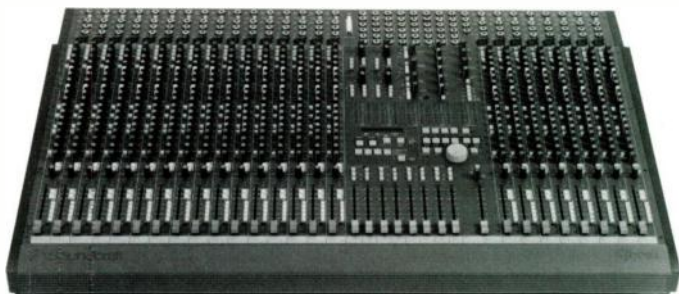
anticipated, but only Korg had anything similar (see below). The potential digital market is still swamped by the size of the analogue mixer market at present — most UK companies were showing new models, including **Studiomaster's** Trilogy desk (01582 570370), **Soundtracs'** Topaz Maxi 8 (0181 388 5000) and **Soundcraft's** Ghost (01707 665000), which is an upper-mid class, 8-buss analogue console with auto-muting, Sony 9-pin compatibility, and extensive MIDI control. US company **Mackie** (Key Audio: 01245 344001) have expanded their VLZ range and introduced a new Ultramax



automation system. The digital home multitrack market is also now starting to hot up, with Roland's VS880 already on the market and Tascam's Minidisc-based 4-track set to join the Fostex DMT8.

Quirky NAMM products include the Zoom Fire (MCM: 0171 723 7221), a guitar effects preamp with a built-in 10W amp and speaker which looks like a Star Trek communicator! Roland's PMA5 is a combined sequencer, GM/GS synth, arranger and ideas pad designed to look like a pocket organiser, and Korg have gone a similar route with their palm-sized Toneworks Pandora effects/guitar preamp box, which looks like a Gameboy console!

Once again, a lot of the exciting developments took place in software, with all the major sequencer manufacturers





100%

Ghost
Soundcraft

Shape of THINGS TO COME

NEWS from NAMM

On the keyboard front, most models were spin-offs from existing instruments. One exception was the **Korg Oasys** (see below) which offers polyphonic physical modelling as well as emulation of traditional synthesis methods. Virtual synths were also on the increase, and as more products like InVision Interactive's software synth *CyberSound* crop up, we're likely to see a greater shift towards instruments based entirely on software, or on software plus dedicated hardware or computer cards.

For the hi-tech guitarist, **Roland** have produced updates and add-ons for their VG8 system, plus a new guitar pre-amp/effect processor based on the same technology. However, the biggest surprise was from a new company called **Line 6**, though the engineer behind the product is none other than Marcus Ryle, perhaps best known for his design work for Alesis and Oberheim. The AxSys 212 from Line 6 is a complete stereo guitar amplification system based on a digital guitar preamp, a stereo analogue power amp, and two 12-inch speakers. The preamp uses modelling to emulate the tonal qualities of vintage tube amps and various guitars, (including acoustics) and is powered by two advanced DSPs. The retail price should be under £1000.

At the other end of the scale, the guys at Tech 21 (MCM: 0171 723 7221) showed an all solid-state guitar combo which included a balanced DI output and a speaker simulator for recording, as well as a genuine Accutronics spring reverb.

IN MORE DETAIL...

After the recent launches of the ADAT XT, the D5 drum module and the Microverb IV, we expected a quiet time from **Alesis** (Sound Technology: 01462 480000) this NAMM, but they had three more surprises for us. First was the QS8 synthesizer, a 64-voice, 88-key instrument with a weighted keyboard featuring velocity, release velocity and

aftertouch, and 16Mb of memory which can be expanded to 32Mb. It also has four independent stereo multi-effects processors and four real-time assignable control sliders, plus 640 sounds (expandable to 1792), including a new grand piano. *Soundbridge 2.0* software may be used to import WAV or AIFF samples from Mac or PC, and an optical ADAT connection is included as standard.

At the other end of the scale is the 18-bit NanoVerb. Like the original Alesis Microverb, its effects set is based on 16 presets,

engine also makes a very powerful synth, and the instrument includes a digital modular synthesis patchbay with multiple sources and destinations, to emulate the flexibility of a traditional patchable synth. There's also a dual stereo effects processor.

Digital mixing is obviously hot news at the moment, which means that **Korg's** (01908 857100) SoundLink Digital Recording System attracted a lot of interest. The 168RC recording console is the first part of the system to be shown, a 16:8:2



but this time an Adjust knob lets you change the most important parameter for each effect. Reverb, delay, chorus, flange and rotary speaker effects are included, and from what I can tell, the digital engine is the same as that used in the new Midiverb and Microverb machines.

Finally, Alesis have developed their own ATK drum pad system, to complement the D4 and DM5 drum modules. The set includes seven drum pads, a bass drum pad that accepts a standard pedal, and a specially designed hi-hat pedal.

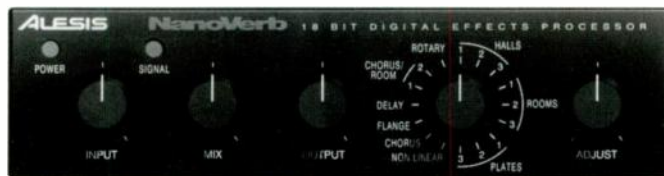
Emu's Dave Bristow proudly announced that as Emu (0131 653 6556) is known as a keyboard company, it really should get around to building a keyboard — and the result is the EIV. In some ways this is an EIV in a keyboard, but the designers have gone to great lengths to provide first-class performance controls, as well as making the instrument expandable and performer-friendly. You can choose from 64-voice or 128-voice polyphony, updating from one to the other later with no price penalty, and you can add up to 128Mb of RAM. The EIV

format mixer equipped with two ADAT optical inputs, eight analogue inputs with 18-bit conversion, and two onboard effects processors. Judging by the mixer's small physical size, extensive use is made of assignable controls.

Also announced was the SoundLink DRS 1212 I/O PCI multichannel Audio Interface with *Deck II*, which features OSC's software specifically designed for audio applications, in addition to 12 inputs and 12 outputs configured as two analogue I/Os, an S/PDIF I/O and an ADAT optical I/O. Other Korg recording products included the new RM8 Reference Monitors and the RMA 240 monitor amp.

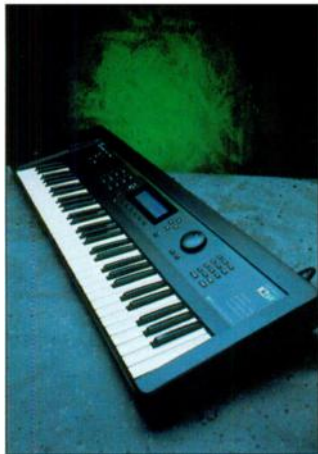
Korg were also demonstrating the Prophecy and Trinity synths, as well as the Oasys open architecture synth, which is capable of polyphonic physical modelling as well as more conventional synthesis — see preview in *SOS's* March 1995 issue. Rather less exotic, but still impressive, is the i5M interactive music module — see item elsewhere in this month's news.

In addition to the K2500R range, which includes both rackmount and keyboard-equipped models (see preview of the K2500X on page 31), **Kurzweil** (Washburn: 01462 482466) were showing the new K2vx sampler, and its companion, the K2Svx, which will take their



▶ brushing up their versions and training their guns on the expanding PC market. Both Roland's VT1 voice processor and MOTU's latest version of *Digital Performer* (MusicTrack: 01462 733310) also include some kind of formant-corrected pitch-shifting. Conventional pitch-shifters also shift body and throat resonances, making the result sound rather cartoon-like, but in theory, formant correction will help cure this.

New company **BIAS** (001 415 331 2446) were showing *Peak*, a Mac-based stereo editor/sample manipulator, while **MSI Metalithic** were showing a Windows-based, multitrack hard disk editor offering 128 virtual tracks, non-destructive editing, multiple levels of undo and full waveform editing. No UK distributor has been announced as yet, but it's only a matter of time.



places at the top of the K2000 line. These 61-note-keyboard instruments include 24Mb of sound ROM with 600 programs, 300 setups, and 80 Quick Access banks; a 32-track sequencer; and Kurzweil's AFMS data management system. In addition, the K2vx is compatible with existing K2000 sound libraries, and can read most other major sample formats. The K2vx has 24Mb of onboard sound ROM, and both the K2vx and K2Svx feature a 3.5-inch high-density floppy drive and SCSI interfacing. Four independent audio outputs are provided, plus a mixed stereo output pair. The onboard sample RAM can be expanded to 64Mb with standard SIMMs, and program RAM can be expanded to 760Kb (battery-backed).

Lexicon (Stirling Audio: 0171 624 6000) launched the new PCM90 Digital Reverb, which features reverbs derived from the high-end 480L and Model 300, plus a new Concert Hall, with Spatial EQ and compression, and Chamber/Room. They also introduced a series of new effects cards for the PCM80. The Dual effects Card (see Shape January 1996) has been joined by the new Pitch effects card. In addition to pitch effects, full stereo Lexicon reverb is available, and six new algorithms are included, namely: Stereo Chamber, Dual Chamber, Dual Plate, Dual Inverse, VSO Chamber, and Quad Hall.

Opcode's (MCM: 0171 723 7221) *Vision 3.0*, OMS 2.0 and *Galaxy 2.0* for Macintosh are now available. *Vision 3.0*, which

replaces the discontinued *StudioVision AV*, has added digital audio through Apple's Sound Manager, using the Power Mac's own audio hardware. This gives the ability to display and edit audio waveforms alongside MIDI data. *Vision 3.0* is also being made available to PC users, though there are no plans to produce a PC version of *Studio Vision* at the moment. OMS 2.0 features more streamlined operation and MIDI instruments are auto-detected along with interfaces. The new

keyboard front, the new XP80 features the same JV1080 synth engine as the XP50, coupled with a weighted, 76-note keyboard, with 64-voice polyphony and 16-part multitimbrality, plus four expansion slots, comprehensive sequencer and onboard arpeggiator.

Physical modelling for guitarists continues to evolve, while coming down in price. The GX700 Guitar Multiple Effects processor provides 21 effects, with up to 13 available simultaneously. The built-in preamp and speaker simulator use

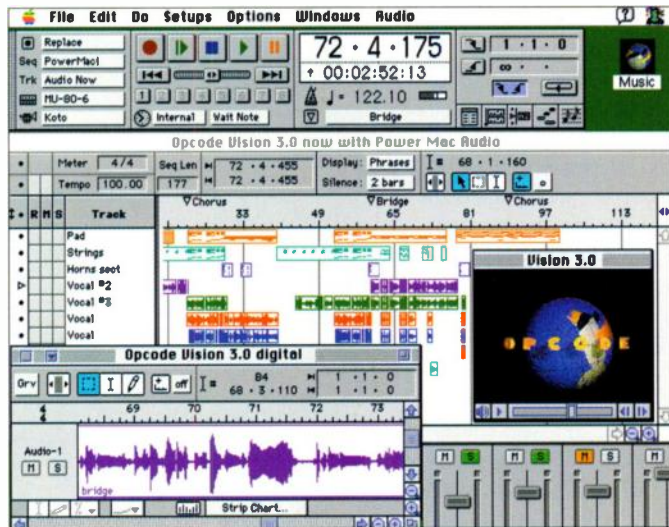
Music Assistant can be thought of as a palm-top digital organiser for musical applications, and features a GM/GS sound source, Standard MIDI File compatibility, an 8-track sequencer, Mac/PC interface, and an intelligent arranger, controlled using a touch-panel interface. The integrated sequencer and intelligent arranger offer four melody tracks and four backing tracks, and music data can be entered in step or real time with instant recall of up to 20 songs (approximately 21,000 notes).

On the studio processor front, the SN700 Noise/Hum Eliminator is designed to identify and isolate troublesome frequencies and noise sources, such as dimmer buzz, fluorescent lighting and ground loop noise. Both D/A and A/D conversions are 20-bit, and there's an auto mode to make setting-up easy.

The new Boss SX700 true stereo effects processor provides access to as many as five simultaneous effects from the 27 on offer. New features include 3D panning, utilising Roland's proprietary RSS technology, and a four-voice intelligent pitch-shifter. Also on display was the VT1 Voice Transformer mentioned above. This might appear to be a gimmick aimed mainly at the DJ market, but I believe it to be the emergence of a long-anticipated technology that will revolutionise the way we record vocals.

TEAC's (01923 819630) new products were so new that no press information was available on any of them, but a brief tour of their booth soon revealed what they were up to. The M2600 MK12 is a 32:8:32 version of the basic 2600 recording console with a fitted meter bridge, while the new M08 mixer is a suspiciously Mackie-like 12:2 mini mixer which features four mic channels, trim on all channels, two-band EQ and two stereo effects returns. Including stereo tape returns and the four stereo line channels, there's a maximum of 16 inputs. A neat feature is buss input subs, allowing two or more mixers to be used together.

Though the Portastudio market



Opcode Vision 3.0 Screen.

QuickTime Music OMS driver lets you audition songs using Quicktime GM sounds in any OMS-compatible application.

Galaxy 2.0 now features Name Manager, making the link between *Galaxy* and *Vision* even more dynamic. *Vision* displays all patches from *Galaxy*, so bundles can be easily viewed by name or number and even be grouped by bank or keywords.

The high point of the **Roland** (01792 702701) range was the new VS880 'digital studio in a box'. In addition to 8-track recording on hard disk, the VS880 offers automated mixing, virtual tracks and optional plug-in effects — see full review starting page 116 this month. On the

Roland's proprietary Composite Object Sound Modelling (COSM) technology, which allows you to choose from a collection of amp 'models' and speaker cabinet/configurations. The usual digital effects are augmented by analogue distortion and multi-voice intelligent pitch shifting.

For VG8 users, Roland has released a System Expansion providing access to four new instrument models, as well as improving existing ones; the new models include a hollow-body guitar, hollow body amp and dual amp, and 'vio guitar'. The upgrade also adds another 64 presets to the VG8.

Bass players also get a look in via the new ME8B Bass Multiple Effects Processor, which offers compression, EQ, delay, chorus and pitch-shifting, as well as some effects accomplished via a brand-new DSP chip. Unique effects include 'Defretter', which turns any fretted bass into a 'fretless' at the touch of a pedal.

Roland's new PMA5 Personal



Shape of THINGS TO COME

NEWS FROM

any other Portastudio, and with the current cost of blank MiniDiscs, the running cost shouldn't be much higher either.

The DA88 has a new little brother, the DA38, which is effectively a lower-cost version of the same machine but without the ability to synchronise to an outside source. However, the DA38 can sync up as part of a DA88 system, making it an attractive proposition as a slave machine. In MIDI studio applications, it can be used as an MTC master in conjunction with optional hardware.

Yamaha (01908 369269) were showing their QS300 (see review in January 1996), as well as the SU10 sampler (see review starting on page 88 of this issue). Also unveiled was the CBX K1XG MIDI Sound Keyboard, a mini-key MIDI controller incorporating the same XG synth technology as the MU50, and providing 737 voices, 32-note polyphony, three programmable effects processors, and comprehensive XG MIDI control. The keyboard is 37-note, velocity-sensitive, with pitch bend and centre-detented assignable wheel, computer interface, audio input, built-in stereo speakers and headphone output.

Sadly, there hasn't been space to discuss the Fostex CX8 (SCV: 0171 923 1892), let alone Emu's new Jazz drive-equipped Darwin, but before I slide gracefully off the bottom of the page, I should give mention to two more products on display; the impressive TC Wizard/M2000 20-bit effects processor (Raper & Wayman: 0181 800 8288), and also the Technics WSA1R (01344 853175), which puts the power of their WSA1 in a rack. To those who we've neglected to mention, we can only apologise and blame a mixture of jet lag and lack of paper — we'll try to make amends after Frankfurt. □

is officially in decline, there's a new Tascam model, the 424 MkII, which boasts XLR mic inputs, dual-speed operation and sweep-mid EQ. The mixer has four mono plus two stereo channels, and uses dbx noise reduction. Rather more intriguing was the first official outing of the 4-track MiniDisc-based 564 Digital Studio, which uses an extremely cost-effective recording medium, and also has sophisticated bouncing modes that would seem to let you mix all four tracks by bouncing them to one track in a new song. The styling of the 564 is very much like that of



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ProTools Project is a new digital audio workstation designed to provide ProTools functionality at an affordable. The new ProTools Project Core System includes ProTools software bundled with the Session 8 Mac audio card, renamed the ProTools Project Audio Card. Interface choices include the 882 I/O, the 882 Studio I/O and the 888 I/O. ProTools Project is a complete digital audio workstation that provides 8 tracks of recording and many sophisticated editing and mixing tools and will be available soon. Audio Media III with Session software is a new multi-track digital audio production system for the Windows operating system. It provides 2 to 4 tracks of hard disk recording and 8 tracks of simultaneous playback and has PCI bus architecture.

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Revox B77	£ 452	Soundcraft Spirit Studio 16	£1,999	Phillips 2x CD-R522	£ 1,999	
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Tascam DABE	£POA	Roland M240	£799	POA	Aral CD-ROMs	
		Roland M400	£899	POA	Emu E3100	£ 2,198
		Speck Ultrastar	£899	POA	ProTools Core & 882 Interface	£ 1,829
		Maxtor 24.8 Giga	£1,999	CALL	ProTools Core & 882 Interface	£ 1,265
					ProTools III Package	£ 1,999

adj (1927.) : installed and ready to operate

Akai's professional samplers now have XL tagged on the end. As a result the **S3000XL** is now **£1,799** & the **S3200XL** **£3,499** which is unbeatable value for the features. Both take SIMMS come with the Akai's MESA sample editing software for the Macintosh. The S3000XL comes as standard with SCSI & digital connections & the S3200 has the new **EB16** multi-effects board, 'a true 4 channel fx processor' providing a range of standard fx, up to six simultaneously.

We have the complete Time & Space sound CD/CD-ROM catalogue on Sony CD carousel, + full E-mu and Akai CD-ROM libraries + mountains of Turnkey library & available for anyone interested purchasing an **E-mu** or **Akai** sampler from us.



Without doubt the most powerful commercially available synthesizers ever made, the Yamaha VL series have brought the first major break-through in synthesis technology since the advent of FM. Not only that, but Yamaha's implementation of Physical Modelling gives the most breathtakingly realistic acoustic simulations available as well as fantastically powerful lead and bass synth sounds.

We have also commissioned top programmers at Yamaha's R&D department to produce a 'Dance and Techno' sound set which we're giving away with the units.

The VL-1m is a 3U 19" rackmount unit and is duophonic. The VL7 is a monophonic, 4 octave keyboard with velocity and aftertouch sensitivity, and comes bundled with the breath controller and expression pedal.

Our prices (£719 - VL7, £809 - VL1m) represent 65% and 60% discounts from the RRP and offer a once in a lifetime opportunity to own a classic synth with real character. We have strictly limited quantities of the last ever units and orders will be fulfilled on a first-come, first-served basis. Buy now to avoid disappointment - this is the deal of the year!



We have on permanent demo all of the available Modular Digital Multitracks whether it's the new **ADAT XT**, the **Tascam DA88** or the **Fostex RD8**. Yamaha's awaited **O2R** digital console is expected in this month, call for a demonstration. We also have in stock a range of

Spirit 24 Studio & ADAT	£4,699
Mackie 24/8 & DA88	£POA
Soundcraft Sapphire 28	£6,999
Yamaha O2R	£7,049

The **NEW Waldorf Pulse RRP £599** synthesizer is here. The SOS Feb 96 review said of this wonderful little box 'this is an excellent monosynth that can deliver first class analogue sounds...incredibly versatile and full of possibilities'. The **Waldorf Wave** is the programmer's synthesizer with an unmatched sound quality. Call for an appointment. The **MicroWave** and **Oberheim Matrix 1000 hardware editors** are a must for any owner of one of these synths. Both have 'knob control' of all the important parameter (i.e. Filter Cutoff/Res, ADSR) all housed in a sexy little box with wood end cheeks!

The **Miniworks Analogue Filter** has the legendary filter of the MicroWave & take any audio signal, whether from a sample, mic or guitar. A resonant 24dB low pass filter, ADSR envelope curves. Via a sequence, all settings can be operated in real-time a MIDI controller.

Waldorf MicroWave V.2 synth	£1,099
Waldorf Wave synthesizer	£6,295
Waldorf 24db MiniWorks Filter	£349
Gekko Chords & Trigger	£69
MicroWave Hardware Editor	£369
Matrix 1000 Hardware Editor	£369
MicroWave Signature ROM Cards	£58
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Kurzweil K2500

Keyboard Production Station

can't help it. The prospect of a new synthesizer from the Kurzweil stable gives me the sort of tingling feeling I used to get as a child on Christmas morning. The arrival of the new K2500 keyboard is certainly no exception. Unfortunately, that arrival came too close to our press date to make a full review possible, so for the moment I'll confine myself to an hands-on overview, before plunging into all its labyrinthine complexity — watch this space!

CONNECTIONS

The K2500 certainly seems more than merely a keyboard-endowed version of the rackmounted K2500R. Its sheer weight is enough to suggest that Kurzweil have added a few more features. The rear panel is fairly bristling with connectors, including four pairs of audio outputs, in addition to the main mix outputs. Given that keyboards are usually the poor relations of modular versions in this respect, I'd call this a generous offering.

Digital output is catered for in both electrical and optical forms. For control purposes, there are four footswitch sockets, two control pedal sockets and a breath controller input (oh, what a joy to type those words!). A pair of SCSI ports is provided for the connection of external storage devices, one of which is designated as a SCSI thru. Another helpful feature is a switch that enables the MIDI thru socket to double up as a MIDI out, duplicating the data appearing at the normal MIDI out. This should help in situations where the K2500 is to be utilised as a mother keyboard.

For sampling types, the K2500 can handle both balanced, low-impedance or

unbalanced high impedance signals. Optical and electrical digital inputs are also available.

KEYBOARD & CONTROLLERS

The K2500 has a semi-weighted keyboard. Although I'm not generally much taken with weighted actions, in the brief time I have played with this one, I have to say that I'm more than content with its responsiveness and overall feel. The 76-note range is also very welcome on a synth with this breadth of tonal range. For those who make use of Kurzweil's highly effective sequencer, first seen in the K2000's version 3 software release, the start/pause, stop and record controls have now found their way onto dedicated front panel buttons. Kurzweil have obviously been listening to their customers!

Just above the keyboard is Kurzweil's newest weapon, in the form of a ribbon controller. For those who have not had the pleasure of meeting a ribbon controller before, the principle is quite easy: play a note or two on the keyboard, then reach out and press down on the ribbon. Nothing will happen until you slide your finger from side to side, at which point the pitch of the note(s) you are playing (assuming the ribbon is set up to modulate pitch, of course) will bend as you move your finger along the ribbon. For long, downward sweeps, start with your finger at the right-hand end of the ribbon and pull down; for long upward sweeps, do the reverse. I recall the days of giving myself severe friction burns along the ribbon of the mighty Yamaha CS80, and loving every minute of it [*it's just as effective to use your finger — Ed*].

Perhaps more intriguing are the bank of eight faders and switches to the left of the

The long-awaited keyboard version of Kurzweil's flagship synth is finally unleashed.

PAUL WARD nearly falls out of his P-RAM with excitement...

control surface, labelled 'Assignable Controllers'. A quick glance at a MIDI monitor told me that the faders are certainly putting out MIDI control data, but what of the internal mixer? At the time of writing I hadn't yet pressed these into service (if you'll pardon the pun), but the prospect for MIDI-controlled mixing and editing is enticing.

GENERALLY SPEAKING

Like its rackmount predecessor, the K2500 is 48 note-polyphonic, and utilises the now familiar VAST (Variable Architecture Synthesis Technology) synth engine to produce its range of tone colours. With a total of 60 DSP functions arranged in 31 possible algorithms, and each of the 48 voices capable of being given its own DSP treatment, the K2500 is not short on audio muscle. The fast Motorola 68340 CPU in the K2500 allows for eight drum channels to be operative, unlike the single drum channel of the earlier K2000.

In keeping with the K2500R, the K2500 holds a base ROM of 8Mb, expandable to a maximum of 28Mb with the addition of Kurzweil's ROM SoundBlocks. Up to 128Mb of sample can be added, in the form of Macintosh-type 30-pin SIMMs. 240Kb of battery-backed RAM holds program and song data, this being expandable to 1.25Mb via the optional P-RAM upgrade kit.

The operating system resides in Flash ROM, making upgrades laughably easy. I can see this is becoming an increasingly important part of modern music technology, and it's nice to see a company prepared to carry the flag.

That's all for now. In the full review, we'll get down to the nitty gritty. Maybe I'll even get to see a manual... **SOS**

FURTHER INFORMATION

- £** K2500 (76-note) £3499; K2500X (88-note) £3799. Prices include VAT.
- A** Washburn UK, Amor Way, Letchworth, Herts SG6 1UG.
- T** 01462 482466.
- F** 01462 482997.



Sennheiser Drum

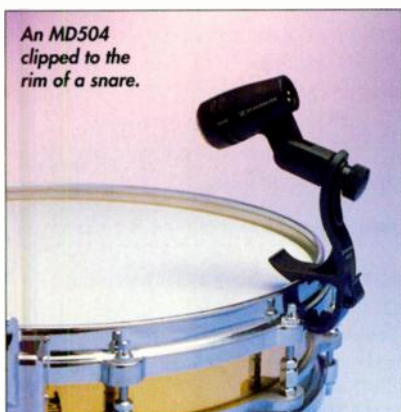
- MD 504
- MD 421
- K 6 P / ME 64

When the going gets tough, should the tough get a Sennheiser's drum kit microphone set? PAUL WHITE finds out.

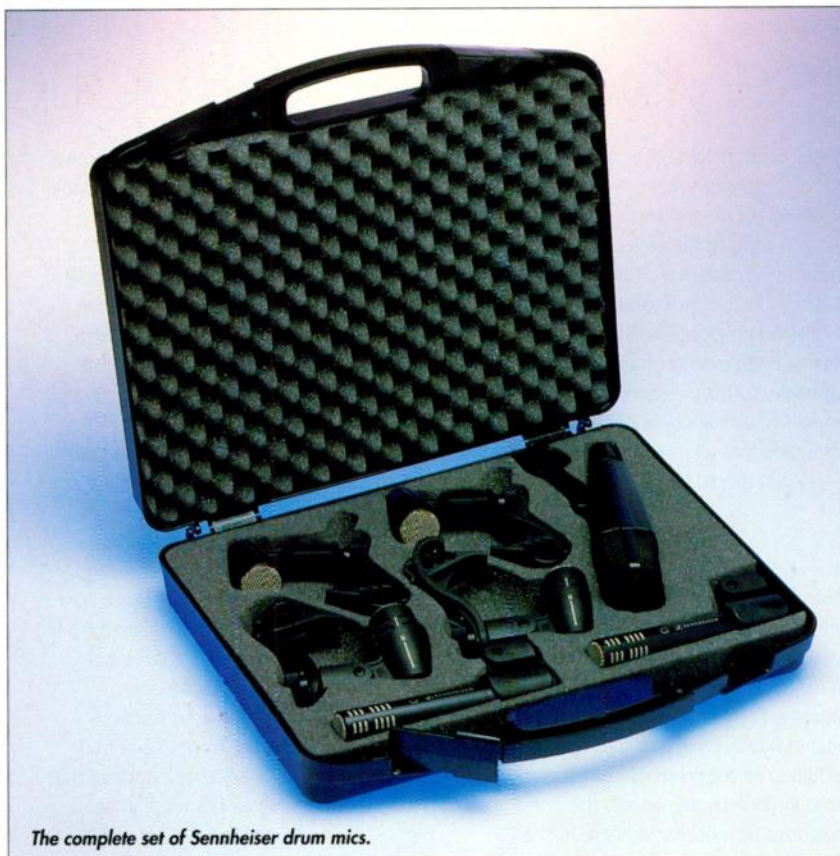
Drum miking is often regarded as a black art, with different engineers preferring different combinations of mic types and positions — so Sennheiser have taken the very sensible step of compiling two sets of mics that have been proven to give good results. The basic set comprises four MD504 drum mics complete with drum rim-mounting clips, and is packaged in a lightweight, foam-padded plastic briefcase. This briefcase can be made up into a more comprehensive set by the addition of an MD421 with which to mike a bass drum, and a pair of K6P/ME64 capacitor mics for use as overheads.

MD504

The MD504s are specifically designed for drum use (particularly snare and toms), their short bodies solving most of the positioning problems experienced with standard microphones. The integral clip assembly enables the mic to be mounted directly onto the drum rim, eliminating the need for stands. The clip has three possible mounting angles, and once the mic is secured in its nominally correct position, small adjustments can be made to both head distance and angle, thanks to the fully-movable mic head. The MD504s



An MD504 clipped to the rim of a snare.



The complete set of Sennheiser drum mics.

are dynamic cardioid mics with a usable frequency range of 40Hz to 18kHz, and although they may not appear very sensitive at 1.8mV/Pa, bear in mind that they are destined to spend most of their lives only a couple of inches above a drum head! As with the rest of the mics in the kit, the body terminates in a conventional, balanced XLR connector.

MD421

The MD421 is most often seen on toms or even used for vocals, so it may seem an odd choice for a bass drum mic. However, it is a very flexible microphone, capable of withstanding huge sound pressure levels, and has a decent amount of bass extension. If ever a dynamic mic deserved to be called a jack of all trades and master of most of them, the MD421 is probably it.

Technically, the MD421 seems similar to any other dynamic cardioid mic, but the resulting sound is clearly defined, yet at the same time, solid. (I seem to recall that the originals were tested on a tank firing range, with the result that they didn't distort until they reached the kind of SPLs that would make an average human's eardrums meet in the middle of his head!) A generic mic clip is unlikely to be suitable for the MD421, so it has its own built-in stand clip, and

while this prevents the mic from falling out of the holder, its main disadvantage is that the correct replacement parts have to be ordered should the clip get broken.

K6P/ME64

As overhead mics are used with cymbals as well as drums, they require the extended frequency range of capacitor models, which is why Sennheiser have chosen to include a pair of K6P microphones equipped with ME64 cardioid polar-pattern capsules in this kit. These mics require phantom power in the range 12 to 48V, though they may also be powered from a 1.5V battery. A recessed slide

THE COST OF THE KIT

BASIC SET:
4 x MD504 microphones @ £104.58 each.
4 x MZH504 clips @ £22.33 each.
Plastic briefcase.
Total for set: £507.64.
ADDITIONS:
MD421 microphone @ £327.83 each.
2 x K6P microphones @ £173.90 each.
2 x ME64 capsules @ £146.88 each.
Total for additions: £969.39.
Complete Set: £1477.03.
Prices include VAT.

Mics

switch allows the battery to be turned on and off, and a small LED indicates when it is in use. A bass roll-off switch fitted to the body provides a gentle roll-off below 500Hz. Once the ME64 capsule is screwed onto the mic body, the overall length is around eight inches (but the anodised aluminium body keeps the weight very low). The frequency response of the capsule is essentially flat from 40Hz to 20kHz (+/- 2.5dB), and it is surprisingly sensitive, giving 32mV/Pa, with a maximum SPL of 130dB. Additional capsules may be purchased to fit the K6P body for other applications, including shotgun and remote miniature mics.

Drum overheads need to be stand-mounted a couple of feet or more above the highest cymbals, and the normal procedure is to space them by three or four feet, then pan the outputs left and right in the mix to give a stereo image. Of course, it's necessary to pan the individual drum mics to the same positions in the stereo field, otherwise the integrity of the stereo signal will be compromised. The K6P/ME64s come with stand mounting

clips, but, as with the other mics in the kit, you have to supply your own XLR leads.

IMPRESSIONS

Sennheiser have put together a very practical package of drum mics which work very well in both live and studio applications. The purpose-built MD504s deliver a full-sized dynamic mic sound, yet are almost as unobtrusive as some of the more vulnerable miniature drum mics currently available, while the tough rim clips keep them firmly in position. Their sensitivity is only slightly below that of the larger MD421, and the tone is close to what you'd expect from something like a Shure SM57.

The MD421 has always been a good kick drum mic, combining bite with punch, and although some engineers prefer other mics for specific kick sounds, the MD421 provides a well-balanced basic sound, which lends itself well to different EQ treatments. It's probably true to say that the MD421 is still one of the best dynamic mics around, managing to sound great in all kinds of applications, from kick and tom miking to lead vocals.

I must admit to being rather surprised by the ME64/K6Ps, which not only deliver a vibrantly natural sound, but in a shoot-out with some of my large-diaphragm capacitor mics, turned out to be quite a lot more sensitive. Of course, this means that when

SENNHEISER DRUM MIC SET £1477

PROS

- Practical, all-in-one solution to drum miking.
- MD421s and K6P/ME64s are versatile enough to cover most other studio applications between them.

CONS

- The documentation is limited to spec sheets and a picture of a miked-up kit on the back of the packaging. More detailed practical guidance for newcomers to drum miking would be helpful.

SUMMARY

A well-designed, compact kit of drum mics that doesn't trade off sound quality for convenience.

you aren't miking-up drums, the K6Ps can be used on acoustic instruments, and used with a pop shield, they make great vocal mics too.

This kit is actually a lot more versatile than the 'drum mic' tag might suggest, and if you are uncertain as to which drum mics will work best together, this package is highly recommended.

SOS

FURTHER INFORMATION

- E** See separate 'The Cost of the Kit' box.
- A** Sennheiser UK Ltd, 3 Century Point, Halifax Road, High Wycombe, Bucks, HP12 3SL.
- T** 01494 551551.
- F** 01494 551550.

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Samson MixPad 9

Mini mixer

The construction might be solid steel, but you don't need the strength of Samson to lift this little mixer, as PAUL WHITE discovers.

Samson's 9-channel MixPad 9 is so small, it makes Mackie's 1202 VLZ look like a full-scale recording console. Measuring a diminutive 239 x 228 x 58mm, the MixPad 9 scores hugely on cuteness, and if you count the two stereo returns, you'll find you can mix up to 13 different signals, which is impressive for a mixer that's no bigger than a mouse mat. There's also a stereo

fitted to all channels, along with one pre- and one post-fade aux send, and a pan/balance control. There are no aux send master controls, though there are level controls for the two stereo returns. Rotary controls are used for the master output and all the channel gains, while the phones level is controlled by the main level pot.

All the line ins and outs work at a nominal +4dBu level, though they will of course handle -10dBV signals too, and for convenience, all the audio connectors, with the exception of the mic and tape inputs, are quarter-inch jacks. The external PSU input is on the rear panel, and the power is switched on from a small button on the front.

Cosmetically, the MixPad 9 combines functionality with the required dash of panache — the steel case has contoured plastic end-cheeks and a mini armrest (for engineers with mini arms?), but perhaps its best design point is the very clear, uncramped

**SAMSON
MIXPAD9 £199**

PROS

- Inexpensive.
- Good sound quality.
- Compact and simple.

CONS

- No proper metering.
- No inserts on the mic channels.

SUMMARY

An ideal compact mixer for very basic applications where good technical performance is demanded.



phono tape/CD input, but this is paralleled with the last pair of line inputs, so it can't be counted as independent.

The MixPad 9 is divided into mono mic/line channels and stereo line only channels — in this case, three of each. All three mic/line inputs are electronically balanced with gain trim controls and permanent phantom power, while the three stereo line channels are unbalanced, with separate jacks for the left and right inputs. Using the left input only configures the channel for mono use.

A smooth-sounding, twin-band high/low EQ (+/- 15dB @ 100Hz and 10kHz) is

control surface.

Conventional metering has been forsaken for a couple of peak LEDs, and in spite of slightly wobbly pots, the overall build quality inspires confidence.

USABILITY

Technically, the MixPad 9 has a respectable -128dB (weighted?) equivalent mic input noise, and an audio frequency response extending from 5Hz to in excess of 50kHz, within +/- 3dB. The distortion figures are low, the crosstalk figures are typical for this size of mixer and the maximum input level of +22dBu provides adequate headroom. Used with a capacitor mic, the performance

was as clean and quiet as I could have wished, with no trace of hiss.

Because there are no unnecessary frills, this is a very simple mixer to use. It simply combines the various inputs to a single stereo output, with the option to apply basic EQ and feed a couple of aux sends. The compromises necessary for a sub-£200 RRP seem to have been made in features rather than sound quality, so providing you don't need a 4-buss mixer with insert points or solo buttons, and you can live with the lack of metering, the MixPad 9 is a bargain buy.

Obvious applications include live performance where stereo keyboards need to be mixed with a small number of microphones, or direct-to-DAT stereo recording. But the MixPad 9 could also be used to expand a cassette multitrack system that has run out of input channels, or to provide phantom powered mic inputs in a system not normally equipped with them. At a pinch, you could even do multitrack recording if you used the pre-fade send to provide the to-tape signal, though this would obviously restrict you to recording one track at a time.

As mixers go, the MixPad 9 is about as simple as you can get, yet it doesn't seem to lack anything in performance. If you need quality without the quantity, this is an inexpensive way to get it.

SOS

FURTHER INFORMATION

- £ £199 inc VAT.
- A Sound Technology, Letchworth Point, Letchworth, Hertfordshire SG6 1ND.
- T 01462 480000.
- F 01462 480800.

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Yamaha TG 55 + 1 ROM card + 5 RAM cards (boxed)	£399
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TL Audio VI-1

Valve Interface

PAUL WHITE checks out a signal processor with no knobs, no buttons and no display, designed to add valve warmth to 8-track recording.

It seems that the more sophisticated digital technology becomes, the more people seem to want to patch a valve somewhere in the system. It would be easy to write off this trend as misguided nostalgia if it wasn't for the fact that valve circuits do 'something nice' to the sound, usually by adding some kind of benign distortion.

Why we should prefer the sound of slightly distorted music has been the subject of much debate, but I have my own theory. The vast majority of us have been brought up on a diet of recorded music, and most of what we've heard over the past three decades has been recorded and reproduced using analogue equipment. Older material may have been made using valve equipment, and valve mics remain popular even for the recording of contemporary music. The net result is that over the years, we have developed expectations as to what good recorded music should sound like, based on our experience of analogue technology.

Now that it's possible to do most things digitally, the 'analogue sound' has been pushed out of the picture, and to put it simply

— we miss it, because we were comfortable with it. This is quite understandable: if somebody takes off your rose-tinted glasses, it's only natural to want to put them back on, to stop the world looking unnaturally blue. What TLA have done in the case of the VI-1 is develop an 8-channel, rackmounted, 'rose-tinted' box for use with digital 8-track recorders.

Technically speaking, the VI-1 could be used in all sorts of applications, from 'valvizing' your console insert points to warming up several digital synths or samplers. To make it as flexible as possible, internal jumpers can be switched, allowing the input and output levels to be set independently at either -10dBV or +4dBu. In addition to ensuring the VI-1 can match any type of pro or semi-pro recorder, the independent nature of level switching also means the box can be used as a level converter.

Inside the 2U case are eight channels of circuitry, which interface with the outside world via balanced, quarter-inch jacks. Low noise, solid-state circuitry is used to handle the balanced input and output stages, as well as the level shifting, while a single triode valve stage is used to add the necessary 'flavouring'. Each stage is based around half of a 12AX7 (ECC83) valve, bringing the total valve complement up to four. The audio frequency response extends from 10Hz to 40kHz, flat within half a dB, and the unweighted noise floor is 90dB, a figure roughly comparable with the noise performance of a typical 16-bit digital recorder. The inputs have an input impedance of 10Kohm (per leg of the balanced connection), while the outputs are a

commendably low 47 ohms. The maximum level is +18dBu.

The front panel sports a solitary mains switch and an almost apologetically-small LED. There's no bypass switch, so if your plans include switching in and out of circuit without patching, you'll need the optional VI-S switcher unit, which will demand another 2U of your rack space. Providing the input and output levels are set to the same value, the circuitry has unity gain.

Next to the VI-1, the VI-S looks positively busy, but it's actually a very simple box comprising entirely passive switching. Rear-panel, balanced jack connectors are provided for both the mixer inputs and outputs, and for the multitrack inputs and outputs. Eight sets of front panel switches then determine whether the VI-1 is in the record path or replay path, and each channel also has its own bypass switch. Because the unit is passive, there are no status LEDs. Of course, if you want to be able to hijack the VI-1 for use with keyboards or for warming up a channel insert point, you'll still have to use a patchbay or put up with unplugging leads from the back panel, but for dedicated multitrack use, the VI-S provides for all possible options.

IN USE

It's quite difficult to describe the effect of the VI-1, because what it does is so subjective and also quite subtle. Because the effect is related to how hard the valves are driven, it becomes more pronounced with louder or more powerful material, while with low-level signals, very little change seems to take place



TL AUDIO VI-1 £464
VI-S £346

PROS

- Subtly flattering sound.
- VI-1 very good value.
- Quiet and transparent in operation.
- Level-shifting facility is a useful bonus.

CONS

- VI-S switching unit is a little expensive.

SUMMARY

A simple and cost-effective way of reintroducing some of the warmth and humanity of tone that digital recording sometimes seems to filter out.

at all. In an A/B, unity-gain test, the VI-1 definitely enhanced the tone of bass instruments such as bass guitars, bass synths and kick drums, but without appearing to change their level in the mix or their basic tone. It's as though the sound has been subtly changed to appear louder, thicker and smoother; yet when you try to analyse exactly what's changed, you can't really put your finger on it.

The impression is that all the sounds in a mix are better integrated and somehow not so thin, but all this is achieved without any perceptible change in the underlying tonality. I could detect very little change in the way high frequency signals were treated. There's certainly no added brightness or harshness as you sometimes get with an exciter, but even though the overall effect is more a case of adding warmth than brightness, the top end doesn't actually seem to suffer in any way, or become overwhelmed by the slight additional bass-presence.

SUMMARY

Assuming that you like what the VI-1 does to the sound, and I think most people will, the box is incredibly good value and simplicity itself to use. On the other hand, the VI-S costs three quarters as much as the VI-1, which I feel is a bit on the steep side for a passive switch box. For professional users who need to work quickly, the VI-S makes sense, but I think I'd stick to the VI-1 plus a conventional patchbay and put up with the slight inconvenience. One thing is for sure though — until the DSP boys figure out exactly what it is that makes analogue circuitry, and valves in particular sound so 'comfortable', their future is assured.



FURTHER INFORMATION

E VI-1 £464.12; VI-S £346.62.

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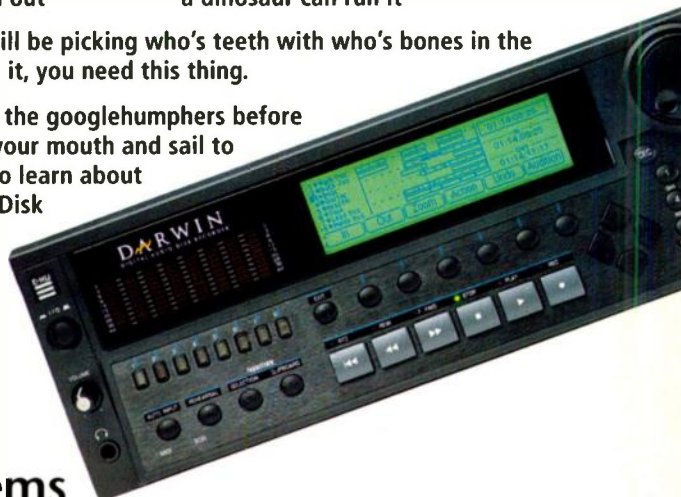
In 1856, Charles Darwin determined that the *Tape-based googlehumper* species died off because of its failure to evolve with the times. 150 years later, E-mu's DARWIN 8-track Digital Hard Disk Recorder is proving to be the salvation of the digital recording species, with its highly evolved functionality and streamlined cost. It's true: DARWIN delivers the power of digital audio workstation-style recording and editing at a price every *Homo erectus* can afford.

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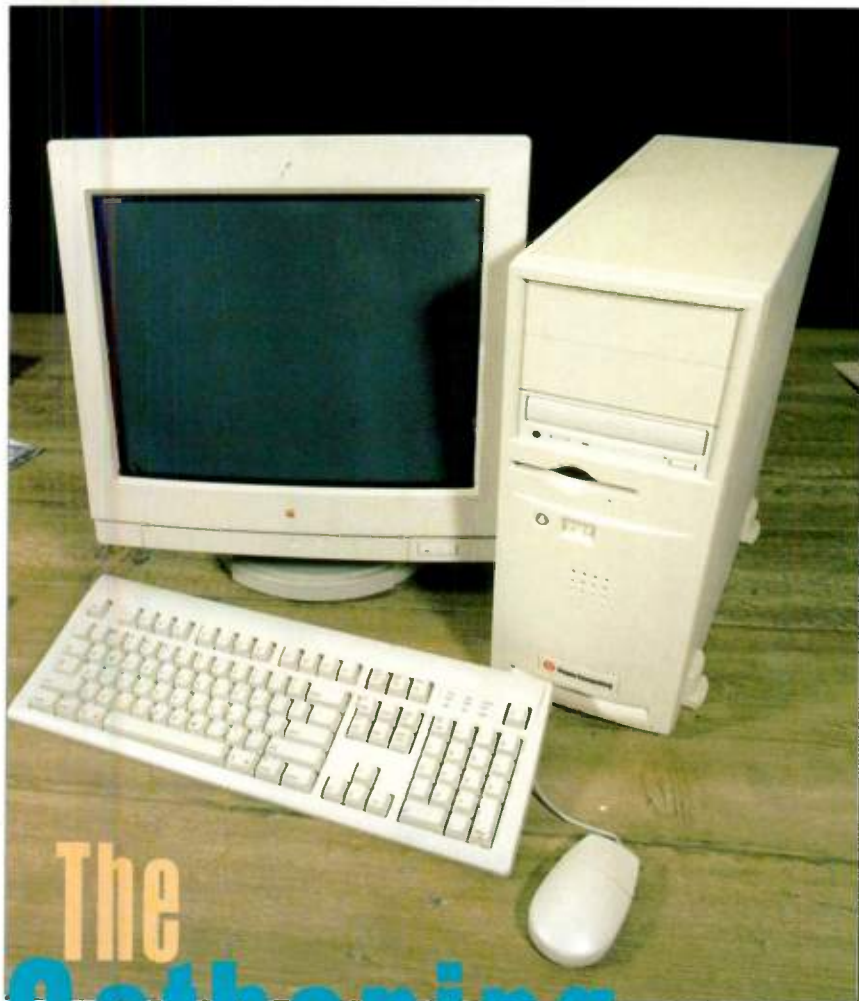
Any question about who will be picking who's teeth with who's bones in the recording food chain? Face it, you need this thing.

Don't make the mistake of the googlehumper before you. Spit that tape out of your mouth and sail to your nearest E-mu dealer to learn about the DARWIN Digital Audio Disk Recorder in the flesh. After all, DARWIN is... the natural selection.



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The Gathering of the Clones

POWER COMPUTING P120 MACINTOSH CLONE

My first Apple computer wasn't made by Apple. Back in the dark days before MIDI, there was a computer music system called an alphaSyntauri that was based around the Apple II+ computer, which I wanted very much to get. After substantial research, however, I decided to buy a Franklin Ace 1000, a clone of the Apple machine made by a company in New Jersey. The Franklin was in a much sturdier case than the Apple, came with a beefier power supply, had all the RAM I needed (the Apple required an additional 16K(!) of

Macintosh have finally started licensing their operating system to other manufacturers.

So when is a Mac not a Mac?

PAUL D. LEHRMAN looks at *Power Computing's range of Macintosh clones.*

memory), plus a better keyboard, and a lot of useful software included with the package.

Among that useful software was Applesoft BASIC, the native operating language of the Apple II, which was burned into the computer's ROM. Apple, who had created Applesoft BASIC, didn't think very much of this idea, and shortly after I bought the Ace 1000 they brought a massive lawsuit against Franklin for copyright infringement. Franklin claimed that because the computer code was in memory, and it wasn't actually 'written', it couldn't be copyrighted. The court, in a landmark decision, ruled that code was copyrightable, no matter what form it was in, and Franklin very quickly went out of business.

The court decision was probably a good thing for the industry: otherwise, we would have a world filled with umpteen different versions of 'public domain' computer operating systems, each one incompatible in some obscure but important way with the next, and stifling any kind of meaningful development. But the downside of the judgment was that it gave Apple a taste of courtroom victory. Like the crocodile in *Peter Pan* who got a nibble of Captain Hook's hand, they have been lusting for another such taste ever since, firing off lawsuits any time a rival system exhibits an Apple 'look or feel.'

Another effect of the case was that no Macintosh clones ever made it in the marketplace. Apple guarded their operating system jealously, and while a few enterprising manufacturers tried to create *faux* Macs using Apple ROM chips gleaned from repair shops and other dubious sources, none of them were successful. Elsewhere in the industry, meanwhile, so-called IBM clones were proliferating to the point where IBM itself became only a minor player in the personal computer business. Microsoft and Intel, the real forces behind the clone explosion, encouraged every electronics assembly house in the world to make PCs. The increased competition has driven prices down and performance up.

A couple of years ago, taking a belated cue from their competitors, Apple finally decided to



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► break up their own monopoly and license their operating system to a handful of other manufacturers. Two players have released Mac clones to date. One is Radius, a company closely associated with Apple for years as a maker of video monitors and accelerator cards for Macs. The Radius machines are geared for high-end graphics, video, and publishing applications. As 1995 drew to a close, Radius suffered some major losses, and as I write the future of the company looks shaky. Another company, DayStar, also known for its accelerator cards, has shown a super-high-end, parallel-processing Mac clone, but hasn't shipped any yet.

That leaves the field to the other clone-maker, Power Computing, of Austin, Texas, a new company made up of engineers and marketers who have an impressive pedigree from other firms, including Apple. The Power Computing machines are available in a range of sizes and configurations, and as it happens they are ideally suited to music and audio production studios.

NARROWING THE FIELD

Harking back to the days when the Macintosh product line was comprehensible to mere mortals, there are three models in the Power Computing range. The company originally announced a model with an 80MHz CPU (the P80), followed by a 100MHz model (the P100), but as faster CPUs became cheap and plentiful, the P80 was never manufactured, and the P100 has now been discontinued. Only a few of these made it into the UK, and all will probably have been sold by the time you read this. The model in most plentiful supply is the P120, which, not surprisingly, uses a 120MHz, 601 CPU chip. This simple nomenclature offers a refreshing change from Apple's practice of calling each different configuration by its own model number, and muddling the labels so badly that you never know whether you're getting a fully-fledged professional computer or a child's toy with no expandability. The third Power Computing line is the new Power Wave, of which more in a moment.

The P120 is available in two physical formats: desktop, designed to lie flat on a surface, and tower, designed to stand upright. The two are virtually identical, with minor differences in the ways the various disk drives are mounted. The

P120 has three NuBus slots and built-in video. Four pairs of slots are available for RAM, although one pair must always contain 4Mb SIMMs. The others can take 72-pin SIMMs up to 32Mb each, for a total of 200Mb. A floppy drive is standard, as is a hard disk drive, whose size you can specify when you order the machine, and a quad-speed, caddy-less CD-ROM drive. There are bays for two more internal drives as well. A high-performance video card, with 2Mb of VRAM (expandable to 4Mb) is an optional extra.

The computers ship with a variety of useful software pre-installed, thereby saving the user (especially the first-timer) lots of time and frustration installing what may be unfamiliar applications into a new operating system. On the hard disk are Apple's System 7.5.1; *Now Utilities*, *Now Contact*, and *Now Up-to-Date*; *Quicken*; FWB's hard-disk and CD-ROM toolkits; *ClarisWorks*; and some 250 fonts from the Bitstream library.

Every machine has the standard Mac modem and printer ports, an Ethernet (AAUI) port, external SCSI, ADB, and separate stereo audio output and input (microphone) plugs. The audio connectors are, alas, those silly eighth-inch stereo miniplugs that Apple favours, which are not known for their sturdiness or reliability. Full 16-bit, 44.1kHz audio is supported at both input and output, so that you can use these machines like any other Power Mac for (reasonably) high-fidelity audio recording and editing. As I say in my review of three software-only digital audio recording packages for Power Macs (elsewhere in this month's *SOS*), some necessary design compromises dictate that the audio performance of built-in hardware is not going to be the same as that of a dedicated card, but the Power Computing clones sound pretty good — and if I want better quality, I can pop in a Digidesign card.

IN USE

What's it like? Well, the Power Computing clone I got to play with worked flawlessly. They really are Apples — I saw at least five chips visible on the motherboard with the word 'Apple' on them. I used a variety of software including graphics, page layout, MIDI, multimedia, digital audio and communications, as well as extensions and control panels from a host of different sources, and I never encountered a single problem — except one. Opcode's *Digitrax* apparently has a problem with the FWB hard-disk drivers, and when you quit the application it crashes; not the computer, just the application. Since you've already saved your files, this shouldn't damage anything, but it is disconcerting.

The clones work perfectly with MIDI Manager and OMS, and I even had one wonderful surprise: for a laugh, I installed an old Audiomedia card, the kind that Digidesign

PRICING AND AVAILABILITY

In the US, Power Computing sells its machines only by mail order, which means that when you decide to buy a computer, you call the company and specify exactly what you want in it. The company literally assembles it for you that day, runs it through an overnight burn-in, and ships it to you a day or two later. In the UK, however, we are dependent on importers, and the main importer for Power Computing's products is the Computer Warehouse Group in London.

CWG is currently selling two versions of the PC120, with 8Mb of RAM and a 540Mb hard drive, and with 16Mb of RAM and a 1Gb hard drive. Both models have a quad-speed CD-ROM drive. If you want to compare Apples and non-Apples, the PC120 is about the same price as a comparably-equipped Macintosh 7500/100 — so you're getting a 120MHz machine at a 100MHz price. Other configurations are available on request. A date when the new PowerWave models will be available has not yet been set.

stopped supporting a few years ago when the Mac Quadras came out, because (according to Digidesign) Apple changed the timing on the NuBus slots just enough to make them unreliable. I ran an old version of *Sound Designer II* (version 2.5) — and guess what? The program recognised the card and recorded and played brilliantly with it! So I then tried *OSC's Deck II 2.2*, with the same results. Any application that uses Digidesign's DAE (including newer versions of *Sound Designer*) or Apple's *Sound Manager 3.1* (such as Macromedia's *SoundEdit 16*) won't see the card, but this is wonderful news for those of us with old *Audiomedia* cards gathering dust on the shelf who haven't thrown out those old *Sound Designer* disks.

Ergonomically, the machines are like a dream. Unlike many recent Macintoshes, which require a degree in industrial engineering to make modifications to, everything in the Power Computing machines is laid out simply and accessibly. Removing a single thumbscrew and pressing two plastic tabs (all obviously located) releases the case, which slides off the back. Once inside, the three NuBus slots are easily accessed without any of the finger-slicing acrobatic routines required in some Macs. Two of the three RAM slots are easy to get to, and the third just requires moving a couple of cables aside. A fourth comes already occupied, but you don't want to change what's in it. Both the hard drive and the floppy can be removed and replaced easily, with only a Phillips screwdriver. On the optional video card, the Apple/VGA monitor switch is easy to find, and the VRAM slots are accessible.

CONCLUSION

So do I have any complaints at all? Very few, and very minor ones. If Power Computing want to take the audio market seriously (and from conversations I've had with the company, they do), they should put RCA or quarter-inch connectors on the back for audio in and out — there's plenty of room for them. The programmer's switch and interrupt buttons on the front panel require some sort of sharp implement to push — mere fingers don't press them far enough to make contact, and so mine are getting black from the pencil I've been using.

It's also worth noting that Power Computing are not resting on their new laurels, but are pushing ahead into the next wave of Mac-compatible computers. They have announced a new line, the PowerWave, that uses a 604 processor. An expansion daughter card is planned that will support the new PCI buss or a combination of NuBus and PCI slots. This last is good news for those of us who've invested heavily in NuBus hardware (like audio cards), so we won't be left behind when the next generation of Mac peripherals becomes available.

Would I hesitate to recommend the Power Computing clones as your next Macintosh computer? Not for a second. They're true Macs, with 100% compatibility, no surprises in hardware or software, a smooth and zippy operating system, and real power. And they're at a good price. Mac lovers finally have a choice, and it's not a hard one to make.

SOS

FURTHER INFORMATION

£ P120 (8Mb RAM/540Mb HD) £1761.33, with video card £1996.32;
P120 (16Mb RAM/1Gb HD) £2113.82, with video card £2348.82.
Monitors and keyboards not included; prices start from £58.75
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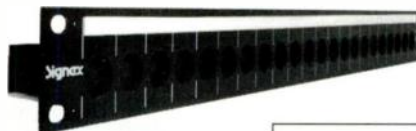
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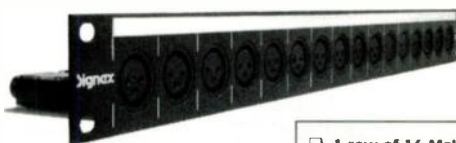
- 2 rows of 48 Bantam-type Jack sockets
- PCB construction - No internal wiring
- Integral multi-pole rear connectors
- Half or Full normalising on all channels



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- Programmable XLR phasing
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If you don't have a multitrack but you're keen to start experimenting with recording, good results can be achieved with just a couple of mics and a domestic cassette deck. PAUL WHITE shows you how to be a stereo MC...

I must have been about ten years old when I first started experimenting with tape recording, and in those pre-cassette days, all that you could get your hands on were clumsy open-reel machines that recorded in mono only, and had the bandwidth of a dictaphone. Trying to get around the limitations of the equipment was a constant challenge, whereas today you can buy a hi-fi cassette deck with mic inputs for less than £100, and use it to make

surprisingly professional-sounding recordings.

The first thing to realise about music recording is that it is very similar to photography — you can only photograph what is there, but the end result varies enormously depending on camera angles, lighting and choice of lenses. It's the same with recording music: the raw material is the musical performance, but you can capture that performance in different ways, depending on the type of microphones you use, where you position them, and the type of acoustic environment in which you choose to record.

In the early days of recording, everything was mixed down to mono in one take, but these days we've got used to stereo, where two different signals are recorded, then played back over two loudspeakers to approximate the original event. At its simplest, this means using just two microphones. This may sound limiting, but it's actually a very accurate way to record acoustic performances, and many of the best classical recordings are made this way.

The downside is pretty obvious too — the performers have to get the whole song right in one go, and the balance you capture on tape is the balance you're stuck with. Nevertheless, most early pop music was recorded much like this (but in mono) — though the luckier artistes could dub their vocals on after recording the backing track.

Pop music is pretty far removed from the way instruments actually sound in a real space, but just about any modern synth can provide a range of good stock sounds, complete with effects, which can be recorded to provide a 'produced' sound. If you have a decent instrument amp, you can use these in exactly the same way as you would an acoustic instrument. However, it's 'real, acoustic' music that benefits the most from the simple, direct-to-stereo approach, where the quality of the end result is limited only by your recorder and your choice of microphones.

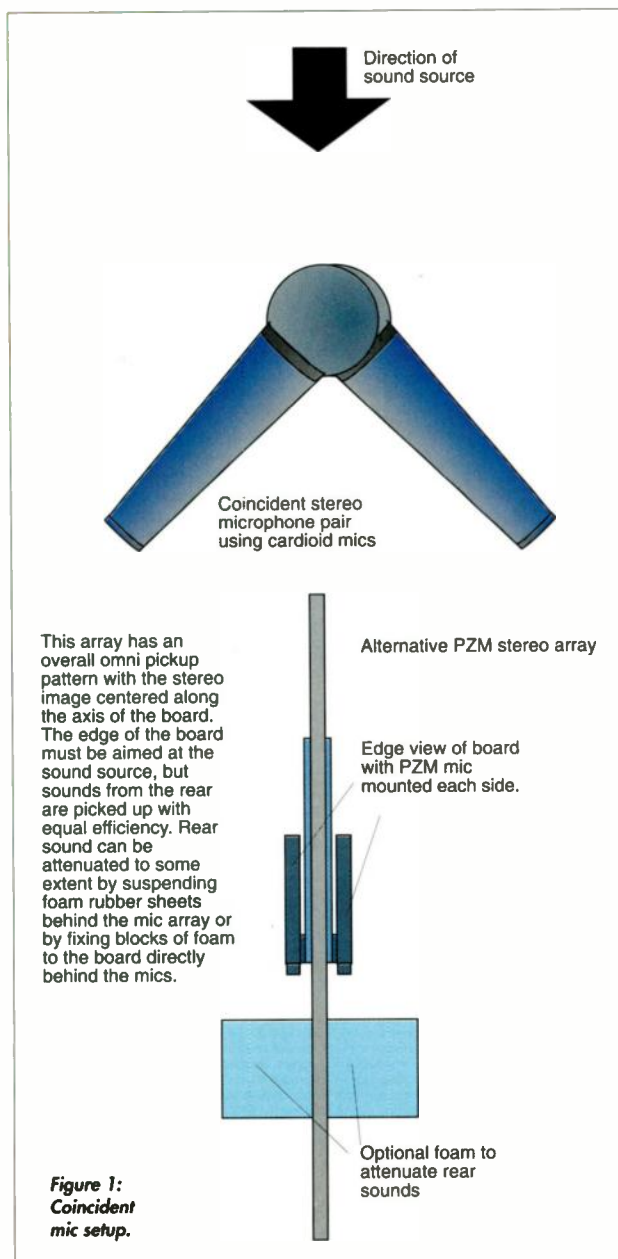
Various types of microphone may be employed, from the famously cheap Tandy PZM (see the box on these elsewhere in this article) up to a battery-powered, back-electret model — the AKG C1000S, or the attractively-priced Audio Technica ATM33a (see review in *SOS* January '96) are just two examples. Professional recordings tend to be made using more expensive capacitor mics, but these invariably require phantom powering, and phantom power isn't available on hi-fi cassette decks. There are several different ways of setting up your microphones, depending on what type of mic is available and the circumstances of the recording.

BASIC STEREO MIC TECHNIQUES

We've covered parts of classic stereo mic techniques in *SOS* on numerous occasions in the past, but in this article I'm going to recap on the basics (which I haven't covered since the August '92 edition of *Recording Musician*), before suggesting where each method might be useful.

• THE COINCIDENT PAIR

Also known as 'XY', this is a coincident mic configuration traditionally involving two cardioid or figure-of-eight microphones mounted at right



angles to each other, as shown in Figure 1. In practice, figure-of-eight mics tend to be used only in specialist applications, so for the sake of this article, I'll concentrate on the far more common cardioid or unidirectional mic. Because cardioid mics pick up sound mainly from in front, angling the mics as shown means that one mic will pick up sounds predominantly from the left of the soundstage, while the other will pick up sounds mainly from the right. To make a stereo recording, the output from the left-hand mic is recorded onto the left-hand track of the tape recorder, and the right-hand microphone onto the right-hand track.

This configuration is called a 'coincident pair', because the two microphones are mounted as closely as possible to each other, so that the sound being captured arrives at both microphones at exactly the same time, regardless of the direction it's coming from. This would only be strictly true if the two mics occupied exactly the same point in space, but for all practical purposes, mounting them next to each other is close enough for most applications. Coincident miking is favoured by many broadcast establishments, because the signals from the two microphones can be added together to form a mono signal without phase cancellations causing tonal problems. The stereo image produced by the coincident pair is not as dramatic as can be achieved using other methods, but the benefit of good mono compatibility should not be undervalued. If you're recording something that may need to be played on radio or TV, then mono compatibility is supremely important, because of the number of mono sets around.

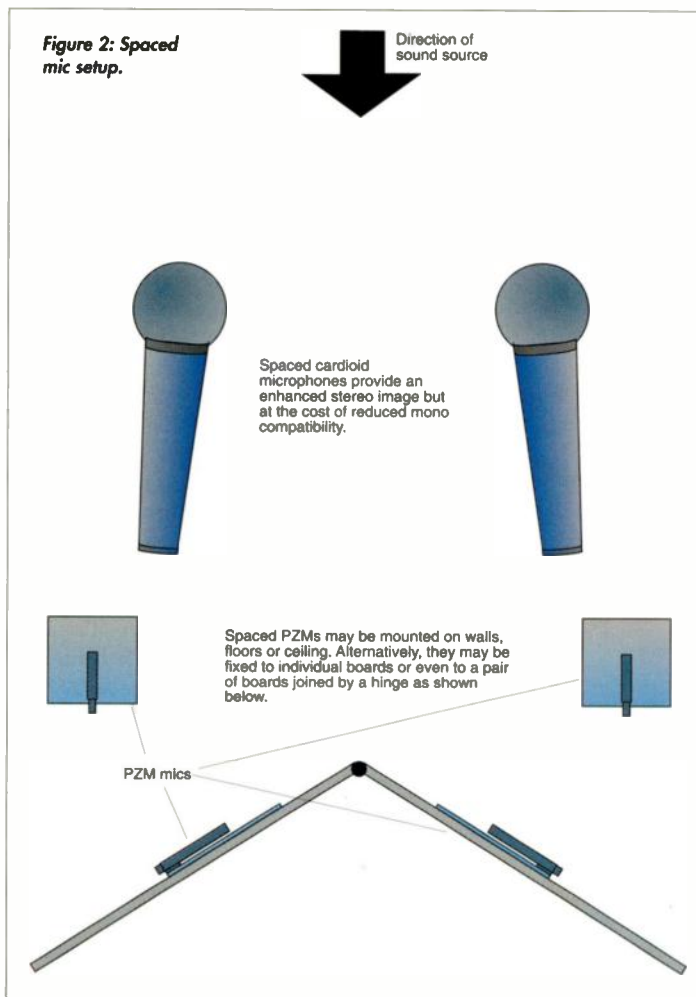
A further benefit of the coincident cardioid setup is that, because the mics favour the sound directly in front of them, the room acoustics are less likely to interfere with the recording, and unwanted sounds from behind the microphones will be attenuated.

If using PZM mics, the equivalent of the coincident setup is to have one mic fixed to each side of a board around 1 metre square (close to the centre, but not exactly at the centre), and to aim the edge of the board at the performers.

• THE SPACED PAIR

A more spacious stereo image can be achieved using spaced microphones, which may either be cardioids (unidirectional) or omnis (non-directional), and for the purpose of this article, the Tandy PZM can be included in the omni camp, even though it only picks up sound in one hemisphere. The mics are spaced apart according to the width and distance of the event being recorded, and pointed directly at the performers. (Figure 2 shows how this is arranged.) The distance between the two microphones is usually chosen to be similar to the distance between the microphones and the performers, though some experimentation is invariably needed to get the best results. Another advantage of spaced stereo mics is that you can cheat a bit to get the balance right, by moving one of the mics forward if instruments at that side of the soundstage are insufficiently loud.

While spaced mics produce the widest stereo image, they can suffer from mono compatibility



problems, so if it is important that the recording sounds good on a mono system, make a test recording and then play the tape back over a mono system — or revert to the coincident miking method.

THE RECORDING

A good recording always starts with a good performance, and for the best sound, the room you choose must have a suitable ambience. Although it may sound obvious, all tuning and maintenance problems should be sorted out before the session starts. Choirs sound better in reverberant rooms or halls, as do classical string quartets and similar ensembles, but if you can't use a local hall, a domestic room with the carpet rolled up, or with hardboard covering the floor, can also sound pretty good.

Most instruments benefit from a live environment, especially if you're not able to add reverb after the event, but you don't need as much reverberation as you would for classical work. An acoustic guitar should sound fine with just a single sheet of hardboard beneath the player, to reflect back some of the sound that would normally be absorbed by the carpet. If you have one particularly nice-sounding room in the house, exploit it.

Before starting to record, always clean the tape machine, use a new tape for important recordings, and set the recording levels as high as possible, while still leaving a little leeway for any louder-than-expected sounds during the performance.

When you're making a live recording, there are two main aspects to balancing the sounds; ▶

THE ANGLE OF DANGLE

When working with coincident mics it's important to consider the angle between the two microphones, because if it is too great, you may end up with a stereo image that is all left and right, with very little in the centre. This is what engineers call the 'hole in the middle' effect. On the other hand, if the angle is too small, the sound may have little stereo width.

My own quick solution is to direct the mics at an imaginary point midway between the centre of the stage and the performers at the edges of the ensemble. This will usually leave your mics set up at an angle between 70 and 110 degrees — and it's probably as well not to go too far outside these limits. Every recording is different, so you'll have to modify your initial mic positions based on your own judgement.

FIRST STEPS IN DIRECT-TO-STEREO RECORDING

"No matter how much we come to rely on samplers and sequencers, using microphones is absolutely central to making a good recording."

► one is the obvious balance between instruments, but the other is the ratio between the direct sound of the instruments and the ambient, reverberant sound of the room. If you are recording several acoustic musicians playing together and one is louder than the others, your only recourse is to change the position of the musicians relative to the microphones, so that the loudest players are the most distant. The players will probably want to maintain eye contact, so you may end up with the musicians set up in a quite different way to the one they would choose for live performance. Having said that, they'll still need to be spread out from left to right to produce the required stereo image. A useful tip is to keep any bass instruments or rhythmic percussion close to the centre of the soundstage.

It can be tricky balancing the voice of a singer who is also playing an instrument, because you don't have the option of moving one away from the other. If you're working with a solo singer/guitarist, the balance between the voice and the guitar can be fine-tuned to some extent, by changing the height of the mics so that they point more at the voice or the instrument, as necessary. After each position change, it's best to make a test recording to check balance. If there's more than one singer/player, the changes that can be made by moving the mics are more subtle, so the performers will have to meet you half way by setting their own natural balance.

sound you'll pick up, which means that the room ambience will be less significant. Miking at a greater distance will obviously give a more reverberant sound, but the performance may lose intimacy and clarity if you mike from too far away. In most situations, unless you come across a really good-sounding room, it's best to err on the side of too little reverb. If, after recording, you feel that more ambience would sound good, you can always copy the tape via a stereo reverb unit.

When working with ensembles, listen to the musicians run through their performance and move around the room to see if you can identify 'sweet spots' that seem to sound better than elsewhere. The larger the room, the more likely you are to find that different locations sound very different, and moving too close to walls or corners will cause an unnatural lift in bass. If you find a spot where the music sounds good, it should also sound good to a microphone, and if you have a good set of headphones, plug these into your recorder so you can listen to the sound as it's being recorded.

When adjusting the mics to vary the amount of room ambience you pick up, don't forget floor reflections, especially in buildings with solid floors and no carpets. Ideally, the microphones should be higher than the musicians, looking down towards them; this way, you'll avoid picking up strong sound reflections from the floor. If you're recording a live concert, you'll also have to find a position that doesn't pick up too much audience noise, which can be a bit of a compromise. Again, you can use height to your advantage, which will help avoid picking up individual audience members who are seated closest to the mics. Anyone who has tried to record a school play will have come across this problem, and it helps if you have a pair of boom stands that can be extended up to eight feet or more.

SUMMARY

You can pick up a lot of valuable experience from trying out these simple mic techniques, and no matter how much we come to rely on samplers and sequencers, using microphones is absolutely central to making a good recording. Saying that mic techniques are no longer relevant is rather like saying a photographer can forget about using his camera, because the end result can just as easily be achieved by cutting out postcards and gluing the bits onto a piece of cardboard.

Small musical ensembles, ideally without an audience, are probably the easiest place to start, then after you've gained a little experience, you could try your hand at recording the local drama group, school play or local orchestra, where you may even find the opportunity for a financial return. By substituting a DAT or even a DCC machine for your cassette deck, professional-quality recordings can be made with only a little care and experience, and all the techniques discussed here are also applicable to collecting material for creating stereo samples.

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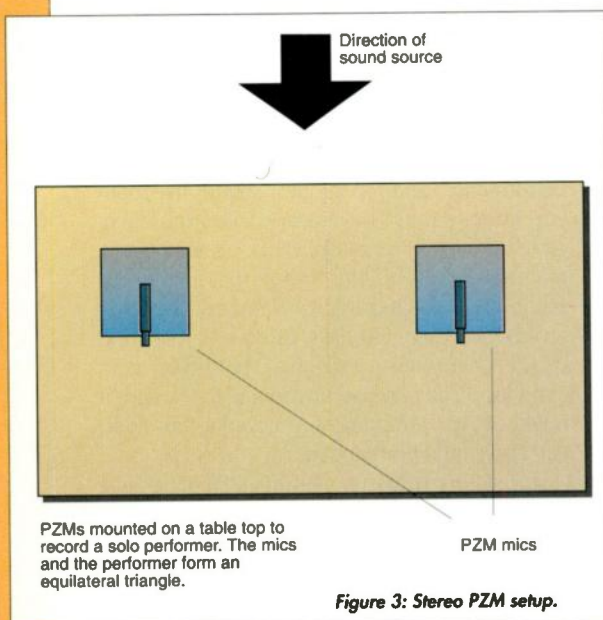


Figure 3: Stereo PZM setup.

Whenever you move the mics to redress a balance problem, you're likely to upset the stereo image in some way, but in practice, it's better to have a perfect balance than an idealistic stereo spread.

MORE ABOUT AMBIENCE

As intimated earlier, the degree and type of room reverberation affects your mic positions — the closer you get to the musicians, the more direct

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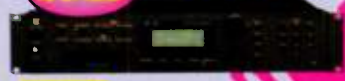


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ALESIS MICROVERB IV

Ask Alesis owners why they use Alesis effects, and they'll probably tell you it's because their products offer the right balance of quality and price — but I think it goes further than that.

Part of the success of the Alesis product range must surely be attributed to their sensible marketing policy, where every product is given a name that leaves you in no doubt as to what you're getting. While other companies confuse the potential buyer with dozens of outwardly

Microverb IV has more presets and more user memories. The effects balance and output levels are controlled via conventional knobs, and are not stored along with the patches.

While the original Microverb was a reverb-only device, the Microverb IV is a multieffects processor which appears to employ the same technology as the Midiverb IV, making it capable of extremely clean and natural-sounding effects. Admittedly, the effects are mainly one at a time: reverb, chorus, flange, delay and pitch shift, but there are a few multi-effects options too. These comprise up to three simultaneous effects, as well as a handful of dual-send patches, where each



similar products that sound as though they've been named after food additives or Skoda spare parts, at least you know what to expect from Alesis. A Microverb is going to be a simple-to-use effects device centred around presets, a Midiverb is likely to be more comprehensive but still pretty easy-going, while a Quadraverb is certain to run the full gamut of multi-effect mayhem, with all the bells and whistles. Alesis don't necessarily give you the most effects for your money, but they tend to deliver on sound, and with the possible exception of the rather sophisticated Q2, operation is generally straightforward and intuitive.

The Microverb IV, as its name implies, is the fourth product to bear the Microverb crest, but unlike its ancestor which offered only 16 switchable presets in a one third rack-width case, the 1U Microverb IV comes with 100 factory presets plus a further 100 user patches. The idea is that you can call up any factory patch, change just two key parameters via the front panel controls, then store the edited patch in user memory. This isn't all that far removed from the Lexicon Alex operating system, except that the

of the two inputs is processed by a different mono-in, stereo-out effect. For those with no other effects units, this latter mode provides a means to add, for example, reverb to some channels of a mix, and delay to others.

THE BLACK BOX

The Microverb IV package is spectacularly slim, but even so, the inside of the case is mainly empty due to the use of custom circuitry for most of the hard work. Power comes from the usual external adaptor, and the display is a simple three-digit LED window. The only two buttons are labelled Bank and Store. Bank toggles between the user and preset banks, but is also used to set up the MIDI channel for the unit. MIDI In and Out/Thru connections are fitted, allowing patches to be called up via MIDI, or edited patches to be dumped and reloaded from an external MIDI device, while a footswitch jack enables the effects to be bypassed in live situations. A data entry wheel is used to skip through the patches, or to set the MIDI channel when used with the Bank/MIDI button. A pair of LED level meters

ALESIS MICROVERB IV

£299

PROS

- Very clean, 'expensive' sound.
- A doddle to use.
- Useful multi and dual modes.

CONS

- Pitch shifter still not stunning.

SUMMARY

If the Microverb IV was alive, it would be living proof that you can combine low cost and simplicity with professional performance.

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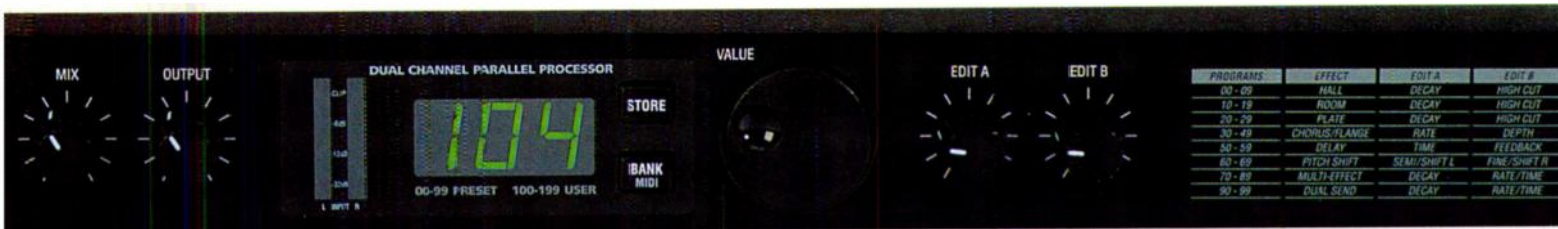


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ALESIS MICROVERB IV



► monitor the input to the processor.

Two parameters per patch may be controlled in real time over MIDI using controller information, but these are factory set, not user-configurable. The manual warns that the chorus effects may glitch if the chorus depth is changed while a signal is passing through the unit, but no such restrictions would appear to apply to the other parameters.

IN USE

As expected, the Microverb IV is staggeringly easy to use, but for those who haven't yet heard the Midiverb IV (with which the Microverb IV has much in common), the real surprise will be the sound quality. It is noticeably better than anything in the III series, and indeed, rather cleaner than the original Quadraverb. The reverbs are bright, smooth and very open-sounding, without the metallic harshness often associated with budget effects units, while the multieffects programs all have a nice sense of depth and movement.

In fact, other than the simplistic editing system, everything about the Microverb IV proclaims professionalism. The pitch-shifter only really works well for detuning effect, but units costing ten times the price have the same problem. All pitch shifters of this type work by breaking up the original sound into a stream of very short, looped samples, and as the amount of shift is increased, the modulation caused by the looping process makes the sound appear out of tune. For amusing (well, it was once...) voice effects and sci-fi sounds, this isn't a great problem, but for more musical applications, you have to be very careful to hide the shifted sound behind something else.

The modulation effects, on the other hand,

are all very smooth and flattering, and the usual stalwarts are augmented by a Leslie speaker simulator and an autopanner, which can be speed-controlled via MIDI if required.

SUMMARY

I sometimes get quite nostalgic when I see reviewers going on about the lack of features on reverb units, because for the first few years of my recording career, all that was available was a spring reverb with no parameters at all. The only way you could reduce the decay time was to jam bits of cotton wool between the springs, and if you wanted pre-delay, you had to rig up your Revox as an echo unit. Try telling that to kids of today, and they won't believe you! Spring? You were lucky — we used to 'ave to put oor 'eads int' galvanised bucket and sing!

Digital reverbs provide far more flexibility than that, but I've spent more time than I care to admit tweaking reverb and effects patches, only to find that in the context of the mix, I can't tell the difference between the edited patch and the original. Very often, the only parameters that make any significant difference are decay time and brightness, both of which you can change on the Microverb IV.

If, like me, you belong to the 'life's too short for bugging about' school of sound creation, you may find something like the Microverb IV fills most of your processing needs — though it's always good to have at least one heavyweight multieffects device in the rack, for special 'fire and brimstone' effects. That being the case, I'd have no hesitation in recommending the Microverb IV to anyone looking for a simple effects unit that doesn't skimp on quality. This really is a very versatile effects processor that would make an ideal second or third processor in a serious project studio, yet it's flexible enough to use as the main processor in a budget-conscious home studio. Personally, I opted to pay the little extra for a Midiverb IV, which offers a little more editability plus the ability to name patches. If the Microverb IV had been around at the time though, I would have been very tempted. It's a great little unit that sounds a lot bigger than it looks.

SO5

"Alesis don't necessarily give you the most effects for your money, but they tend to deliver on sound."

THE EFFECTS

The Microverb IV has two inputs and two outputs, though for all but the dual effect configurations, only the dry input is maintained in stereo, while the effect is generated from a mono mix of the left and right inputs. This is the most conventional way to use an effects unit, and when used in a mixer send and return loop, the left input may be used on its own and the mix control set to full up.

The Concert Hall, Real Room and Plate reverbs have user control over Decay and High Cut but not over pre-delay. In the Chorus/Flange section is a selection of stereo chorus/flange effects, plus multi-tap chorus (four taps) and Autopan. On all these effects, the Rate and Depth may be adjusted.

Delays are available in mono or stereo, including ping pong and triple-tapped variations

with control over Delay Time and Feedback. The longest delay time is the mono delay, which goes right up to 1270ms.

Pitch shifting can be used for transposition or for detuning, with control over both coarse and fine shift, up to a maximum of plus or minus one octave. That leaves the Multieffects patches, which comprise up to three effects at once, and provide control over Decay time and effect Rate.

In the Dual Effects section, the choices are Reverb/Delay, Reverb/Chorus or Reverb/Flange, with the edit knobs doing different jobs depending on which combination is selected. Reverb/Delay mode gives the user control over reverb decay and delay time, while Reverb/Chorus and Reverb/Flange allow the adjustment of reverb decay and chorus/flange rate.

FURTHER INFORMATION

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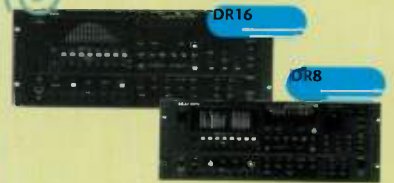
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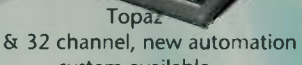
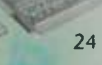
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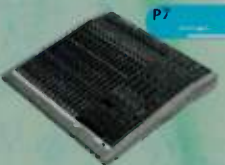
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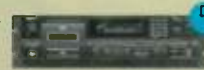
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Custom Class

Most synths now boast an infinite variety of sounds, but what the manuals don't tell you is that you need an infinite amount of time to explore them properly. PAUL WHITE suggests some short cuts to synth heaven.

SPICING UP YOUR SYNTH SOUNDS

I'm a great fan of technology, particularly when it makes my life easier, or allows me to achieve something that I couldn't before. Where I do lose patience is when technology builds barriers between me and my ultimate goal, and sadly, that's where many synth editing systems fall down — they frequently make it so awkward to change anything at all, that very often you're discouraged from even trying.

This only becomes a real problem when the synth's preset sounds are not quite suitable for the use you had in mind. The same goes for sound cards — if you do find a selection of off-the-shelf sounds that are ideal for your needs, then great, but more often than not, they'll need some tweaking.

MIX 'N' PATCH

Fortunately, a compromising approach can be taken to sound editing, turning an off-the-shelf patch into a custom one with the minimum amount of effort. In many cases, all you need to do is to alter the attack and/or release times, but most modern synths build their patches from two or more sounds or voices, each of which may have its own level envelope settings. Unless your particular synth has an overall envelope control function, you'll need to find out how to access these separate envelope parameters. If you have a poor memory for button sequences, write the procedure on a card and stick it to the top of your synth. On most occasions, you'll only need to change the A (Attack) and R (Release) values. Decay and Sustain can usually be left as they are.

Another approach to customising patches is to layer existing sounds together — there's nothing

new about this, as all additive-type synths employ layering within their own patch creation systems. If, for example, you need a string patch, but find analogue strings sound too soft and sampled strings too edgy, you can combine the two and achieve different results by varying the balance. If you don't mind a little low-key editing, you can do this by choosing an existing synth patch on an additive-type instrument, then trying out a few different raw samples or waveforms in place of the ones provided in the preset. Just run through the various string and pad sounds, then see which two work best together. You can still keep all the envelope and modulation parameters of the original patch, although with strings, it's often worth tweaking the attack and release times.

Most synths allow this kind of low-level editing to be done quite easily, but you don't have to edit at all if you don't want to; you could simply layer two presets from two entirely different synths, or layer two or more parts of a multitimbral synth. If you're working with a sequencer, this is achieved by copying the original part to another sequencer track, and then playing the copied part back via the new instrument, as well as the original one. If you're playing live, all you have to do is link two MIDI instruments together and arrange your patch mapping table so that the matching sounds are called up by the same Program Change number.

GO FORTH AND MORPH

One of my favourite tricks is to find two recognisable sounds or instruments that have some tonal element in common, and then crossfade from one to the other as the note evolves. Human voices are similar in many ways to reed instruments, flutes and violins, and if you choose the right crossfade rate (simply by using the normal level envelope parameters for each sound), you can create quite an eerie, morphing effect that sounds

Morph-like crossfades are a cinch with the Proteus 1 and the Kawai K1.

far more subtle than the crossfade it really is. Brass pads merge nicely into strings, different types of wind instrument can be merged one into the other, and choirs can be merged into (or

out of) just about any smooth pad sound.

My current favourite is a patch that starts out as a clarinet, and then moves into a slightly electronic-sounding voice created from a voice waveform, rather than from a full vocal sample. I've managed to make this effect work on both my Proteus 1 and my old K1, where it has become a mainstay of my library music and new age (actually, middle-age) endeavours. There's just something very evocative about these crossfades, but you never know if the combination has the necessary magic until you try it. The secret is to match



Staying on the subject of strings, I've found that you can make a simple string patch far more interesting by using two sounds with different attack times, so that the sound timbre changes as the second instrument comes in. This trick also works well with choir patches, where it can be effective to choose a second sound that's an octave higher than the first.

ALIEN NOTION

Layering isn't restricted to sounds from the same family, nor do they have to be complementary instruments, as with the endless piano and string layers available. To create a new-sounding picked instrument, for example, you can combine virtually any sounds, providing they have suitably fast attacks. Harpsichords, guitars, hammer dulcimers, bass guitars tuned up by an octave or two, pianos and the like all work well together, resulting in an instrument that has some of the characteristics of its component parts, but also has its own distinctive sound. One example of this type of layering that works exceptionally well is where a short, percussive sound, such as a stick click or noise burst, is added to the start of a conventional bass synth sound. This really adds attack and definition to the note, without robbing it of any of its depth.

If you want to break away from recognised sounds altogether, but the instruments you have are full of instantly-recognisable GM-style patches, you can still create radically new sounds by remembering just two simple facts. The first is that the brain relies heavily on the attack characteristics of an instrument in order to recognise it, and the second is that familiar sounds can seem quite different when transposed up or down from their normal range.

Take a GM piano for example — if you slow the attack, the identity of the piano is lost immediately, and an abstract, bowed sound

MEANWHILE, OUTSIDE THE SYNTH: EXTERNAL EFFECTS

Many budget synths don't provide resonant filters, but if you do have a machine that includes them, you might find it easier to choose a patch with the right filter sound, and then change its component waveforms or samples, rather than choosing a preset that sounds right and trying to set up a suitable filter effect. If you don't have a filter section but would like to create some of the analogue sounds you hear on records, you might find that one of the currently available, MIDI-triggered external filter boxes does the trick, such as Peavey's Spectrum Analog Filter or Waldorf's new 4-pole filter (to be reviewed in *SOS* shortly). Most of these devices use a single filter section, so they don't work in the same polyphonic manner as internal synth filters, but for solo lines, bass lines or pad chords, they can add a huge range of depth and expression to an otherwise bland digital sound.

Both internal and external effects can be used to add character to a sound, and chorus is an obvious example to use on string pads, as it helps create an ensemble effect. On the other hand, chorus also tends to 'de-focus' sounds, so if you want something to stand out, it might be better to err on

the side of fewer effects. Reverb and delay effects also have their creative uses, but if you're working with a sound that already has a long release time, then you might find that delay and reverb only clutter it up. As a general rule, delay and reverb work best on percussive sounds or sounds that finish abruptly.

Finally, although you've probably got a pretty good idea of the effects that can be created using conventional multi-effects boxes and internal synth processing, don't neglect the less obvious things, such as patching your synth through guitar pedals or speaker simulators. Speaker simulators (as found in most recording guitar preamps) are good for taking the rough edge off digital sounds and for adding mid-range warmth, while overdrive units can be used to 'vintage-ise' organ sounds, or add bite to solo lead lines. Even putting the synth through a guitar cab and re-miking it can be worthwhile.



Waldorf's new filter; great for adding warmth to sterile digital patches.

results. Similarly, notice how much more pronounced the attack part of the sound becomes when a mandolin is dropped by a couple of octaves. High flutes can be lowered in pitch to provide deep pipe sounds, while bass instruments can be raised a couple of octaves to provide a new lead instrument. Slow

brass can be given a fast percussive attack, church bells can be given a slow attack to create a haunting quality — in fact there's no limit to what can be achieved, simply by messing about with the level envelope and voice transpose parameters.

The next phase in creating your own patches through layering is to choose one recognisable and one abstract sound. Simple filter sweep pads sit alongside string samples quite happily, but you might also find that layering the attack part of a distorted guitar with a piano provides you with a less predictable alternative to your existing piano or clav patches. More exotic results can be achieved by layering unpitched sounds (such as water bells), with tuned percussive noises (such as wood blocks or marimbas).

IN SHORT...

Guitar players have known for decades that the guitar itself is only a small part of the whole sound. The effects and the amplifier contribute at least as much to the end result, and it's the same with synths and samplers. We tend to think of synthesizers as instant gratification in a box, but perhaps it would be more constructive to think of them only as a starting point.

SOS



the fade-out rate of the first sound to the fade-in rate of the second, so that the patch level remains nominally constant during the changeover.

Crossfading can also be used to graft the attack of one sound onto the sustain of another, which can yield some musically interesting hybrids. Elsewhere in this article, I mentioned that the attack of an instrument provides strong clues as to what that instrument is, so if you take something like a plucked attack and then quickly merge into a wind or string sustain sound, you surprise the hearing system and make it pay attention.

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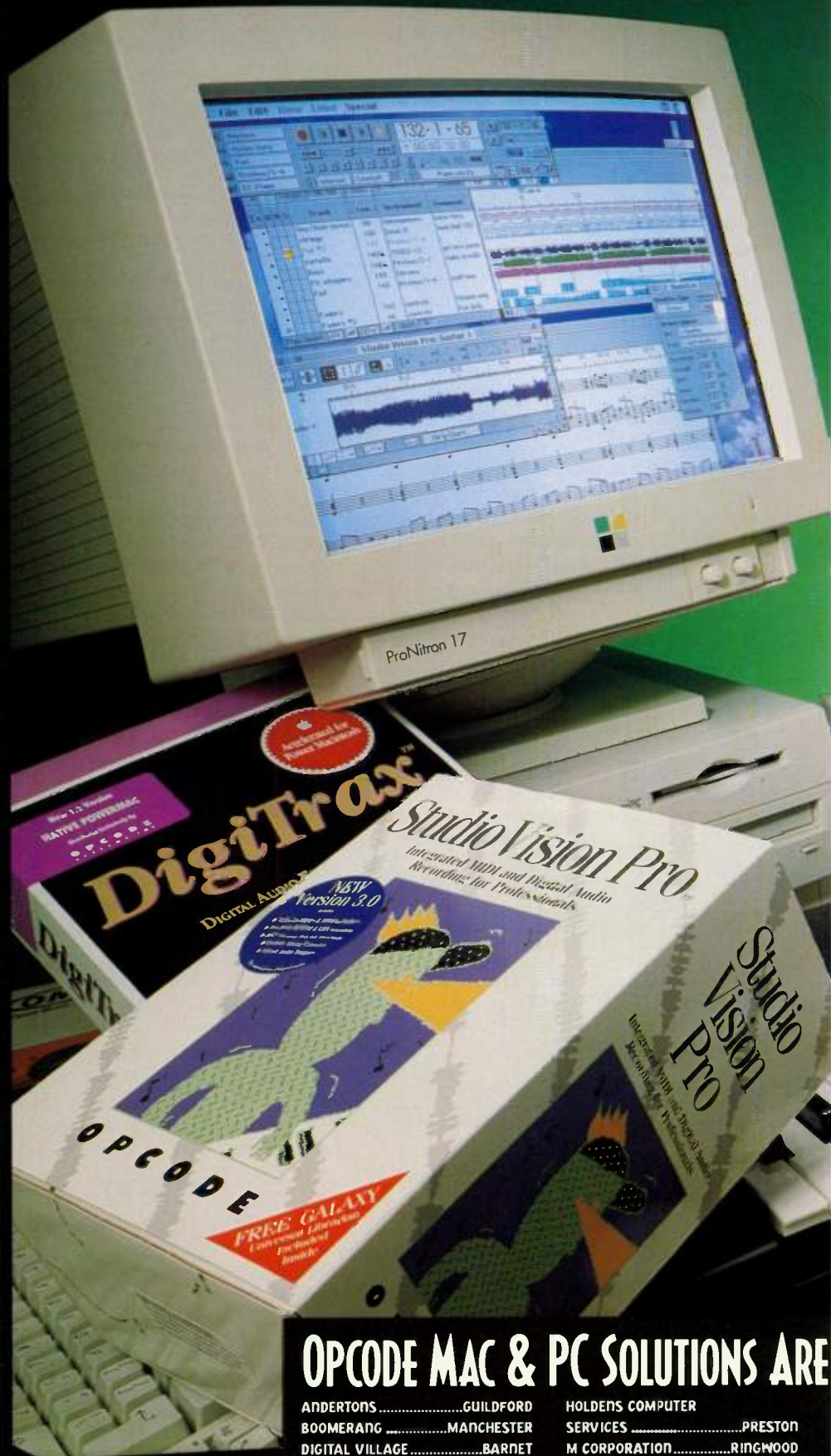
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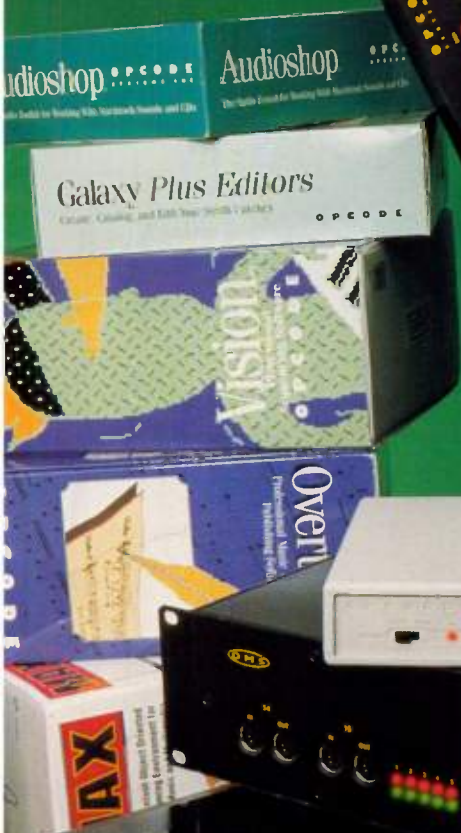
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**PAUL WHITE goes
beyond the final
frontier with Roland's
latest 3D sound
processor.**

If you read our QSound interview in *SOS* November 1995, you will know that there's currently a great deal of interest in the methods used to produce a 3-dimensional soundspace from a conventional 2-speaker stereo replay system. The basic idea is intriguing in that when you first think about it, it seems impossible to create a sound that you perceive as being behind you, when it has come from speakers positioned in front of you. In real life, we hear everything through just one pair of ears, yet we can pinpoint the position of sounds all around us, both in front and behind.

The way that we perceive sound direction is central to understanding how to fake it electronically, and unlike the simple pan pot used in mixers, which affects only left/right level, we rely on a number of different auditory clues, involving

two ears, but with loudspeakers, both ears hear both speakers — in other words, there's a great deal of crosstalk.

THE SYSTEM

Roland's approach to achieving 3D over loudspeakers is to use phase, delay and filtering to process a mono sound into a binaural format, then generate additional out-of-phase signals to cancel out the crosstalk that normally occurs. By manipulating the relative left/right phase, filtering and levels in real time, the sound source can be made to appear to move, and in good listening conditions, it is possible to create the effect of a sound moving around the listener. Vertical sound

Lost in Space



ROLAND RSS10 SOUND SPACE PROCESSOR

level, frequency content and phase, to deduce the direction from which a sound is arriving. If a sound comes from our left, we hear it arrive at the left ear first, and then a millisecond or so later, it arrives at the right ear. However, as the head is between the sound source and the right ear, the perceived sound is lower in level, and is also spectrally altered by the masking effect of the head which acts as a high-cut filter. The shape of the outer ear is also involved, but as far as the eardrum/brain system is concerned, everything is deduced from the relative phase, level and frequency spectrum of the signals arriving at the two eardrums.

Following on from this, it seems reasonable that you could stick two mics inside the ears of a dummy head, make a recording, and then play the sound back through headphones to recreate the original 3D sound experience. In fact, this form of binaural recording does work pretty well, but when played back over loudspeakers, the results are not so good. The reason is that with headphones, there is no crosstalk between the

movement is also possible by modelling the tonal changes that occur when a sound is moved further away from an acoustically reflective floor. The way in which the processing works is broadly similar to QSound, the main difference being that the QSound system is based on empirical experiments involving panels of listeners, rather than on predicting the effects entirely by mathematics.

The problem with all 3D sound systems is that they have poor mono compatibility, and as the Roland system includes a large amount of relative phase shifting, summing the sound to mono produces tonal changes as the sound moves. I can't see any way around this — basically, real life isn't mono-compatible, and as long as we're tied to mono compatibility issues for the benefit of steam radio and mono TV listeners, 3D sound, and even conventional stereo, can never be properly explored. In practical terms though, the need for mono compatibility restricts the use of systems such as RSS to non-vital parts of an audio mix, such as effects, additional percussion, glittery synth pads and so

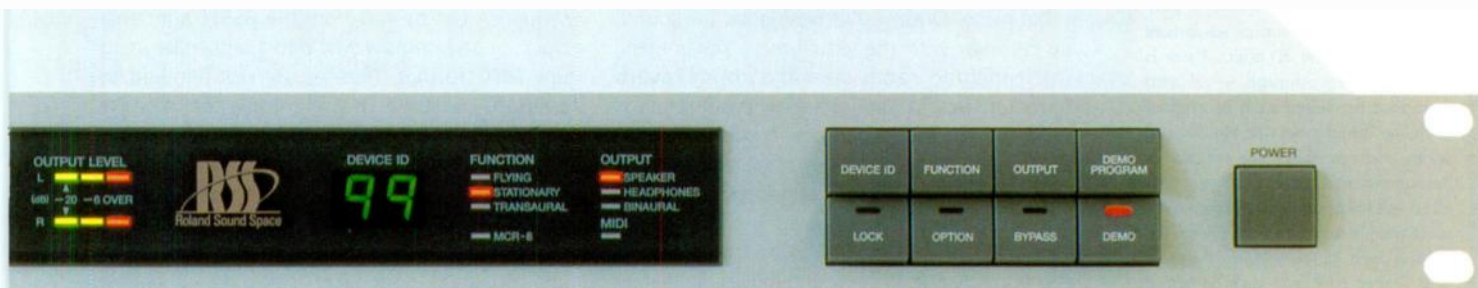
on. Drums, bass, lead instruments and vocals tend to be left unprocessed. Even so, by treating just a few select sounds, a mix can be widened to beyond the loudspeakers, and can be given greater depth.

The original RSS system was horrendously expensive, and the only spin-offs, until recently, have been the RSS algorithms used in some Roland effects units, but now the RSS10 makes the full process available to studio users for a much more realistic price. In addition to processing sounds for loudspeaker reproduction, the RSS10 can also output signals in binaural format for headphone use, and I imagine this will be useful for developers of portable computer games designed to be used with headphones rather than loudspeakers.

this mode, so with the maximum 16 units, you can have 32-channel operation for around the cost of a mid-range Mercedes.

Flying mode is rather more fun, as it allows you to vary the 3D position of the sound during the course of a mix, but as this takes more processing power, a single RSS10 can only handle one channel at a time. What's more, you can only link up to four units to work together in this mode via the supplied software, which gives you a system roughly equivalent to the original RSS system for less than one third of the price.

Transaural mode isn't an effect as such, but rather a means of processing binaural recordings made using dummy head techniques so that they



Whereas the original RSS system provided four channels of dynamic processing, the RSS10 provides single-channel operation where the sound source is required to move, or dual-channel operation where the sound sources are to be fixed in one position. The unit may be controlled directly from MIDI using an optional hardware interface, such as Roland's own MCR8, and up to 16 RSS10s may be linked together to operate as a single system. Unfortunately, no in-depth MIDI spec is provided, so if you want to use another interface, you'll have to hassle Roland for the SysEx details. Alternatively, computer control is possible from both Mac and PC computers, and software for both platforms is included in the basic package.

HARDWARE

On the hardware front, the unit is a simple 1U box with the bare minimum of controls. Concentric knobs set the input gain for the two channels, and metering is provided for both inputs and outputs — a good move as the output pan and level values will obviously differ from those of the input when a sound is being moved. A handful of buttons select the various operational modes and can initiate a demo sequence to get some idea of what RSS is all about. There is also a button to set the device ID, which is necessary when two or more RSS10s are being used in the same system. A large perspex window includes the metering, a simple numeric display window, and illuminated Function Mode and Output Mode indicators.

The system has three basic function modes: Stationary, Flying and Transaural. Stationary mode, as its name suggests, is where you take an input signal and then process it to make it appear as though it's coming from a particular point in space. Each RSS10 can process two channels in

can be reproduced over loudspeakers. I would imagine that this mode simply generates the required inter-channel crosstalk cancellation signals required to make binaural recordings work on speakers.

This brings us neatly onto the three output modes: Speaker, Headphone and Binaural. Speaker mode is used for normal loudspeaker playback, but there's a Headphone option which appears to be an enhanced version of the Binaural mode. Binaural mode allows signals to be output as conventional binaural signals, which is useful for those wishing to produce versions both for loudspeaker and headphone use. By recording the output in Binaural format, it can be reprocessed later via the RSS10 to provide either Speaker or Headphone formats, but if you record the output in Loudspeaker format only, you have no way of going back to create a Headphone version.

On the back of the box are audio ins and outs in both balanced XLR and quarter-inch jack formats, though the XLRs are wired to the pin 3 Hot standard, rather than the more usual pin 2 Hot. This is no problem if you're working balanced both in and out, but if you mix balanced and unbalanced wiring, you could end up with unexpected phase inversions, unless you make up special cables. A mini multipin connector is used to connect to a computer serial port for computer control, and a slide switch selects Mac or PC operation, though you have to find your own serial cable. MIDI In, Out and Thru sockets are also provided for external MIDI control and for outputting MIDI notes.

SOFTWARE

Being a Mac owner, I opted to check out the system using the included Mac software, which

ROLAND RSS10 £2199

PROS

- A unique and often spectacular process.
- Far less costly than the original.
- Can be expanded by adding more RSS10s.
- Mac and PC software included.

CONS

- Only one channel of moving sound can be processed per unit, which, for most of us, means processing sounds to tape one at a time.
- Software manuals need to be more explicit.
- Poor mono compatibility — if that matters to you.
- Insufficient information provided for users to arrange their own MIDI control.

SUMMARY

RSS provides one of the few ways of creating the illusion that a sound source is moving in all three dimensions. It's not a cheap process, but it does help enhance some forms of music, as well as presentation work and game soundtracks.

Roland RSS10

► comprises two separate programs — *RSS FX* for moving sounds, and *RSS Stage* for fixed-position sounds. To get the Mac to talk to the hardware, you have to install Apple's rather unpopular *MIDI Manager* (included), which can cause problems with some MIDI interfaces, and precludes the running of most software sequencers while the RSS10 is operational.

RSS Stage allows you to move the sound source around as you're setting up, so that you can hear the effect in different positions, but unfortunately, the sound is muted while you're actually moving the source. Three head icons are used to represent the three possible axes of sound movement, and you can select any one before moving the sound in that plane. Once you've positioned the sound, you can play with the virtual room parameters, which include room size and room reverb characteristics. A similar set of parameters is available in the *RSS FX* package, and as far as I can tell, the early reflections are recalculated according to the room size and the sound position, so no user-intervention is required — or, indeed, permitted. In the *RSS FX* software, the early reflections change as the sound moves, simulating what would happen in a real environment.

In the *RSS FX* environment, the sound movement is 'drawn' in real time in a window

containing a graphic representation of the virtual room, and then stored as a 'Phrase'. A MIDI note (or chord) may also be stored as part of a Phrase, allowing external sampler or synth sounds to be triggered directly from the RSS10. The maximum length of a phrase seems to be determined by how fast and how far the sound is moved, but this is no real restriction, as several phrases can be used in succession by putting them onto a time line in the Sequence window. However, there is no moving position indicator to show you where your virtual sound is supposed to be coming from, which seems a crazy omission.

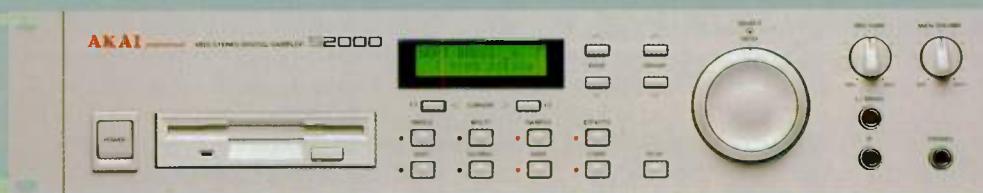
The start time of each Phrase can be specified in a sequence to within 50mS, and the whole sequence can be run from the RSS10's internal clock, or be externally sync'd to a sequencer using any MTC format. Phrases are not allowed to overlap, but then that wouldn't make sense anyway. Roland include a library of Phrases ready for call-up, or you can add your own Phrases to the library for future use. Various editing features are provided to allow you to modify the path you've drawn in for a sound source, but I could find no control to speed up or slow down Phrases, and no control to allow me to loop Phrases continuously — a feature which might have been useful, especially while setting up.

SAMPLING IN SPACE

What about creating RSS-treated samples? In theory, there's nothing to stop you creating samples using RSS processing, and providing you have a stereo sampler, you'll be able to play them back through normal equipment and still retain the 3D effect. There is one drawback though — if you transpose the sound from its original pitch, the virtual room size, virtual head width, and everything else will change too, and in most cases, that means the effect will fall apart once you've moved more than a semitone or two from the starting point. RSS samples are therefore best limited to things such as sound effects and percussive noises that can be used at their originally sampled pitch.

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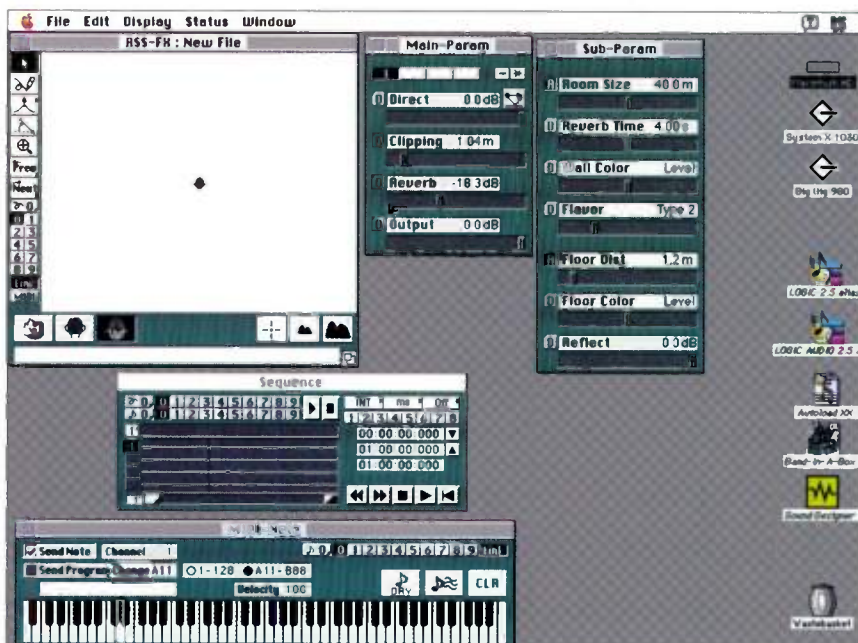
All three new models have a wide variety of new features as standard. Refinements to the user interface include a Multimode feature which allows the easy set up of multitimbral and layered sounds. MIDI file read/play function is built in. Bundled with the new range is MESA, a graphic editing package developed by Akai for the Macintosh™. MESA (Modular Editing System by Akai) comes with a choice of pre-configured control layouts as well as a versatile editor that allows you to design your own. Also included are a Wave editor, a File Manager and audio file transfer to and from AIFF and SD2 formats. Memory upgrades to 32Mb can be achieved using readily available SIMMS modules, and there are extra slots for an optional 16Mb of Flash RAM. A SCSI interface allows access to the huge AKAI sound library as well as those of other manufacturers.

The new EB16 4 channel digital effects board offers two full channels of multi effects, each allowing 6 simultaneous effects plus two extra channels of reverb, giving up to 4 reverbs in total! It can also be used as a two channel effects processor for external sound sources.

The manuals lack a proper introduction — they dive straight in, telling you about windows and Phrases without actually introducing you to the product. A few lines to the effect that this is an XYZ and it's supposed to allow you to do A, B and C would have helped tremendously, especially as the manual is obviously translated from Japanese by the Japanese. Fortunately, once you've used the included Patchbay software to get your Mac talking to the RSS10, via either the modem or printer port, it isn't too hard to work out what's going on.

SURROUNDED

I've heard countless demos of RSS, and the results have varied from 'What effect?', to 'Wow, that nearly hit me!'. You need to be seated the correct distance from the speakers, as close to the centre line as possible, and it helps if the wall behind you is fairly dead. (Side wall reflections also tend to dilute the effect.) As a very general rule of thumb, any sound which is strongly affected when you pass it through a flanger works well with RSS, while single-frequency sounds tend to yield less dramatic results. Harmonically rich pad sounds wander around the room quite nicely, though how the effect is perceived when you try to move it behind you varies from listener to listener and



from sound to sound.

Surprisingly, I found the effect far more dramatic when the reverb level was mixed right down, or turned off altogether, and it also seemed more pronounced when the Doppler shift option was bypassed. If you draw a sound path that passes close to your head, the sound really looms out of the speakers at you. What doesn't work so well is trying to position a non-moving sound

The RSS FX software for moving sounds around in 3D.

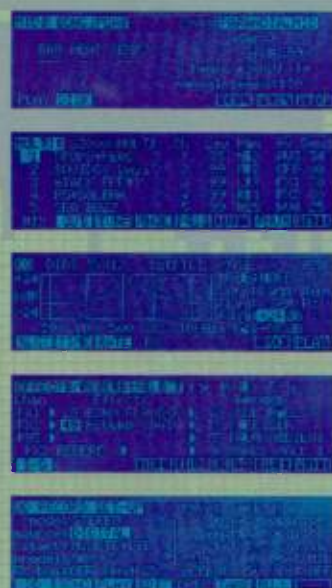
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The IB304F board adds a second bank of filters (resonant/low, band & high pass) and a third multistage envelope generator enabling advanced tonal manipulation of sound. (EB16 and IB304F are standard on S3200XL, optional on the other two models). Direct to Disk recording is standard on the S3200XL and S3000XL as well as a digital I/O and 8 individual outputs (Optional for S2000).

The new S-Series samplers are also powerful 32 voice polyphonic synthesizers, the specification including superb resonant lowpass filters, envelope generators, comprehensive LFOs, Portamento and extensive modulation facilities.

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Roland RSS10

▶ behind you — in my experience, unless the sound keeps moving, the effect of being behind you collapses and the stereo image returns to the front of the room. Stationary sounds seem to work well up to about twice the spacing of the monitors, but after that no-one hears the same thing.

If you listen to the result in mono, it can sound as though somebody has gone wild with a flanger and an EQ unit!

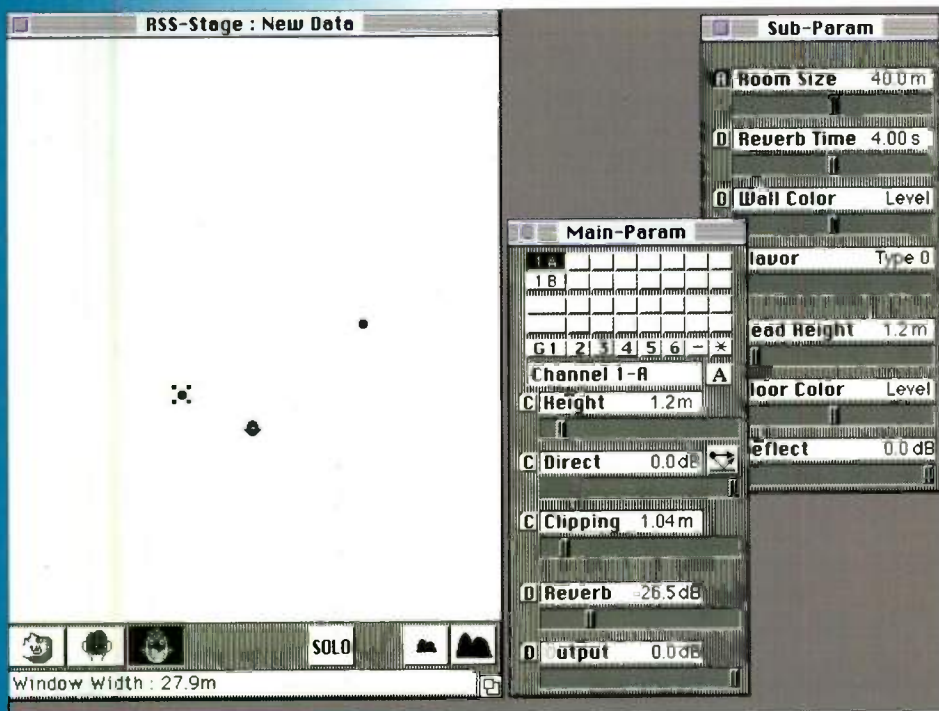
The only problem I experienced using the RSS10 was that the Mac disk drive interfered with the audio — you also have to take care to run the audio cables well away from the computer monitor, otherwise a bit of buzz may be picked up, especially if they're unbalanced.

OPINION

Even at this new low cost, RSS is still a very expensive luxury, but in a business where you have to have an edge to succeed, RSS could be your answer, especially if you compose music for games or AV presentations. Although I find the RSS effect somewhat unpredictable, it is nearly always more interesting than listening to the same sound without processing, so perhaps it doesn't matter whether the sound goes around your head or through it. If you're working to picture, as you might be in a computer game environment, then the visual stimulus helps to keep the audio positioning stable — there's a lot of psycho in psychoacoustics! If anything, visual cues are even more important when you try to move the sound source up or down, because without the visuals, you can hear a change in timbre, but you can't really pinpoint the vertical angle of the source.

The inclusion of both Mac and PC software is good news, although I feel the software could have been thought-out and documented a little better. The provision of MIDI control is obviously welcome, but why the full MIDI details aren't provided in the manual is beyond me.

Too many people seem happy to knock 3D sound systems because they don't provide the same effect as a true multi-speaker surround system, but the reality is that most people don't want rear speakers in their homes. Maybe Dolby surround TV will change all that, and who knows, maybe all CDs in the future will be mixed in Dolby surround, or some similar format, but getting back to the present, it's a case of making do with what we have, or experimenting with the likes of RSS or Qsound to push back the boundaries of conventional 2-speaker stereo. I tend to look upon 3D sound as a bit of an adventure, and if its unpredictability makes it more of an art than a science, then I guess I don't mind that either. Too much recorded music is mechanistic these days, so a little untamed magic is to be welcomed. **SOS**



The RSS stage software for positioning stationary objects in space.

Does RSS change the sound? The short answer has to be yes. In real life, sounds change in spectral content quite dramatically as they are perceived from different angles, but as this has happened to us every day since we were born, we don't even notice it. Put the effect on record though, where there's a different set of expectations, and the underlying flanging effect can stick out like a sore thumb. In the context of effects and sonic 'icing sugar', this doesn't matter too much, but if you try to process a lead vocal, it can sound odd — and

THE POLITICS OF POSITION

The RSS10 offers rather more control over position than the original RSS system, as room reflections and reverb can now be modelled. Changes in early reflections provide clues as to sound movement, and this should, in theory, make the whole effect more believable.

The Distance parameter sets the distance from the listener to the virtual sound source, while Elevation determines how far below or above the listener the sound originates. Azimuth sets the angle of the sound source in the horizontal plane relative to the listener, and various reverb parameters are provided, including room size and the reflective characteristics of the walls and floor.

The closer you move toward a sound, the louder it grows, so if you were to move a sound right into your ear, it would, in theory, become infinitely loud.

This is clearly not desirable for real-world applications, so a Clipping Area parameter has been introduced to set a limit as to how loud a sound can get when it's brought near. Another nice addition is the inclusion of Absolute and Relative delay modes, so that you can choose whether a moving sound undergoes Doppler shift or not. If you want Doppler shift, then select Absolute mode.

Tucked away in the control software is also a section that relates to the listening setup and allows you to optimise the output for specific speaker angles. While this is obviously useful in some instances, the practicality of the situation is that you have no control over the type of listening system the end user will have, and the variability of listening environments is the real Achilles heel of any such system.

FURTHER INFORMATION

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Audio

OPCODE STUDIO VISION
PRO v3.0 FOR MAC

Active

The new version of Opcode's flagship sequencer/hard disk recording package almost extinguishes the differences between audio and MIDI recordings, allowing unprecedented control over your compositions. A hitherto MIDI-only
MARTIN RUSS broadens his horizons...

I'll be honest. Until recently, I had thought that there were only two breeds of computer musician. Ordinary musicians with a basic complement of sequencers and MIDI equipment were the group that I felt happiest with. The 'power-users', on the other hand, with their big, fast computers, DSP cards and hard-disk recording habits made me feel slightly uneasy. Out of my league, I retreated to the security of my familiar MIDI sequencer, *Vision* v1.3.

But times change. As the power of affordable computer hardware has inexorably risen, it now seems to have got to the point where even the smallest home studio cannot afford to ignore the digital option. The event that opened my eyes was the news that the next version of *Vision* would have built-in digital audio capability, provided your computer platform supports it — and the majority of Power Macs do.

The more I've looked at *Studio Vision Pro 3.0*, the more I've realised what a mistake it was to see it as just a more expensive, professional, studio version of a simple MIDI sequencing program. The trouble is, that having decided that multitrack tape was not for me, I now avoid tape, and especially audio. As a result, I am effectively locked into a cycle of doing 'MIDI-only' music. This is where *Studio Vision Pro* comes into the picture — for it enables you to replace a mass of tape and audio editing processes with a single, unified combination of hardware and software that does everything digitally. The audio becomes software-tweakable, and enters the world of MIDI surprisingly seamlessly.

So, this review is in part an exploration. Join me as I voyage beyond using plain old MIDI and start integrating audio...

THE VISION THING

Vision is a powerful, phrase-based MIDI sequencer. Where some sequencers favour tape-recording metaphors, *Vision* talks of 'sequences'; snippets of music that need not be linear in time. *Vision* is perfectly capable of taking a piece of music, and extracting events from it in real-time, to produce new music based on the notes, feel, or rhythm only. I often use the Mac's keyboard to trigger the playback of sequences in a chain — so for the classical, 'A-B-A-C-A-B' song structure, I might type those characters in that order, and the song would play back in that order. Sequences can be made up of smaller, shorter or simpler sequences, and can be recordings of that A-B-A-C-A-B structure, a series of key changes, a complete multitrack phrase or bar, or automatic 'generators' of music based on another sequence. The possibilities are endless.

The MIDI-processing capabilities are extensive. The usual transpositions, note modifications and event editing are provided, but there are some more unusual facilities too. It is possible to select notes or events using a variety of criteria, such as the highest note playing at any time, or notes with a specific velocity or range of values, or notes close to bar or beat divisions. Once selected, those notes or events can be substituted for other MIDI events — so a specific instance of a single note could be replaced by an arpeggio each time that it occurs.

Many of the arranging functions can be carried out in a window area, where the sequences can be seen as nameable blocks, rather like a piano roll display, with time running horizontally. Here, however the blocks are sequences, as opposed to individual notes, and the vertical direction is for 'tracks' (what instrument will play the block in that track). Dragging these blocks left and right moves them in time, and they can be copied to provide rapid duplication of a phrase, or doubled by moving the phrase to another 'track', where the phrase will be played by a different instrument. It's rather like an overview of a score, but a click on a sequence block can quickly show you the detail too — in piano roll or notation. There's

OPCODE STUDIO VISION PRO v3.0 £799

PROS

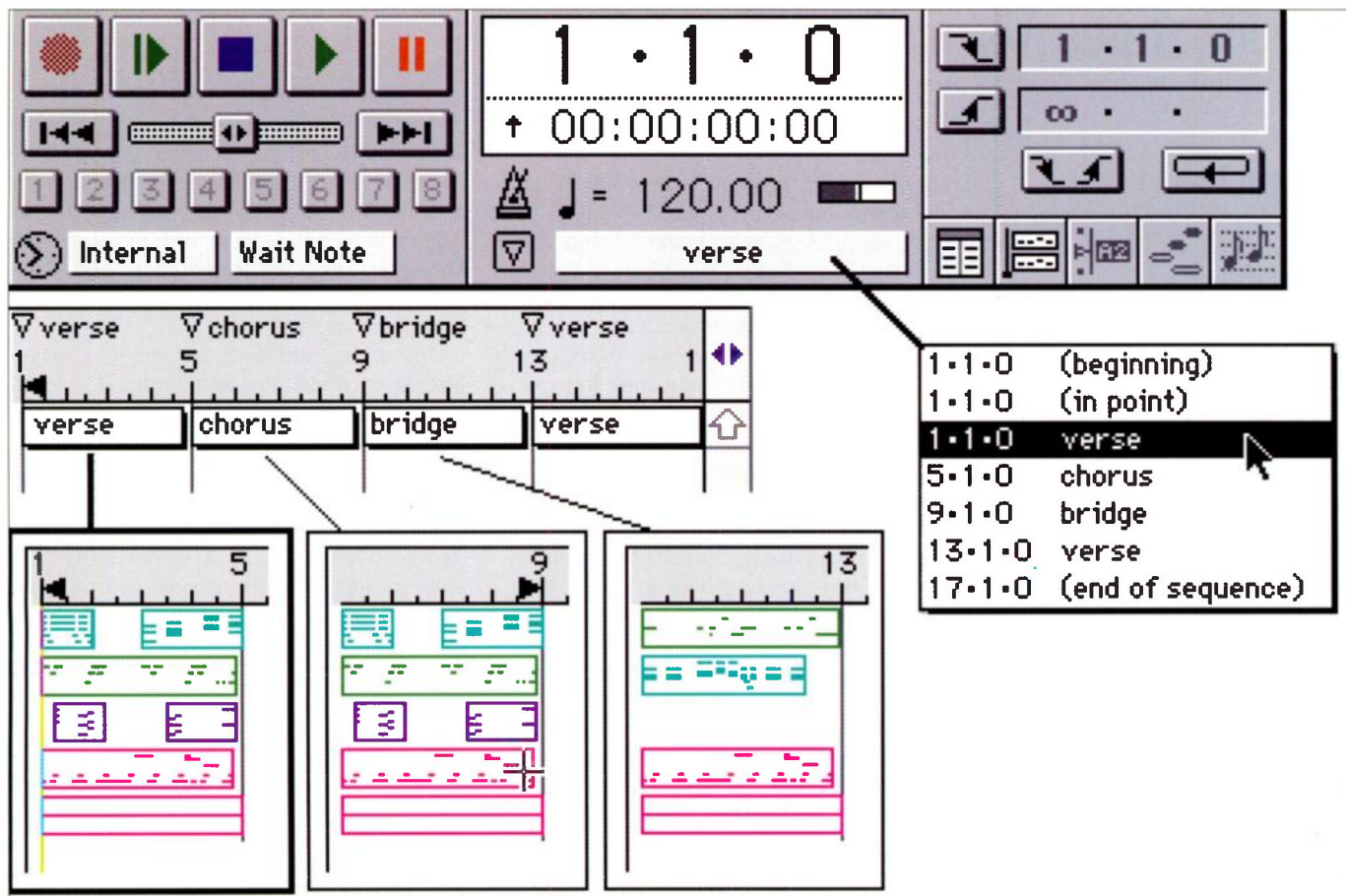
- Versatile, powerful and easy-to-use audio and MIDI sequencer.
- Some unique audio processing features, including built-in DSP functions and links to audio waveform editors.
- Can use built-in Mac audio hardware and Sound Manager for minimal facilities, provided your Mac is up to it.

CONS

- Requires a reasonably powerful computer.
- Needs a large, external hard disk designed for audio, and some sort of backup medium.
- Needs additional audio hardware for maximum flexibility.

SUMMARY

Desktop digital audio comes of age. If I was a sampler or analogue multitrack manufacturer, I would be worried. If I was a producer, I would be ecstatic.



more, of course, but this should give you the flavour. Look at the 'Practical Examples' box to see what some of the screen windows look like.

OMS

Studio Vision Pro 3.0 is the first Opcode product to include OMS 2.0. The changes to the bundled *Galaxy* librarian are mostly to cope with the

- Piano
- Chromatic Percussion
- Organ
- Guitar
- Bass
- Strings
- Ensemble
- Brass
- Reed
- Pipe
- Synth Lead
- Synth Pad
- Synth Effects
- Ethnic
- Percussive
- Sound Effects
- Other

Opcode's bundled *Galaxy* librarian — use it to define your own named groups of patches.

- 89: NewAgePd
- 90: Warm Pd
- 91: PolySyPd
- 92: Choir Pd
- 93: Bowed Pd
- 94: Metal Pd
- 95: Halo Pd
- 96: Sweep Pd

changes to OMS. The Open Music System (OMS) still provides the bridge between MIDI application software and MIDI hardware, with hundreds of channels available if you require them. There is

now a split between the studio setup facilities, where you keep a 'model' of how your MIDI equipment is connected together, and the naming of patches, notes and controllers — which are now shared between applications.

This means that the pop-up patch selection in *Vision* or *Studio Vision* provides access to the OMS Name Manager, which allows you to 'subscribe' to bundles of voices from the *Galaxy* librarian, and to use the grouping names that are used to group patches. The GM groups of 8 patches are one example; by using *Galaxy* you can define your own named groups. Being able to subscribe to a single bundle of patches for a complete song, and then have groups with names like 'bright' or 'EPs', simplifies using patches enormously. But most importantly, there is no longer any need to have *Galaxy* running when you are running *Vision*: you prepare your patches beforehand, and can then access any patch directly from the sequencer.

DSP FUNCTIONS

The only visible difference between *Studio Vision* and *Vision* is one menu: DSP. The Audio functions (but not the DSP processing) are also available in *Vision*, providing that you have a Mac which meets the right combination of processing power, hard disk performance, built-in audio hardware, and

Sound Manager 3.0 or higher (3.1 currently).

The first block of Audio menu functions are all audio-processing. 'Retain' enables you to

Vision and *Studio Vision* each provide an overview, which is tied to the bar/time counter in the control bar. In this example, the verse/chorus/bridge/verse sequence of phrases is mirrored in the pop-up menu in the control bar, which allows rapid movement to a specific phrase in the song. Each of the named phrases is a set of tracks or additional sequences of phrases.

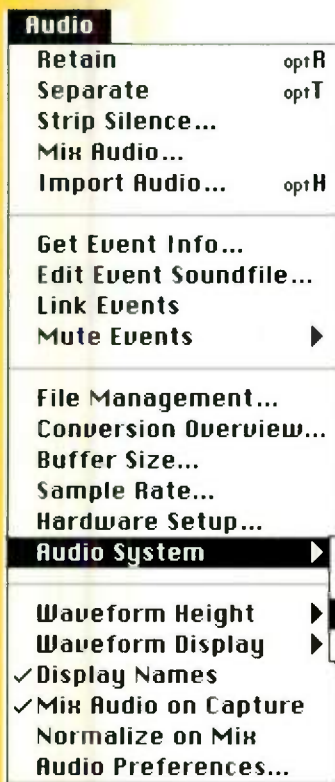
WHAT'S NEW?

The new features in *Studio Vision Pro 3.0* include:

- Customisable mixer consoles (up to 256 channels).
- Audio-to-MIDI conversion (monophonic).
- MIDI-to-Audio conversion (monophonic).
- DSP utilities for digital audio (Time Compression/Expansion, Pitch Shift).
- Constrain Audio Tempo for digital audio.
- Adjust audio tempo.
- Yamaha CBX compatibility.
- Digidesign Pro Tools III compatibility.
- Digidesign TDM compatibility.

Sound On Sound last looked at *Vision* in January 1993, and *Studio Vision* in February '91. Mike Collins' series on TDM and Pro Tools is also recommended: Part 1 was in February 1996. A comparison of the four leading MIDI & Audio sequencers was also produced by Mike for the 10th Anniversary December 1995 issue.

Opcode Studio Vision 3.0



► remove all but the selected portion of an audio track, which is great for trimming the start and finish of sounds. 'Separate' allows you to split audio tracks into sections, which is useful for splitting up notes or events and processing them separately. 'Strip silence' allows you to apply a 'noise gate'-type of function to the audio. This can remove silence, split the audio into sections, and save hard disk space too. 'Mix Audio' takes several audio tracks and merges them into one. 'Import Audio' allows you to fly in audio from disk files.

The next block of functions are all editing-specific. The Event information tells you the name, duration, file format and other parameters of the sound — you can change the name to something meaningful here. For more detailed editing, then the 'Edit Event Soundfile' allows you to edit the audio: CBX variants (see the 'System Requirements' box) and Sound Manager can use *Audioshop*, whilst Digidesign variants can use *Sound Designer II*. Linking and unlinking of stereo audio events were all quite intuitive, as were the muting operations.

The next section is all management-orientated: defragmenting; converting from one sample rate to another, or stereo to mono; setting the size of the RAM buffer, which is used to hold the digital audio as it goes onto and comes off the hard disk; and much more.

DSP

The 'DSP' menu is where the fun really starts. Despite the name, the Digital Signal Processing can take place inside the Mac: you don't need any extra hardware (although you can use any additional DSP hardware for TDM plug-ins in the Console windows). The first block of commands are straightforward: 'Normalise' scales the audio,

so that it uses the full dynamic range of the audio track; 'Reverse' makes that audio track effectively play backwards; 'Invert Phase' can sometimes help in a mix. The EQ command allows simple low-, high- or band-pass filtering, with four slopes and Q control. The 'Fade In/Out' command allows timed linear or exponential fades across one (or many) audio track(s).

The serious stuff starts with the next section. 'Pitch Shift' performs the almost magical, changing the pitch without changing the timing. If you take a tape recorder and slow it down, then you change the pitch and the speed — but not here. Notes from a MIDI keyboard will select the interval, or it can be done by typing in the number of semitone steps, and fine-tuning in +/- 50 cents. The 'Time Scale' command does the opposite: you can stretch or shrink time without altering the pitch, and it uses scalings (eg. 2.0 for twice as long), timings or



That DSP menu...and the amazing Audio-to-MIDI function.

SEQUENCERS: HOW DO YOU CHOOSE?

Okay, so we all know there's only a few sequencers, and they all have broadly similar facilities, despite the hype that the manufacturers tell us. Sometimes one program gets a lead and leapfrogs ahead of the competition, but sooner or later they all catch up. The problem is that most of us mere mortals can't afford to keep changing sequencer every few months, just to keep up. So how do you choose a sequencer?

I reckon there are two main things to consider: how it feels and what it stops you doing. If you are going to be spending several hours a day in front of a computer screen with a mouse in your hand, then you had better feel comfortable with it. So you should try to find one that has the same approach as you have; the same metaphors, the same way of thinking. I like *Vision* because its roots lie in pattern-based sequencing, which

is a dead giveaway that I was raised on little banks of LEDs chasing across 8 or 16 pots to provide simple, repetitive sequences on analogue synthesizers. Other people prefer programs that emulate tape recorders. Try them out and see which feels right.

But the other consideration is harder to deal with. Sequencers can literally stop you from using parts of them. It can be what you can't do with a sequencer that matters more than what you can. In my case, I hadn't used audio for so long that I had started to forget that anything other than MIDI existed. Using *Studio Vision* woke me up, and reminded me very forcefully that my existing sequencer had a major area where it fell down: audio.

Using audio in a digital environment is not just a case of adding on a plug-in converter card to a MIDI sequencer, because the way that the sequencer deals

with the audio needs to be carefully considered. Surprisingly, this makes the job of the prospective purchaser easier. Simple add-ons should set the alarm bells ringing if you intend any serious professional work. You should look for an integrated system, where the hardware and software are interconnected. The difference is ably demonstrated by *Vision* and *Studio Vision*. *Vision* can provide audio with a suitable Power Mac by using the built-in audio hardware — but it is very much 'guide track' usage, with limited polyphony and no DSP facilities. In contrast, *Studio Vision* is at its best when used with additional dedicated hardware (although it can use the built-in hardware if necessary), and it provides more polyphony and all those DSP facilities. Make sure you find out exactly what you get for your money when you audition sequencers with audio capability.

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Opcode Studio Vision 3.0

“Almost everything that I played around with would not be possible or practical using just a multitrack.”

► bar/beat measures to set the amount of change. Wonderful for adjusting a drum loop to fit into the timing of an existing song.

The ‘Adjust Audio Tempo’ command does much the same thing, but this time it allows a tempo to control the time stretching or shrinking. This means that you can have tempo changes in MIDI and adjust the audio to follow them, or change the tempo of a song — instead of having the tempo fixed by the first audio track you record! This is much more useful than you might at first imagine. The audio quality of these time and pitch changes was excellent for small changes, less so for big changes. You need to experiment to find out what you can get away with in each context. Personally, I quite like the ‘harmonisation’ glitching that you get from big changes on some sounds.

But the best is at the bottom of the DSP menu, and it completely changes the scope of what you can

do with audio and MIDI. The ‘Audio-to-MIDI’ function takes a monophonic audio signal and extracts MIDI Note events, with Velocity and Volume information, a measure of the brightness and MIDI Pitchbend. There are several preset ranges and options, which suit specific conversions: percussion, vocals, instruments and so on, and you can control which events are generated, when notes become new notes instead of pitch-bent existing ones, and the conversion speed (from fast to slow). Or try adding your own presets: I created one for converting drums, using the slow conversion and all the extractions except note pitches and pitch bend. The obvious use of this is for controlling MIDI instruments with acoustic ones. Unfortunately, the monophonic conversion means that it is much better at adding

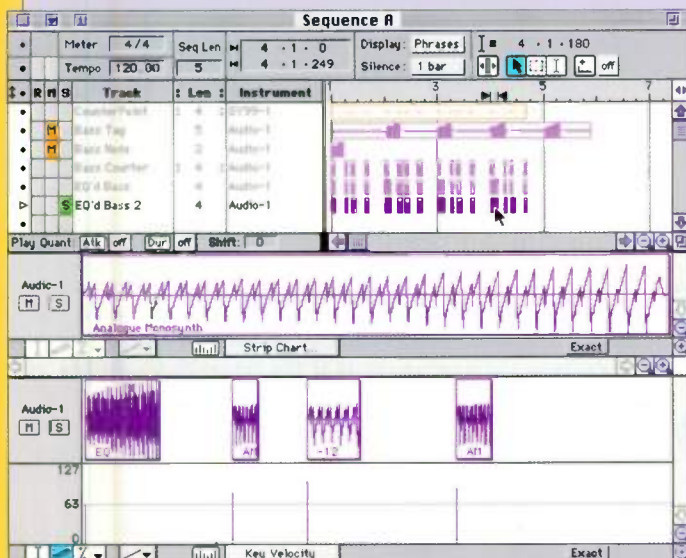
SOME PRACTICAL EXAMPLES

The proof of the pudding with a piece of software is what you can do with it. Here’s two examples of what I used it for.

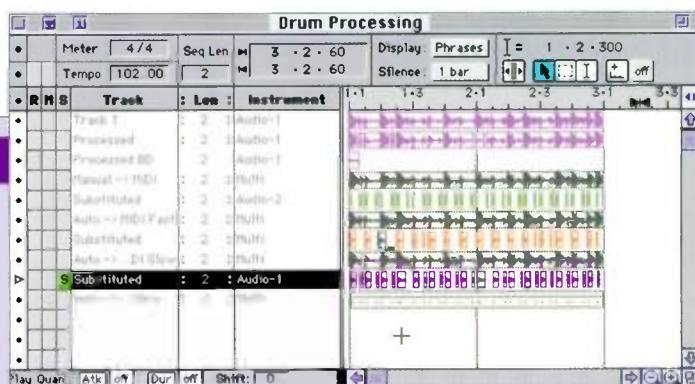
• ANALOGUE (SYNTH) TO DIGITAL (SEQUENCE)

Since my analogue synthesizers don’t always behave 100% correctly, I decided to play around with using a sample of one instead. The screenshot shows an excerpt from a bass pedal line called ‘Counterpoint’, and underneath it, an audio track recording of an analogue synth playing the first note of each bar. I selected one of these notes, and topped and tailed it to produce the ‘Bass Note’ muted track — which I then selected and copied to the Clipboard (much easier to do than say!). I then created a copy of the MIDI track ‘Counterpoint’, and, as an experiment, used the Substitute function to replace the MIDI data in the copied track with the Clipboard contents. To my amazement, I found that *Studio Vision Pro* automatically converted the resulting track into an audio track made up of the bass sample! I then selected some of the newly substituted bass notes and applied a band-pass filter to them, to simulate tweaking the VCF. Finally, I transposed some of the bass notes down an octave to add a bit of variety.

Apart from the initial recording of four notes from the analogue synth producing two detuned sawtooth waveforms, everything else was carried out in the digital domain — and yet the bass line sounds wonderfully live and improvised! Notice that the Audio-to-MIDI has extracted the velocities of the original bass line ‘Counterpoint’, and has superimposed this onto the substituted audio samples.



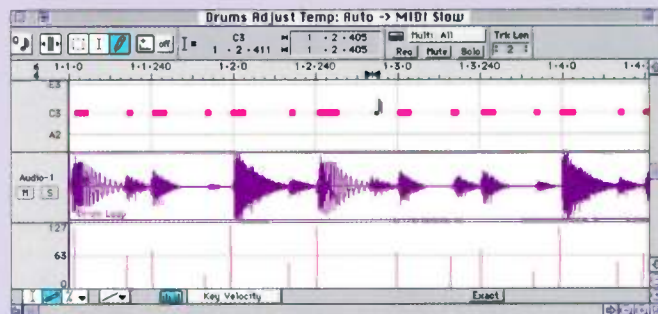
Replacing parts of a MIDI sequence with previously recorded audio data (see top right section of the window).



Substituting a bass drum sample into a MIDI file derived from an audio loop.

• STEALING THE FEEL

Drum loops are one of my least favourite things, to misquote Julie Andrews. In this case, I took a drum loop and adjusted its tempo to fit into two bars, and then EQ’d some of the drum sounds until I found one that I liked: a bass drum hi. This was all held in the ‘Processed’ track, so that I retained both the original and the processed audio. This bass drum was then extracted, and I ran the drum loop through the Audio-to-MIDI function. On the Fast/Percussion setting, the conversion missed a few of the drum hits, and the timing was poor, so I tried again using the Slow setting. This time, the conversion was spot-on, and so I substituted the processed bass drum for the extracted MIDI events. This gave a track with my processed bass drum instead of the original events in the drum loop, plus a set of velocities and note events for the drum hits in the loop — all ready for re-voicing and mixing with other drum sounds from my drum machines.



Deriving the MIDI file (above) from the original audio loop (below). Note how the MIDI data follows the audio precisely.

Again, this was all digital, and very fast and easy. Okay, I could have used a sampler to do the substitution, but I would have had to re-enter the hits by hand, and I would still have had to do the drum processing in the sampler, and then saved that sound. But I can’t think of any way that I could have also extracted the velocity (and timing) information from the drum loop. Anyone want to make a few groove templates?

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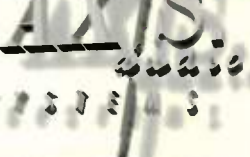
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Opcode Studio Vision 3.0

► feel and expression to existing performances — but for that, it's great. It can also be used for adding MIDI harmonisation and accompaniment to acoustic performances. I've spent weeks transcribing parts from audio tapes so that I could then add MIDI orchestration, and *StudioVision Pro v3.0* did it in minutes.

Having analysed the audio into MIDI and edited the MIDI, the final icing on the cake is the 'MIDI-to-audio' conversion. This takes the edited MIDI information and applies it to the audio. That one note that was out of tune or which the guitarist forgot can now be corrected or pitch-bent, plus a million other 'impossible-to-do' tweaks. As with the time and pitch-shifting, small changes work best, but in most cases, it is only a minor change that is needed. The conversion from audio to MIDI and back is not the lengthy process that you might imagine — it takes slightly longer the first time, but after that, subsequent conversions are noticeably faster. The processing time depends on your machine: the more powerful the machine, the faster the processing.

CONSOLES

The Faders window, with its horizontal slider controls for altering MIDI volume or other controllers is still present, but it is now joined by the Consoles window. The Consoles offers much more 'mixing desk'-like

facilities, with four different console setups available, and wide and narrow displays with up to 256 channels. The wide displays show a volume bargraph and more detailed channel information, whilst the narrow displays allow you to view more channels at once on the screen. There are faders for volume and pan (although the Yamaha CBX units ignore pan events), mute and solo buttons, and with a TDM-equipped Digidesign hardware system you can use up to four TDM plug-ins — Dynamics processors, EQ and delay, for example. You can 'build' a console automatically, from



The narrow version of the console display.

SYSTEM REQUIREMENTS & ADDITIONAL HARDWARE

The bare minimum computer platform which Opcode recommend for using *Studio Vision Pro 3.0* is a Mac IICI with 12Mb of RAM, running System 7.01 (or higher), with a hard disk with 18 milliseconds (or better) access time — plus a MIDI interface and some MIDI sound sources, of course.

Using Apple's Sound Manager 3.1 on an AV Mac or a PowerMac is going to over-burden the processor because it is running everything: OS, program and audio. A fast machine will definitely help to keep things moving quickly, while a slow machine can only get slower. Sound Manager audio I/O is also limited by the available output sockets on your Mac: stereo minijacks in most cases.

Using additional hardware like Yamaha's CBX audio processors, or Digidesign's Audiomediam II card, Pro Tools or Pro Tools III is going to spread the processing load between the Mac and the extra hardware, which means that a slower machine is not as important. If you can afford the additional hardware, then not having a decent Mac to run it on seems like a false economy.

If you decide to go for additional hardware, there

are two major choices: Yamaha's CBX series audio processors, or the Digidesign range. Yamaha's CBX-D5 or D3 offer four-channel playback and two-channel record, while monitoring using the other two channels.

Digidesign offer a range of options, from the basic Audiomediam II card (just over £1000) through the mid-range Session 8 (about £2500), to the full Monty — Pro Tools with TDM, at a little over £6000. Session 8 will soon be superseded by Pro Tools Project at £2175. The 882 I/O for Session 8 and Pro Tools comes in at an extra £1000, while the 888 I/O is £2600. All of these include NuBus cards, with PCI bus versions coming on-stream during 1996. There is also an Apple AV NuBus card, which can be used to provide AV features for some of the non-AV Power Macs, and this then enables the use of the Apple Sound Manager features.

T Apple 0181 730 2048.

T Digidesign 01753 653322.

T Yamaha 01908 366700.

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Version 3 Software introduces AFMS (*Advanced File Management System*) which allows you to load and save selected objects and create powerful file-management macros. There are also helpful backup and copy utilities, and more. Version 3 Software's 32-track sequencer performs functions usually found only in advanced computer software sequencers, like automated mixdown, input quantization, and triggering sequences from the keyboard.

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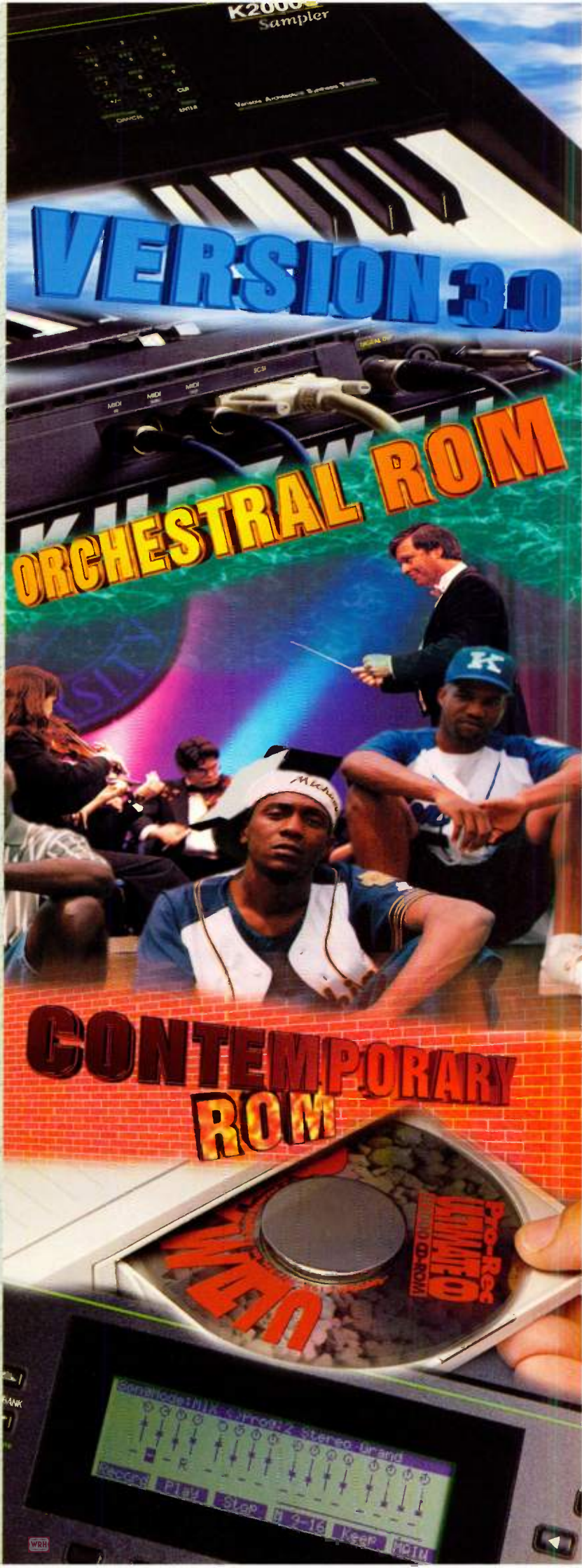
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Opcode Studio Vision 3.0



The Consoles window in its wide format.

- ▶ either selected tracks or from just the audio tracks, which speeds up making a console. These can then be edited to your own preference.

MANUALS

In line with all the other changes brought about by the move to OMS 2.0, the manuals have been reorganised too. The OMS manual (42 pages) now only describes the studio setup facilities, because all the naming of patches is now dealt with inside the sequencer or librarian program. There is a common MIDI reference manual (350 pages) which covers the MIDI sequencer parts of *Vision* and *Studio Vision*, whilst all the audio aspects are dealt with in a separate 302-page audio reference manual — again, for *Vision* and *Studio Vision*. There's also a 'Getting Started' manual (64 pages) for both programs: this takes you through the basic operations and gives some tutorials on using the MIDI facilities effectively.

If all this sounds as though *Vision* and *Studio Vision* are converging, it's not far from the truth.

The major difference now seems to be the ability of *Studio Vision* to deal with the additional audio hardware offered by Yamaha's CBX or Digidesign. A *Vision* owner can now look in the manuals and discover what extras are in the upgrade. Quite a neat idea.

The manuals have lots of screen shots, are very readable, and take a 'how to do it' approach, with lots of little tips scattered through the text, and decent indexes. The manuals are 'perfect bound' (like this magazine) paperbacks, in a square A5-sized format. I'm normally not very happy with the quality of manuals, but these were an impressive exception.

SUMMARY

I liked *Studio Vision Pro v3.0*. As a deliberate non-user until recently, I've been watching all of the 'MIDI and audio/hard disk recording' programs quite closely, because they seem to be the way ahead — and because people ask me about them all the time. Having the opportunity to try one out properly has changed my opinion: this could be a useful tool for anyone who wants to work with audio and MIDI. In fact, I might even go so far as to say that there's no longer any need to think about investing in a sampler and a multitrack — going digital is now a viable alternative.

As to using *Studio Vision Pro*, I have to admit that I quickly forgot that I was dealing with audio samples, and started working interchangeably with snippets of MIDI and audio. As you can see from the 'Practical Examples' box, I had no difficulty substituting MIDI events with audio samples, extracting groove information, replacing audio events with MIDI and other audio events from drum loops. I ran out of time before I ran out of ideas for using the software. Almost everything that I played around with would not be possible or practical using just a multitrack. The combination of a sampler and a digital multitrack would be able to do most of what I did, but at the cost of time and complexity. I enjoyed being able to rework audio in much the same way that I manipulate MIDI information, and the sense of liberation was quite intoxicating at times. The bottom line is that I could use this to make music — and money too!

SOS

FURTHER INFORMATION

- E** *Studio Vision Pro v3.0* £799; *Vision v3.0* £349. Prices include VAT.
- A** MCMXCIX, 9 Hatton Street, London NW8 8PR.
- T** 0171 723 7221.
- F** 0171 262 8215.
- W** <http://www.computerwarehouse.co.uk>

Many thanks to Lars at MCM for his extensive help and knowledge, and to MCM for the loan of equipment for this review.

"If I was a sampler or analogue multitrack manufacturer, I would be worried. If I was a producer, I would be ecstatic."

TRACKS

How many audio tracks can you expect when you have just a Macintosh with System 7.5 and Sound Manager 3.1 installed? As usual with digital audio direct-to-disk systems, there is no simple answer — it depends on the access time and fragmentation of your hard disk, the number and type of System Extensions that you are using (the fewer the better), and several other criteria. What follows are Opcode's guidelines for typical numbers of audio tracks.

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* Opcode do not recommend the PowerMac 7500, 7200 and 6100 for professional audio use.

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BASICS

PAUL WHITE concludes this series with a look at phrase and loop sampling, the use of keygroups and mapping, and the use of the modern sampler as a synthesizer.

LOOPING SAMPLES

In part one of this series, I commented that there's a world of difference between looping samples and sampling loops. Looping a sample is the art of sustaining the sound indefinitely by taking a part of it (usually during the decay part of the original sound), then playing it back repeatedly to create the illusion of a continuous sound. How well the start and end of the looped section match up determines the smoothness of the loop. One pitfall to be aware of is that stereo samples can be more difficult to loop than mono ones, as the ideal loop point on the left channel might not coincide with the ideal loop point on the right. The usual outcome is that one side loops smoothly, while the other has an audible glitch. You can't loop the samples at different places, otherwise the left and right channels would move out of phase with each other — so if you can't find a satisfactory loop point that works for both channels, you usually have to take your best shot and then use a crossfade to cover your tracks. It's often better to have a short crossfade than a long one, because during the crossfade region, the phase differences between the signals can cause a mild chorus or flange effect, which will detract from the natural character of the sound, and may even cause a noticeable dip in level.

In theory, the waveform being looped should be exactly in phase at the point where the loop joins up. If the optimum loop point has been chosen it will be, but unless the signal is absolutely constant in frequency, phase differences will occur the further you move from the loop point. The

Over the past couple of months, I've introduced the basic concepts of sampling and, hopefully, made you aware of any hidden expenses such as buying more memory or adding a SCSI drive. Like any other area of music making and recording, sampling can be used either very simply or in great depth, but no matter how much you know already, there are always new tricks to learn.

When samplers were first devised, their relatively short sampling times and small memory capacity meant they were useful mainly for sampling individual instruments. Once looped, this allowed sustained sounds such as string pads to be generated. With the increase in the memory capacity of current samplers, it may be possible to record several minutes of either mono or stereo audio, making the sampler a convenient alternative to the analogue 2-track recorder for 'spinning in' vocal choruses or other sections that occur more than once within a song. Samplers are also used extensively for sampling complete rhythmic phrases, especially drum patterns. All these applications require different things of a sampler — and of the user.

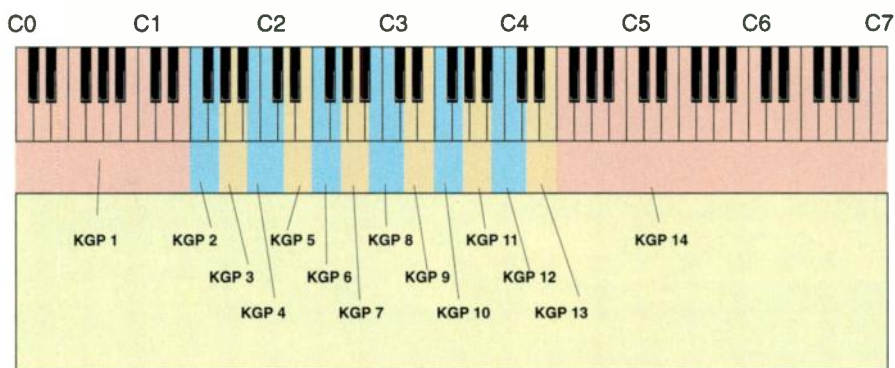


Figure 1: Typical keygroup map for choir program. Note that the middle keygroups are all only three semitones wide, while the end keygroups can extend right to the ends of the keyboard, enabling you to make use of sounds both above and below their natural pitch.

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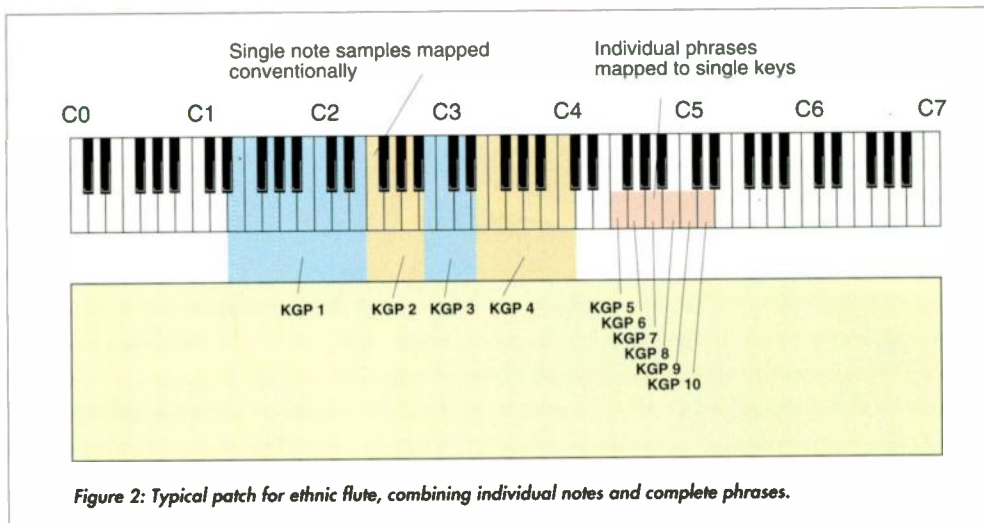


Figure 2: Typical patch for ethnic flute, combining individual notes and complete phrases.

▶ shorter the crossfade region, the less chance there is of running into phase problems.

SAMPLING LOOPS

Sampling loops is quite different from looping samples because, perversely, it's seldom necessary to do any looping at all. Sampling a 'loop' is actually the technique of sampling a musical phrase, usually a rhythmic one, that can be retriggered every time it ends, to create the illusion of a continuous musical part. You could do this by looping the sample itself, but used within a sequence, you'd almost certainly find the timing of your sample drifting with respect to the rest of the mix. Whenever you trigger a sample, it's important to realise that the only part of the sound you can guarantee to be in sync is the beginning. After that, you rely on the sampler's internal clock and the sequencer's clock not to drift apart. As they both utilise digital, crystal-locked clocks, they should stay tightly in sync for at least the length of a typical song, but unless your loop length is matched precisely to the tempo of your sequencer, the timing will still wander out.

A far more satisfactory approach is to retrigger your sample from the sequencer rather

than looping it. If your sampled loop is four bars long, you simply play a new note every four bars, and make sure this note is quantised to the first beat of the bar. Now, if the tempo of the sequencer isn't spot on, the result will be a small timing discrepancy at the end of each sampled loop rather than a cumulative drift in timing, and if the error is kept small (by adjusting the sequencer's tempo as closely as possible to that of the looped section), nobody will hear it anyway. At the end of the song, you only need to allow the loop to play though to its natural end rather than retriggering it, and if you can pick a loop that actually has an ending (rather than simply being chopped off), it makes it easier for you to engineer a convincing finish to your piece. If all else fails, there's always the fade-out to fall back on.

Many drum loop sample CDs include samples of individual drum sounds as well as the loops, and these samples can be used to play new parts over the original loops, to personalise them and add variety. To do this, you simply need to use the sampler in multitimbral mode, with the loop program assigned to one part and the drum sound program assigned to another. You can also use these sounds to build your own rhythms, fills and intros.

SAMPLERS AS SYNTHS

Now that most modern samplers are equipped with resonant filters, simple waveforms can be sampled and treated, to create the digital equivalent of an analogue synth. In theory, you could just load up your sampler with square, pulse, triangle, sawtooth and sine waves, then start synthesizing, but it's often more productive to start off by sampling the raw waveforms from a real instrument. The reason for this is that virtually all analogue synths colour or distort the waveforms to some extent, so if you can capture these benign colorations, you may end up with some of the character of the original instrument in your new sound.

When sampling a synth, it's usually best to set its low-pass filter cutoff frequency at maximum and the resonance at minimum, so as to remove the effect of the filter altogether. This lets you re-create the necessary

filter sweep using the filter and filter envelope controls in your sampler. Similarly, turn off all LFO modulation, so as to get as static a sound as is possible. Again, you can put all this back using your sampler's own controls.

If the waveform is constant, you only need to sample a very short section — indeed, a single cycle will do the trick, and because the sample is very short, any auto-looping facility you have should make light work of finding the best loop points for you. Sounds that evolve have to be treated differently, because the waveform is changing over time. If you have enough sample memory, you can sample a phase sync sound or a ring modulation effect, but unless you multisample, you'll find that the effect speeds up drastically towards the top of the keyboard, and slows to a near crawl at the other. Similarly, LFO pulse width modulation will change

noticeably in speed, even if you do manage to loop the sample at a point that coincides with one full cycle of the modulation frequency. All in all, it's probably best to fake this particular effect by sampling an unmodulated sound, then either adding chorus, or layering the sound with a slightly detuned version of itself.

A typical modern sampler has good modulation facilities, portamento, nice-sounding filters and powerful envelope shaping capability, so when you think about it, you've got everything you need in a synth except the basic waveforms. What's more, you can mix analogue waveforms with sampled waveforms, to create hybrid string patches and so on. This aspect of the sampler is probably the most underrated, but I suspect that over the next couple of years we shall see the fine line between synths and samplers dissolve altogether.

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Sampling basics

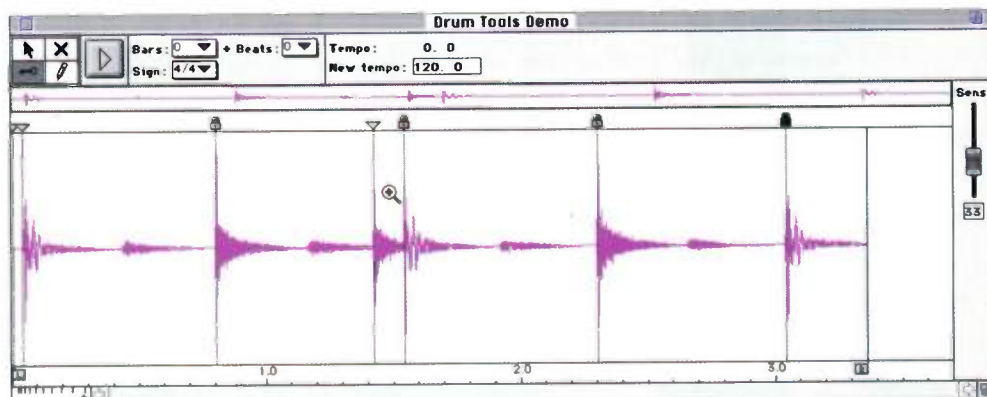
- ▶ Anyone seriously involved in using rhythmic looped samples should check out Steinberg's *ReCycle* software, which makes the precise looping of patterns easy. It also enables you to split a single pattern into individual beats, so you can move, remove or substitute drum sounds to create new rhythms.

PHRASE SAMPLING

Phrase sampling is similar to using loops, in that you record complete chunks of music rather than single sounds, but in normal circumstances, you

sounds you come across.

Inevitably, the way you write music can be dictated to some extent by any sampled phrases you wish to use. For example, you'll probably want to stay in the same key as the sample you've chosen, rather than using pitch correction and all the side effects that process inevitably entails. Pitch-shifting usually compromises the sound quality, unless the degree of pitch change is very small, whereas playing back the sample faster or slower by hitting a different key will not only change the tempo, but also the tonal character of



Steinberg's *ReCycle* — a useful tool for anyone using sampled loops.

wouldn't loop these sounds or retrigger them to play continuously. For example, if you have only one perfect backing vocal take for a chorus, you can sample it and then use it in every chorus in the song. A tip here is to sample in mono if you need to save memory: the sound will widen up when you add reverb during the mix.

Another use of phrase sampling is to use vocal or instrumental snatches in your mix. Ethnic vocal samples can often be broken down into phrases, and then retriggered to fit in with your own compositions — and the same is true of things like flute solos. There are also sample CDs featuring brass sections, which enable you to use powerful brass riffs in your work. The more you explore the world of sample CDs, the more inspirational

the sound. Sometimes this can be used creatively — at others, it can't!

Timestretch-type treatments may also be used to change the tempo of a section without altering the pitch, but once again, be aware that audible side effects will become evident if you change the tempo by more than a few percent. One option is to use external pitch/time processing such as Steinberg's *Time Bandit* software, in which case the degree of available change is rather greater before the sound quality is compromised.

It's worth mentioning at this stage that both looping and phrase sampling take up a lot of memory, especially if you are working multitimbrally or using long chunks of audio. In some cases, it may be worth considering moving up to an 'Audio plus MIDI' sequencer, so that longer sections can be recorded directly to disk to save on expensive RAM (for more on 'Audio plus MIDI' sequencers, see Mike Collins' overview of the major Mac-based packages in *SOS* December '95). In my own case, I use *Logic Audio*, which allows drum parts to be looped in much the same way as you might do with a conventional sampler. Its benefits are even greater when you want to record long sections of vocals, and the visual interface is useful when it comes to cutting and pasting audio.

PITCH INVASION

Whether you take your sounds from CD-ROMs or sample CDs, you may find that the multisampled area is only a couple of octaves wide, the reason being that the instrument or voice being sampled can only cover a limited range

CD-ROMS: HOW MUCH??

Compared to straightforward sample CDs, CD-ROMs seem hugely expensive (£200 is a typical CD-ROM price, compared to more like £60 for a sample CD) — but when you consider that they can contain 600Mb or more of ready-mapped samples, they still make good commercial sense — as long as enough of what's on the disk is likely to be useful to you. Indeed, there's little point in bootlegging samples from CD-ROMs (which is illegal anyway), because the removable disks you need to store the data on tend to cost more per megabyte than the CD-ROMs cost in the first place.

One of the limitations of the CD-ROM is that the samples provided can't be edited unless you save the edited result to a writable drive of some kind. So if you want to change loop points or do

other processing tricks, you'll still need an external SCSI drive. However, most samplers will allow you to save only the program information (key mapping, envelopes, filter settings and so on) to a floppy, without the need to save the samples themselves. That means you can make up program disks that allow you to use the existing samples in different ways, using inexpensive floppies.

Having made the case for CD-ROMs, the truth is that you still end up paying for some samples that you'll never use, and I don't think it's any secret that the major sample providers are looking at ways of selling individual samples, possibly via the Internet. Whatever direction they take, as more people start to buy samples, the more the price will eventually come down — which has to be good news for all of us.

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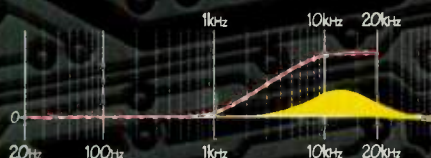
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▶ of pitches. However, the highest and lowest samples may still be mapped right out to the ends of the keyboards, which will allow you to use the sounds outside their natural range, providing you don't mind the unnatural sound. For this reason, a well-sampled choir might sound perfectly natural in the middle of the keyboard, but if you go right up to the top, you get a sound akin to your local chipmunk close harmony singing group, and if you go down to the bottom, it can sound as though your angelic choir has descended into the bowels of Beelzebub. Figure 1 (see page 80) shows a typical keymap for a choir.

In many instances, a single sample assigned to each key is all that's needed, but if you want to emulate the tonal characteristics of a real instrument, you may need more. The majority of samplers allow you to assign two samples to a key, so that low note velocities trigger the 'quiet' sample, and higher velocities trigger the 'loud' sample. Only one sample plays at any one time, so you don't lose any polyphony, but the transition from 'quiet' to 'loud' sound will be abrupt, even though velocity still controls level in the usual way. Careful use of filters can help — if you set the filter so that it opens up more with higher velocities, the sound will get brighter as it gets louder, which is what most real instruments do.

Another option which, at first glance, looks attractive is velocity crossfading. Here, you have two samples, just like before, but this time they both play at once, only at different levels depending on the note velocity. At low velocities the 'quiet' sample predominates, while at high velocities, the 'loud' sample takes over. In the

middle, you get a mix of both. This provides a much smoother transition from low to high, but because two notes are always playing, the available polyphony of your sampler is halved. You also hear a mixture of two samples, which isn't the same thing as one, intermediate velocity sample. Depending on the instrument, you might hear a phasing or chorus effect, which gives away the fact that you're not hearing a single sound. Different users will have different preferences, but on balance, I prefer velocity switching for most applications.

MORE ABOUT MAPS

Once you start to explore sampling, you'll find you can combine phrase sampling and conventional simple note sampling in fascinating ways. For example, we've all heard those wonderful (and sadly overused) shakuhachi solos that end in breathy pitch drops and flourishes, but as you soon discover, you can't actually create those effects on single note samples, no matter how much you juggle with the bend and mod wheels.

I've found that one way of tackling the problem is to map out a couple of octaves of single note samples, played straight with no vibrato, then take a handful of useful phrases in the key of your song, and map these to single keys. By doing this, you can jump between playing a conventional solo line and triggering one of the phrases. Figure 2 shows a possible keymap for exploring this technique (see page 82).

Another way to do the same job is to use velocity cross-switching, so that normal playing velocity gives you the conventional single note samples, and higher velocities trigger a phrase. Once you appreciate what can be done in this way, you'll come up with your own way of mapping samples to suit your own playing style. In all cases, the single phrases should be mapped so that they play back at a fixed pitch regardless of the key to which they are assigned. In practice, it is possible to create a number of different-sounding programs based on the same set of samples, simply by using different mapping options, different filter settings and different amplitude envelopes.

SUMMARY

I'm aware that this series has only scratched the surface of what you can do with a sampler, but I hope that it has given those who don't own a sampler an idea of what they're missing, and existing sampler owners some new ideas for avenues of exploration. A good sampler is a very versatile tool, and though collecting and cataloguing a working selection of sounds takes time and effort, it is time well spent. A sampler can emulate conventional instruments, it can be a phrase recorder/player, or it can be a synthesizer in its own right. That makes it one of the most powerful music tools on the planet, so use it with respect and you'll reap the rewards.

SOS

SAMPLE CDs

Sample CDs are a lot cheaper than CD-ROMs, and usually contain the same samples as their CD-ROM counterparts (though occasionally fewer of them). The trade-off is that you have to load all the samples into your sampler, map them into keygroups and create the programs yourself.

You'll find the key ranges for each sample listed on the accompanying sleeve or booklet, so the procedure is more tedious than it is difficult, but if any of the samples need looping, it's down to you to find the best loop points. This can be very time-consuming, and requires a certain amount of experience to get right. If it's something you're going to be doing a lot of, then a software sample editing package such as *Alchemy* is well worth considering. I'm still using Akai's bundled *Mesa* software, which does the job well enough once you've cracked its cryptic routines, but its main weakness is that it can't perform crossfade looping — you have to go back to the sampler front panel for that.

When it comes to mapping your samples, you don't always have to go along with what the CD literature suggests. For example, instruments such as strings and flutes can be transposed quite a long way before they start to sound wrong, so you could get away with just one or two keygroups, if most of your playing is near the middle of the keyboard. Even instruments that do suffer when transposed

outside their normal range can be abused to create special effects: check out the *Art of Noise's* early material to hear excellent examples of this.

Human voices don't take kindly to being moved too far from their native pitch, and the same is true of acoustic instruments with strong resonant formants, such as acoustic guitars and pianos. Here, you may need to have a new sample every three or four semitones to maintain a natural sound. In this case, you should arrange the original pitch of your instrument to fall in the centre of the keygroup, then listen carefully for differences in tone as you move from one keygroup to another.

Whenever you play back a sample at a higher pitch, the whole harmonic structure of the sound is moved up, with the result that the highest sound in one keygroup is likely to sound brighter than the lowest note in the next keygroup up. If the keygroups are narrow enough, this effect may be trivial enough to ignore, but if you're using only one or two keygroups per octave, it may be advantageous to use the tracking filters set up with a negative value, so that as you move up a keygroup, the top end is tamed slightly. Some samplers allow you to crossfade from one keygroup to another, but this reduces polyphony and may produce unnatural chorus effects on solo instruments.

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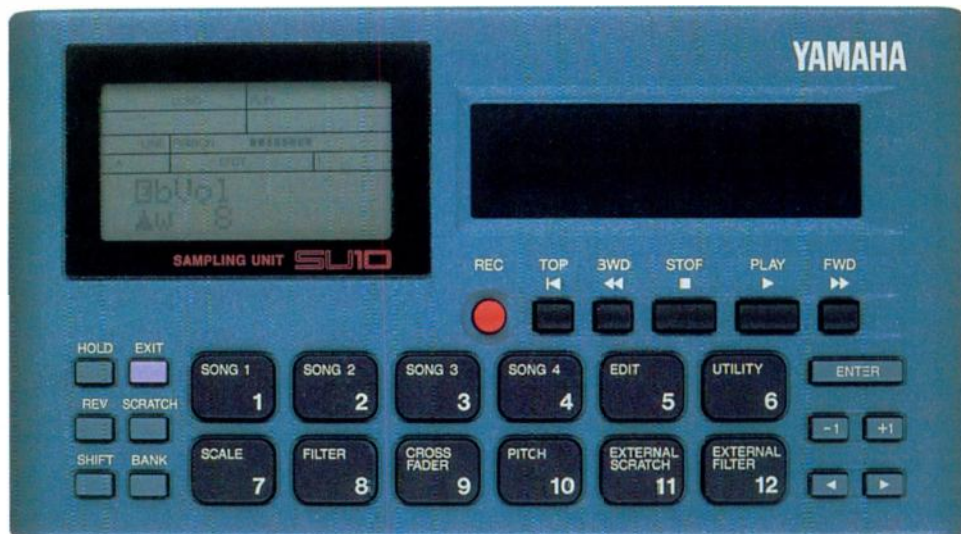
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YAMAHA SU10 STEREO SAMPLER

After a hiatus of several years, Yamaha return to sampling with the cheapest, most portable dedicated sampler yet. DEREK JOHNSON coins a phrase...

specification also appeared to offer a decent set of features, crammed into a video cassette-sized package similar to that used by Yamaha's QY Walkstation sequencers, MU5 sound module and RY8 rhythm programmer. Perhaps the success of this portable range has provided Yamaha with the perfect opportunity to reintroduce sampling without having to slug it out in the competitive high-end arena. At this price, the SU10 stands alone.

FEATURES

Before taking a closer look at the SU10, I should correct an earlier news item published in SOS, which gave the impression that the SU10 was to offer completely uncompressed sampling. The first basic information released by Yamaha stated that the SU10 could send samples to compatible devices via MIDI Sample Dump Standard, leading to the assumption that the SU10 must be recording uncompressed samples — but I'd reckoned without some cleverness on the part of Yamaha engineers, who managed to make SDS work with compressed samples. So, in common with Roland's MS1 sampler (see SOS March 1995), the SU10 uses data compression to bring maximum sample time, at a minimum expenditure of RAM and money.

That sample time varies between 17.8 and 67.4 seconds, which is halved for stereo samples. The time can be divided between up to 48 locations, accessed via 12 pads, and arranged in four switchable banks (a 'scale' function lets all 12 pads play one sample chromatically). Four sampling rates (called 'grades' by Yamaha) are selectable on a global basis: High, Standard, Long and Extra Long. There is also a global 'pitch' function (of -20% to +10%), which, as well as altering the tuning of all samples, affects sampling

YAMAHA SU10 £299

PROS

- Cheapest stand-alone sampler currently available.
- Lengthy sample time, with plenty of sample locations.
- Can run from batteries.
- Flash RAM means samples aren't lost on power-down.
- Handy sample sequencer.

CONS

- Display's visibility suffers in some conditions.
- Mini jack audio connections.
- Some features unavailable at High grade sample rate.
- Global sample rate and pitch values.

SUMMARY

Nothing comes close in price. Luckily, it also sounds good, is easy to use, and is a lot of fun. Yamaha deserve to do well with this sampler — and I think they will.

Take a look at the history of Yamaha hi-tech music product development over the past seven or eight years, and you'll notice a significant gap in the company's range. Despite the rise and rise of sampling as a popular music tool, Yamaha have had no sampler to their name since the TX16W, released in early 1988.

Though the TX16W offered sophisticated sampling facilities and good sound quality, its relatively high selling price and complicated operating system relegated it to an also-ran, with cheaper and more accessible samplers from companies such as Akai leading the field. Yamaha have taken their time about it, but they seem to have benefited from the lesson of the TX16W: for what could be cheaper or more accessible than a £299, pocket-sized phrase sampler, with an operating system that could be mastered by a child? Enter the SU10.

News of the SU10 caused quite a stir, not least because of its projected price. The preliminary



Spectrum™ Organ contains 128 presets including classic rock, jazz, gospel and pipe organ sounds. Each preset includes individual vibrato, distortion, reverb, key click and release click settings. These settings can be globally altered from the front panel, or using MIDI controller messages. In addition, each preset contains four drawbar waves which can be accessed in real time using the PC™-1600 MIDI Controller.

- 1 Mb 16-bit Classic Organ Sample Wavetable
- 128 Presets
- 32 Oscillators
- 32 Voice Polyphonic
- 4 Part Multi-timbral
- Voice Pedal Input
- Leslie Speed Pedal Input
- Stereo Audio Outputs



Spectrum™ Synth contains 256 (64RAM/192ROM) classic synthesizer presets including analog, digital and hybrid sounds. With 24 dynamic resonant filters, hard sync and pulse width modulation, the Spectrum Synth emulates classic analog synthesizers better than any other digital instrument. Presets can be edited and saved to RAM locations using the PC-1600 MIDI Controller.

- 2 Mb 16-bit Classic Synthesizer Sample Wavetable
- 256 Presets (64 RAM /192 ROM)
- 24 Oscillators
- 12 Voice Polyphonic
- 12 Dynamic Resonant Filters and 24 LFO's
- Poly and Legato Receive Modes
- Hard Sync and Pulse Width Modulation
- Stereo Audio Outputs



Spectrum™ Bass contains 200 presets including classic analog and digital synthesized basses, as well as electric, acoustic, fretless and slapped sounds. The Spectrum Bass includes sustained and legato versions of most preset sounds. Up to 4 presets can be layered on separate MIDI channels to create incredibly fat combination sounds. Individual presets can be edited using the PC-1600 MIDI controller.

- 1 Mb 16-bit Classic Bass Sample Wavetable
- 200 Presets
- 8 Oscillators
- 8 Voice Polyphonic
- 8 Dynamic Resonant Filters and LFO's
- 4 Part Multi-timbral
- Poly and Legato Receive Modes
- Stereo Audio Outputs



Spectrum™ Analog Filter is a true programmable analog filter system which can be used to process any sound. It offers a 3-channel input mixer followed by a classic voltage controlled resonant 4-pole filter and voltage controlled amplifier. The filter circuit includes an ADSR envelope, velocity and key track amounts, and is MIDI controllable. The amplifier circuit also offers an ADSR envelope and master volume. 100 program locations allow settings to be stored in memory.

- Classic Analog 4-Pole Filter Circuit
- 100 Programmable Locations
- 3 Audio Inputs
- MIDI Note Triggering
- Audio Trigger and Envelope Follower
- Filter Frequency Velocity and Key Tracking
- MIDI Controllable
- Mono Audio Output

PC™ 1600 MIDI Controller This general purpose MIDI controller offers 16 sliders and 16 buttons that can be programmed to send system common or system exclusive MIDI messages. In addition, 2 CV pedals and the data wheel can be used as alternate controllers. The PC-1600 has many uses including programming and controlling any of the Spectrum series sound modules. The PC-1600 comes with 50 presets offering a variety of synth editors, sequence controllers, lighting system controllers, etc. All presets are fully programmable, so as other needs develop, they can be programmed by the user very easily.

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YAMAHA SU10

► rate. The High sampling grade, with a +10% pitch bias, produces the shortest sampling time, but offers a genuine 44.1kHz sample rate. The Extra Long grade, with -20% pitch bias, offers a real-world sample rate of 11.64kHz.

Sample editing is basic: simply set loop points and discard the unused bits of sample. You have a choice of one-shot, reversed, looped from the beginning, looped from some other location within the sample, and reverse-looped samples. You can also set a level for each pad, and assign it to one of three 'alternate groups': any two samples assigned to an alternate group will not sound together.

In common with Roland's MS1, the SU10 features a miniature sample sequencer, whose functionality is compromised by a number of factors: polyphony is never terribly generous (a maximum of four notes), sample rates can't be mixed, you can't overdub, and individual samples can't have their pitch altered. Otherwise, this is a great feature for simply knocking together a track. It's basically a real-time recorder, with no tempo or time signature: you simply record the desired pad presses (up to about 1000, shared dynamically between four songs) in the order you want them, and they'll play back in exactly the same order. If you want anything more sophisticated, you'll have to use an external sequencer to trigger the sampler.

SAMPLING & EDITING

The SU10 is about sampling, and you'll be relieved to know that the process is as painless as it comes: press the red Record button, select a pad, and hit Enter. A look at the display reveals a list of parameters to scroll through, allowing you to select the sample rate, loop mode of the finished sample (this can be changed later), input level and trigger mode. Press the Play button, and sampling starts immediately (if you've selected manual trigger) or when the input threshold is reached (if you've chosen one of the seven trigger levels). Hit Stop, and you're finished.

MOSTLY MIDI

The SU10 is quite at home in the MIDI-equipped '90s. For example, all 48 samples can be played, with full velocity response, with their own individual note numbers; the preset note table is logical (starting at the bottom C of a 61-note keyboard), or you can define your own. You can even play samples in reverse over MIDI: first send Program Change 2, and any note hit with a velocity of greater than 110 will play its particular sample backwards.

The SU10 does not respond to any pitch bend, mod wheel or sustain pedal controllers you send to it — although its ribbon controller can be set to transmit a range of MIDI controllers. The pads can also play external instruments.

I mentioned that samples can be sent over MIDI via SDS, so you could collect your samples in the field using an SU10 and bring them back to your

sampler at home, or, even more usefully, use the SU10 to generate samples for synthesizers that have sample RAM — Yamaha's own SY85 and TG500 are prime examples. Note that samples can't be dumped to the SU10.

If you're wondering about backing up samples and songs once the SU10's memory is full, you'll be pleased to hear that memory contents can be dumped via System Exclusive. Full instructions are given for doing so to Yamaha's MDF2 data filer, QS300 workstation and QY300 sequencer/sound module, although it should be possible to adapt the manoeuvres to other SysEx-compatible devices. The operation is most straightforward with the MDF2, but since a dump can be quite large and is transmitted in four sections, it can be quite long-winded with other machines; my Yamaha SY85 doesn't seem to have a large enough buffer to do it properly.

BRIEF SPECIFICATION

RAM:	384Kb of non-volatile Flash RAM, 8Kb of song RAM (approx 1000 events)
Sampling Time:	minimum 17.8, maximum 67.4 seconds
Sample Rates:	High, Standard, Long, Extra Long (44.1kHz to 11.64kHz)
Sample Locations:	48
Audio Connections:	Line In, Mic In, Line Out, Headphones Out, all stereo mini jacks
Power:	6 x AA batteries or optional KPA3 power supply

Setting up loop points is done largely by ear, with help from a numeric display. But if you're looping a drum rhythm or something similar, the SU10 extrapolates a tempo, which is shown on the LCD next to the sample start or end positions. So, if you know your drum loop's or break's tempo, getting a perfect loop point is easy: set the start point as accurately as you can, then go to the end point, and change its value until the tempo in the display matches your loop's tempo. When you play it back, the loop is spot on. The only drawback on the looping front — and I say this knowing that Yamaha are pitching the SU10 as a phrase sampler — is that when working with single instrumental notes (piano, oboe or whatever), it's tricky to get smooth loops. There is definitely no crossfade looping or smoothing function available.

There are one or two compromises. First, both sample rate and pitch control are global: you can't mix sample rates or have individual pitch settings for each pad. Secondly, polyphony and ribbon controller functions (see 'Mostly MIDI') are compromised by your chosen sample rate. Polyphony at the High grade is two mono or one stereo sample, and you can't use the ribbon controller to create scratch, scale, crossfade, filter or pitch shift effects. The Standard grade allows four-sample polyphony (ie. two stereo samples), but loses the scale and filter functions. The two lower grades give you access to all facilities.

RIBBON CONTROLLER

The most intriguing feature of the SU10 must be its ribbon controller, to the right of the large LCD. When used with onboard samples, it can create real-time scratch effects, pitch changes and filter effects. It can be surprisingly effective, and is great fun: you simply wiggle your finger across the strip. The SU10's filter, by the way, is simple, but effective: there's a choice of high-pass, low-pass and band-pass, with 'flat', 'weak' or 'strong' resonance.

The ribbon controller can also be used to apply scratch and filter effects to incoming signals, which is an excellent feature. The scratch effect is similar to that obtained by manhandling vinyl records on a turntable. The SU10 achieves it by constantly sampling the input signal. When you touch the ribbon controller, it mutes the input signal and lets you scratch the latest sample held in the buffer. There is also a crossfade function that

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YAMAHA SU10

- ▶ allows you to fade between a sample or SU10 song, and the signal coming in at the input. This could be just the thing for the organised DJ: up to 48 link samples could be used to cover up the seams while swapping records.

CONCLUSION

For me, Yamaha's new little sampler is one of the most exciting instruments to come along for some time. Its immediacy, size and price all mitigate any shortcomings. Though it feels similar to Roland's MS1 — which pioneered the simple, low-priced, data-compressed sampling approach — the SU10 is different enough in its own right, not to mention cheaper. And it's straightforward to operate, with only the display causing any problems: although large, it uses some very small text sizes and lacks both backlighting and contrast control, which can make readability a problem.

Sound quality is a totally subjective area, but I was generally impressed. High grade samples are very clean, showing little in the way of unwanted artefacts and hiss — transferred to my SY85, they sounded great. The lower grades get progressively less bright and more hissy, but are never unusable. In fact, it's quite possible to use Long or Extra Long grade samples in a track and not really notice the hiss. The sound has a certain character to it, and you get much more sample time to play with.

The so-called 4-bit ADPCM data compression does have an effect on the samples; the audible difference between an original sound and a High grade sample is difficult to describe (the closest I can come is 'slightly boxy and compressed'!) and is only really noticeable in an A/B comparison. In the context in which the SU10 is likely to be used, this is unlikely to be a problem for most people.

While hardly likely to upset the pro sampling apple cart, the SU10 fits snugly into the current market. For a start, it's the ideal companion for synths with sample RAM. It fitted perfectly on top of my SY85's disk drive housing, and it was almost as good as having a sampler built into the synth. The only cloud on the horizon is the sluggishness of SDS, but that's hardly Yamaha's fault.

If you're a financially-challenged hi-tech novice, you'll also welcome the SU10: it allows you to dabble with loops, sound effects and found sounds for minimum outlay. The SU10 will teach you plenty about fundamental sampling techniques that will serve you well, if and when you upgrade to something more sophisticated. More advanced musicians and DJs should also welcome such a price revolution. The only problem at a gig would possibly be losing the damn thing!

FURTHER INFORMATION

- £ SU10 £299; KPA3 power supply £9.99. Prices inc VAT.
- ▲ Yamaha Kemble Music (UK), Sherbourne Drive, Tilbrook, Milton Keynes MK7 8BL.
- Product information line 01908 369269.
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"The SU10 will teach you plenty about fundamental sampling techniques that will serve you well, if and when you upgrade to something more sophisticated."

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The Mix

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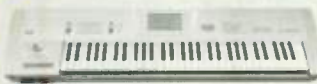
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Quasimidi's Quasar and Technox synth modules have earned themselves something of a reputation in modern dance music production — see the reviews in *SOS* August '94 and February '95 respectively. With plenty of contemporary synth and drum voices to choose from, the mix'n'match approach on both these synths finds favour with those who want to spend less time programming sounds, and more time making music. Quasimidi have now taken things a step further with the Raven, which brings sequencing and arranging features on board. Does it provide a one-stop 'studio' for dance music production?

THE LOOKS

The Raven comes in a chunky package, with all-metal, blue panelling and a pair of quaintly 'retro', wood-veneer end cheeks. Personally, I



VORSPRUNG

QUASIMIDI RAVEN SYNTHESIZER

like the design — especially the front panel recess, which provides a neat place to leave disks, bits of paper and my MIDI fader box! The build quality seems pretty good: a point that caused me some concern with the Quasar. One problem that certainly seems to have carried over from the Quasar, though, is the weak glue holding the LCD overlay, which promptly fell off when I took the Raven out of its box — shades of *déjà vu* there! The only other niggle I have is the depth of the volume and four other control knobs, which stand well proud of the front panel, and leads me to wonder how long they would remain attached on a busy gigging schedule.

Power arrives on a standard Euro-connector, with attendant power switch. Those three wise monkeys, MIDI In, Out and Thru, are present and correct, as is a pair of left/right audio output jack sockets. There is provision for a footswitch, whose use is programmable, though there is no control pedal input, which is a shame, since the modulation options in the Raven undoubtedly benefit from as many real-time controllers as can be pressed into service. On the brighter side, there are a pair of modulation wheels in addition to the sprung pitch wheel — excellent.

WHEELS OF FORTUNE

Above the four 'soft' (ie. their use is controlled by the software) control knobs is the 2 x 40 backlit LCD screen. For the most part, the display is well up to the task, helped in no small measure by the large 'Page Wheel' to its right, which allows for fast scrolling through the Raven's operating pages. Just below the control knobs are four 'soft'

Not satisfied with pitching their previous Technox synth fairly obviously at the dance music market, German manufacturers Quasimidi have now gone all out with the in-your-face Raven. But is it just capable of techno-by-numbers? PAUL WARD climbs aboard and flies into a rave...

buttons. For much of the time, these buttons have dedicated tasks assigned to them, but in the edit modes they are used to select sub-pages, and also set parameters for editing by the 'Value Wheel'. Since the control knobs do much the same job without the need to select a parameter first, I found this usage to be fairly redundant — but it's nice to have the choice, I guess. Quasimidi generally keep the parameters on screen directly above their associated controls, but when screen space becomes tight, this is not always possible. In practice, I didn't find this too much of a problem, but it did throw me a couple of times, until I knew my way around a little better.

Beneath the Page Wheel is a pair of buttons to scroll through Performance banks or Songs (more of which later). Beneath the Value Dial are the sequencer start/stop buttons, while to its right is a pair of dedicated buttons to toggle between

QUASIMIDI RAVEN £1599

PROS

- Instant dance/techno tunes — just add water!
- Those wonderful Motivators.
- Seriously meaty sounds.
- Operational simplicity.

CONS

- Internal 'sequencer', primarily geared up for four-on-the-floor tunes.
- No capacity to record manually-played material over an arrangement.
- No disk drive for storing song data.
- Beware the Germ-glish manual!!

VERDICT

If you want instant dance/techno music, the Raven will deliver in bucketloads, providing you are happy to use a cut'n'paste approach with the Raven's motifs. Many 'musicians' will deplore the idea, but for the technically-challenged, the Raven is probably a dream come true.



DURCH TECHNO?

Performance and Sequencer mode (again, more later), and a 'Tap' key to enable tempos to be set by tapping the button to the quarter beats. Further to the right are the various buttons that take us into the Raven's editing environments, whether Song, Part, Effects, System, or common Performance parameters. I would have liked the 'write' and 'exit' buttons separate from this cluster, but the 'write' button does at least have a large red box around it, to warn the unwary.

At the bottom of this section of the control surface are the 0-9 keys. It seems unusual to see numeric keys arranged in a row, as opposed to the 'telephone keypad' style. But there is method in this madness, since the keys also double up for sequencing duties, their secondary function being clearly marked above them in red. Indeed, Quasimidi have used red and white legending to differentiate between Performance and Sequence modes of operation, and I found this to work well in context.

DEUTSCHE ARCHITEKTUR

The basic synth sound building blocks within the Raven are held in the same way as the Quasar and Technox. Sounds are divided into 'Sound Groups', such as Basses, SynLead or Organ. As on the Technox, within Sound Groups the sounds are held in alphabetical order, making selection a quick and painless process. All parameter changes are capable of generating MIDI SysEx data to ensure that any editing done within a recording will be faithfully reproduced on playback. This is a seriously huggable feature, extending far beyond simple filter sweeps. Arpeggiator gate times can be changed, and even global system parameters.

The sounds themselves (512 in total) are generally excellent. In particular, the piano sample

here is streets ahead of that presented on Quasimidi's earlier offerings. The sample ROM features a range of sounds eminently suited to dance/techno production. Fat Minimoog basses, squelchy TB303 bleeps, and classic drum sounds from the Roland TR606/808/909 stable abound. I particularly warmed to the Roland CR78 drum machine sounds on offer. The Quasimidi sound has lost none of its bass end, which remains unnervingly full when compared to other digital synths. You could be forgiven for thinking that some of these sounds are actually analogue.

One level up, as it were, from the single sounds is the Raven's Performance mode, which should come as no surprise to anyone familiar with the Quasar or Technox. Here, the Raven uses up to four synth 'Parts', and its two effects processors, FX1 and FX2 to produce a wide range of lush, inspiring tones. Parts may be split, layered or velocity-split, depending on the key mode selected for the Performance. Each Part within the Performance can be edited, by providing an offset to the internally preset parameters. For example, if you felt that a sound had too slow an attack, then you would enter a negative offset value for the attack parameter. Similarly, if you wanted a brighter sound, then you would enter a positive offset value for the filter cut-off. I still feel a little uncomfortable with this way of working, but there can be no doubt that it gets the job done. Level, panning, tuning and effects sends are also programmable for each Part.

Two hundred ROM performances are implemented in the Raven, with a further 50 in RAM that are freely programmable. It would have been nice to see these figures reversed, but then I speak as an inveterate synth programmer!

Generally speaking, on the effects front, FX1

"The Quasimidi sound has lost none of its bass end, which remains unnervingly full when compared to other digital synths."

QUASIMIDI RAVEN



The Raven's back panel.

► takes care of reverb/delay treatments, whilst FX2 handles modulation effects. Room, chamber, plate and hall settings are all available in FX1, in addition to a selection of gated and early reflection patterns. FX2 has a vast range of typical chorus, phasing, flanging and delay effects, which are of excellent quality. Quasimidi's implementation of phasing is still second to none, in my book. FX2 can provide a variable amount of input into FX1, to allow the processors to work in series or parallel.

All this will no doubt seem very familiar to Techno users, as there are few conceptual differences. Arguably the most significant is that any part can now make use of the drum sets. The combination of button pushes and dial twiddles may be different, but the terms and screen references are like old friends.

THE SEQUENCER

On the face of it, in 'Sequencer' mode, the Raven takes on the guise of a 16-part multitimbral expander. When in use with an external sequencer, this is exactly the way the Raven behaves. Under the regime of its own internal sequencer, however, the Raven makes use of just eight tracks, in a unique method of song construction.

Ten songs can be held within the Raven's internal memory. Each song may consist of up to 10 basic 'patterns'. Although 10 patterns might seem restrictive at first, there is a lot that can be done with those basic patterns when we come to create the final song 'remix', as we shall see. Once into the song edit pages, we can begin to create a pattern. The screen responds with 'Give me a groove!' — hmmm, very hip... At this point, press the 'kick' button and the Raven will begin playing one of its 400 preset kick drum 'motifs'. Press the 'kick' button again, and a different kick motif is chosen. Once you have one you like, you can start hitting the 'snare' button, to be presented with a selection of snare motifs until you find one that complements the kick motif. This process continues, in any order, with the hi-hat, percussion, bass, sequence 1, sequence 2 and chord tracks,

until you have a pattern of motifs chosen from the 400 available for each track type. All that remains is to store the pattern in one of the 10 available locations. Each motif brings along its own synth part, although this can be changed by going into part edit, selecting a new basic sound and/or editing the parameter offsets for the part.

Once safely stored, another set of motifs may be chosen in the same way, and similarly stored to another pattern location. Helpfully, the Raven increments the pattern number each time a save is made. This avoids overwriting the previous pattern, and also lets the creative process keep flowing without having to break off to select a new pattern number — nice touch.

REAL-TIME CONTROLS

During editing, and in pattern playback, there are a few useful real-time controls to make the patterns more interesting and bring a 'performance' element into the proceedings. Any track may be muted by holding down the zero button, in conjunction with the appropriate track button. A simpler and faster method is to press a note on the lowest octave of the keyboard, where each note corresponds to a track. By pressing notes in the next octave up, the melodic tracks can also be transposed. During pattern playback, the 10 numeric keys may be assigned different functions. In 'Pattern' mode, they simply select each of the 10 patterns in a song. In 'Mute A' mode, they allow for the selective muting of each track. 'Mute B' allows tracks to be similarly muted, but once muted, the track will only play whenever its track button is held down. This is an addictive feature, allowing you to break up riffs and punch in sections of motifs on the fly, to spice up an otherwise static pattern. Throughout all of this, the upper three octaves of the keyboard continue to make the 'solo' part available for adding licks and lead breaks.

Clearly, pattern playback can be used to great effect in a live performance situation, and Quasimidi put a great deal of emphasis on this potential usage. However, the Raven takes things one step further, by allowing complete 'mixes' of songs to be created and stored. A song consists of up to 99 steps, detailing the pattern to be played, the tracks that will be muted, the number of bars to play, and a transposition value. Steps may be copied, inserted and deleted. Although use of the song step editor may not be quite as much fun as punching patterns and tracks in and out in real-time, it is the key to producing a polished, repeatable piece of music from the Raven. While editing each step, the chosen pattern will loop, taking on the mutes and transposition set for the current step, in order to let you hear the results

"At the moment, I can think of no other machine that will produce anything like these results for the amount of effort expended."

MORE QUESTIONS THAN ANSWERS: THE MANUAL

The manual that arrived with the Raven is, not to put too fine a point on it, absolutely awful. The sound editing features seem to have been totally forgotten, whilst the rest of the information is so poorly translated that I sometimes had to check the front cover just to make sure that I hadn't picked up a medical dictionary by mistake! Quasimidi's British distributors assure me that a properly translated

manual is on the way, but early purchasers might do well to insist on the new manual being sent to them when it is available, and for no extra cost, preferably. Here's a typical quote (sic):

"Because you are logged somewhere in the song, the songstructure would normally mess up, if the raven would change it's position upward and delete the step edited before." Er, right...

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The arpeggiator of Quasimidi's earlier machines has now blossomed into the 'Motivator'. The Motivator is an arpeggiator to end all arpeggiators, with options to alter speed, timing resolution, gate time, direction, octave range, note sorting, note repetition, loop length, hold mode... the list goes on! Modulation options allow for the real-time alteration of note velocity and gate length. The Motivator can even be set to produce chord rhythms and gating patterns, rather than individual notes. My arpeggiating life has been waiting for the Motivator!

that will be produced on playback.

Songs are stored in internal RAM. There doesn't seem to be any way to send the song data to an external device for storing, and the sequencer doesn't generate any MIDI data (other than clock data for synchronisation). An onboard disk drive would be welcome. As it is, once those 10 songs are used up, it seems to be back to the drawing board.

If song step editing all seems a little too much like hard work, there is always the Raven's 'Create Song' option. Hit the button and the Raven will produce a complete mix, based on the patterns you have created. This seemed to produce uncannily usable results in most cases, although everything did sound a little 'formula-driven' for my tastes — open with a sequence, introduce the kick on the eighth bar, cut the snare and hi-hats for the mid break... But the point here is that it works! I have certainly heard much less inspired pieces gain national airplay. Frequently, in fact.

If this all sounds a little like music-by-numbers, then you are essentially correct. The construction of song mixes relies on the selective muting/unmuting of pre-defined track data, rather than on actually recording a musical performance.

CONCLUSION

This is undoubtedly a very powerful machine, with the capability to produce some polished dance tunes in the blink of a cursor, and with the minimum of musical know-how. The Raven has no pretensions to be anything other than a dance/techno music generator, and performs this task in a slick and confident manner. If you are looking for a workstation for the composition of FM rock or a few progressive 7/8 rhythms, then you're on the wrong street here. Four-on-the-floor, no-nonsense dance ditties are what the Raven lives to produce, and it achieves excellent results in this context.

True, the motifs may not be of your own making, and the Raven did the arrangement for you, but you have the final say as to what your audience hears. You at least get to choose the colours, the canvas, and whether or not to put a frame around the finished picture. And while your friend with the computer and a couple of multitimbral synths is still digging around the edit pages of his sequencer, your tune will be shaking the speaker cabinets.

If you want a painless way to produce music that gets a dancefloor moving, perhaps as a DJ looking to add a little of his own flair to the show's musical content, then you owe it to yourself to take a serious look at the Raven. At the moment, I can think of no other machine that will produce anything like these results for the amount of effort expended. I am just left to wonder how hip those results will sound in a few years' time.

SOS

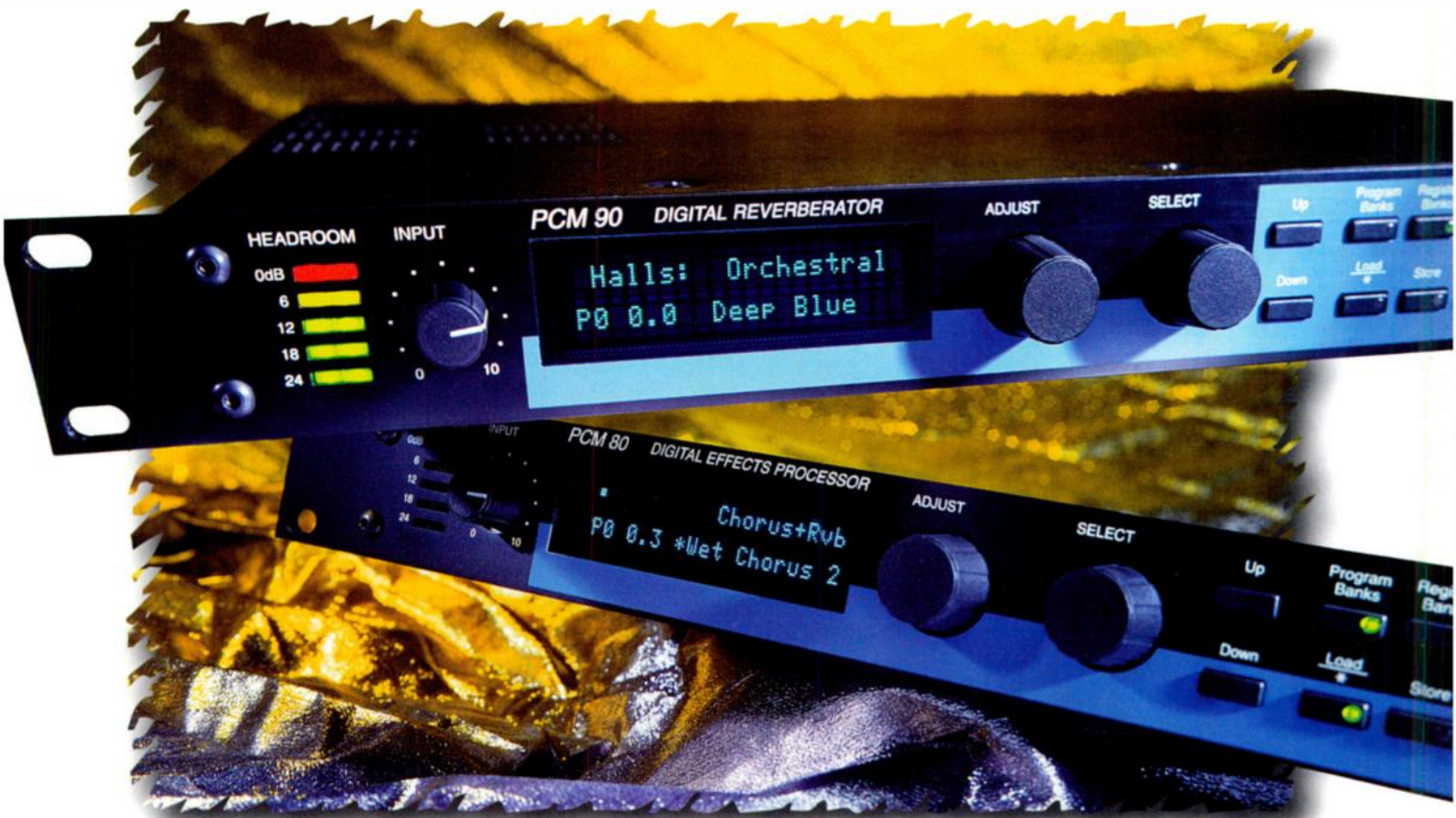
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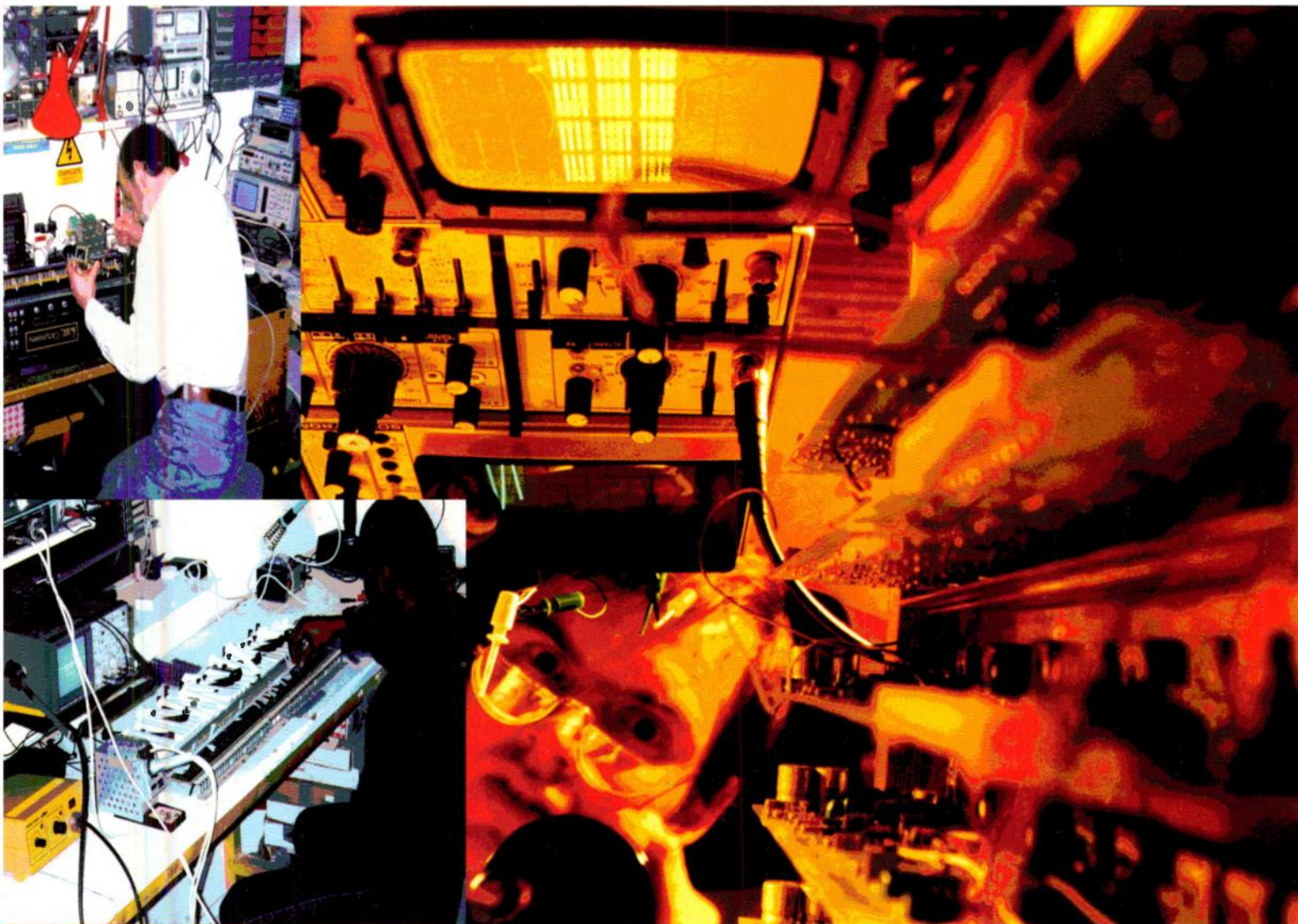
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The Professionals

HI-TECH SERVICING: THE SPECIALISTS SPEAK

The last thing you want to think about when you buy a new hi-tech instrument or studio gadget is what you'll do if it stops working the day after the warranty period expires. But despite the increasing reliability of modern musical and recording equipment, things still go wrong, and even if you're lucky enough to get away with owning a breakdown-free studio, certain items need a regular service to keep their performance up to scratch. This is where people like Mike Swain of Panic Music, Bill Wheeler of Central Sounds, David Croft of the Synthesiser Service Centre, CIRCLE Solutions' Cliff Whitehead, and Graham Bryant of Aspen Media come in.

Though Britain is a small place in terms of surface area, it's rather bigger as a 'service' area, with thousands of hi-tech musicians, from amateurs right up to top professionals. These people take their ailing equipment to a surprisingly small number of hi-tech service centres. Large retailers often have their own service facilities, and manufacturers with UK distribution and support operations naturally deal with much of their own repair and servicing. But the number of independent centres equipped and approved to deal with a wide range of hi-tech music brands and problems is pretty small — perhaps because the right kind of expertise isn't easy to come by, and because these really are a special breed of

Disaster strikes! Your most essential piece of gear dies on you mysteriously. What should you do? Take it to the professionals, of course. In the first of a two-part feature, **DEBBIE POYSER & DEREK JOHNSON talk to some of the engineers who service with a smile — and find they have some amazing tales to relate from the inspection pit of the music industry.**

people, willing to undertake the time-consuming and often monotonous tasks involved for the satisfaction of eventually tracking down an elusive fault and bringing a dead instrument back to life.

We had a fascinating time talking to the heads of the above-mentioned service centres about their day-to-day experiences as problem-solvers and troubleshooters, and came out with renewed respect for their skill, perseverance, and humour.

KEY QUESTIONS

If you're a regular reader of *SOS*, there's a good chance that you're a keyboard player, or at least own a keyboard. And there's a lot of you out there — almost all our service specialists revealed that the most common type of equipment they encounter is keyboards. If you're now wondering why service centres see so many synths (and are looking nervously at yours and asking yourself if it's about to blow up), let's find out if synths go wrong more often than other hi-tech gear. Our specialists don't seem to think so. It simply seems to be a question of numbers — Mike Swain: "There's an awful lot of keyboards out there: a lot go into the home market, as well as the professional and semi-professional market. There's a huge interest in making music, right throughout education."

So what tends to go wrong with them? Bill Wheeler: "Mechanical failure — misfiring notes are quite common, and things being tipped inside... beer, coffee, sea water..." David Croft maintains that "You get a whole range of problems, but I wouldn't like to say what's the most common. Misfiring keys seem to be more prevalent these days in keyboards that use rubber contacts. It seems that the rubber contacts age and perish, and it doesn't depend on whether you use them a lot, but purely how old they are. Fixing this kind of problem is theoretically straightforward — you replace the contact — but in practice there's quite a lot of work in just disassembling the machines these days: they're all crammed with layers of things to dismantle, whereas with older keyboards you just take the bottom off to get at the keys. It can take you at least an hour's work to get a keyboard *carefully* dismantled".

Cliff Whitehead agrees that apparently small faults can still be relatively expensive to repair:



Synthesiser Service Centre staff:
Left to right: Susan Mills, Stuart Cross, Vanessa Akaster, David Croft, Craig Barnes.

"Some customers bring us the keyboard and say 'my C key's gone', and they don't understand why it's going to cost £80 or £90. But when one key starts going, the rest are sure to follow. Key contacts are made up with about 12 or 13 in a set, and if you replace one, you replace 12 or 13 of them. And if you're replacing that many, there's only four or five contact strips across a whole keyboard, so you may as well replace the whole lot, once you're in there. Otherwise, the customer may be back in a couple of month's time replacing another one, with another 'X' amount of labour..."

Mike Swain also sees a lot of home keyboards and organs, which often come in with a different fault. "With home keyboards, it's power problems. The plugs of the little AC/DC adaptors protrude from the back of the machine; they get quite a bit of careless handling and the connector gets pushed through the back. So, the two main areas are keying problems, where Coke or something has been tipped over the keyboard, or broken DC jacks and smashed PCBs [Printed Circuit Boards]. With synths, you have the usual ▶

THE SYNTHESISER SERVICE CENTRE

Location: Unit 3, 6 Erskine Road,
London NW3 3AJ.

Telephone: 0171 586 0357.

Fax: 0171 568 7651.

Recommended service centre for: Akai, Emu, Roland and Yamaha. Other makes serviced and repaired to the same high standards. SSC also undertake MIDI retrofits, gear modification and customisation.

Company background: SSC was founded 17 years ago by David Croft. David first studied electronics at university, then gained experience working on musical equipment for a hire company. SSC recently moved from smaller premises, which the company outgrew, to their current workshops, with about 1200 square feet. At the moment the company employs five people (see picture), including one whose main job is



development of the Design Laboratories Prologue MIDI-to-CV convertor [reviewed in *SOS* November '95]. Design Laboratories is SSC's sister product development company.

Hourly rate: "Our nominal hourly rate is £35, but we always find that we work for more hours than we charge for. If we look back and think we should have spotted a fault earlier, we amend the charge. We have a minimum charge of the first hour, so if something takes 45 minutes, we do charge an hour. If people are concerned about costs, we can spend an hour on their equipment, and give an idea of what it should cost."

Guarantee: Work is guaranteed for 28 days.

Hi-tech Servicing

▶ key contact problems and, again, beer on the keyboard, and so on. The worst one we had was from a holiday camp. A guy phoned up and said 'I've got a problem with my keyboard. Can you have a look at it?' Turns out he'd upset one of the punters, who had then urinated in his keyboard!"

'LIQUID INGRESS'

'Liquid ingress', as the cognoscenti call it, seems to be a more common problem than we had realised, and as revealed by Mike Swain's anecdote, the type of liquid isn't always what you'd expect. Bill Wheeler has seen his fair share of these cases too: "We've removed frogs, seaweed and spirogyra — green algae — from keyboards." You might well be wondering how that got in there. Bill is blunt: "A lot of the damage we see has been done by a woman — inflicted on her boyfriend's pride and joy. We've had combos with axes stuck in them, and keyboards and monitors thrown in the sea, which are found floating about and picked up by yachts. We've had candle wax poured into hard drives, and

we've removed the wax to save people money. That was the worst. They must have had an altar candle, the amount of wax that was in there." Central's administrator Heather chips in with another amazing example: "We've had glue poured into the keyboard. A couple had fallen out, and she decided to get her own back..."

Even liquids less obviously destructive than glue can cause serious damage to delicate mechanisms, with rapid corrosion resulting from



Central Sounds' Bill Wheeler.

liquids such as Coke, orange juice and urine — of both the animal and human variety. The annoyed holiday camper's retaliation caused the unfortunate keyboard player mentioned by Mike Swain quite a lot of hassle. Mike: "He brought it to us the next day, and we had to take it outside and literally hose it out, and then disinfect it. It had already started to corrode the PCBs — uric acid is very corrosive if you don't catch it quickly enough. Coke is the worst. The acid in Coke does a wonderful job of etching through the key contacts."

PETS MEAN PROBLEMS

It would seem that when it comes to instruments, Pets Mean Problems. David Croft: "People's pets misbehave — not toilet-trained, or whatever. Guinea

pigs, cats... The problems in these cases can be quite severe and can actually write off the instrument if it's left too long. Tracks corrode, but you can't see the corrosion, and you can't judge the area of

damage." Mike Swain remembers a similar example: "It was a Sansui WSX1 multitrack. Our part-time engineer opened the box and noted that it smelt a bit strange. Then he opened the unit up and there was this terrific stench of ammonia! We phoned this guy up and he said 'Well, yes, my cat did have a habit of sleeping on it, and it was incontinent...' That machine was actually a total write-off".

If something similar befalls you, Bill Wheeler has some useful advice for minimising damage after liquid spillage, before taking the instrument to a service centre: "Unplug the keyboard immediately, tip it on its edge, slightly backwards, to let the liquid drain out, keeping it away from the mechanics of the keyboard. Don't leave it flat ▶



A host of carefully stacked dead gear waiting to be repaired at Central Sounds.



CENTRAL SOUNDS

Location: Unit 46a Godiva Industrial Estate (off Cross Road), Coventry CV6 5SP.

Tel: 01203 665665.

Fax: 01203 666669.

Recommended service centre for: Emu, Akai, Roland and the Roland Owners Club. Other makes serviced and repaired to the same high standards.

Company background: Central Sounds has been established for around 12 years. Proprietor Bill Wheeler got started with radio, TV and video servicing, but found a significant demand for instrument repairs and servicing, and Central Sounds in its present form was born. Central moved into new larger premises in autumn 1995, and now occupy 1500 square feet of neat, well-organised workshops on a Coventry industrial estate with easy access from the M6. The company currently employs seven people, and is usually "pretty busy". Bill Wheeler has his eye on future expansion plans,

but these are secret at the moment!

Hourly rate: £28. Central offer a very convenient diagnostic service. Bill Wheeler: "We work differently to anyone else. If you ring us and say 'I've got this bit of kit here', we'll say 'put it in a box and we'll pick it up'. We pick it up for you and give you a quote before we start. If the customer doesn't want to go ahead, they pay £25 to have it back. That covers the carriage back and the packing. We have to substantially pack things, because they often arrive here just wrapped in cardboard. When they know how much it's going to cost, it's either a yes or a no. If it's a no, they send us their money and have their gear back. If it's a yes, they don't pay any more, and they know exactly how much they'll have to pay for the repair. It works. We feel that it's probably a bit of a plus."

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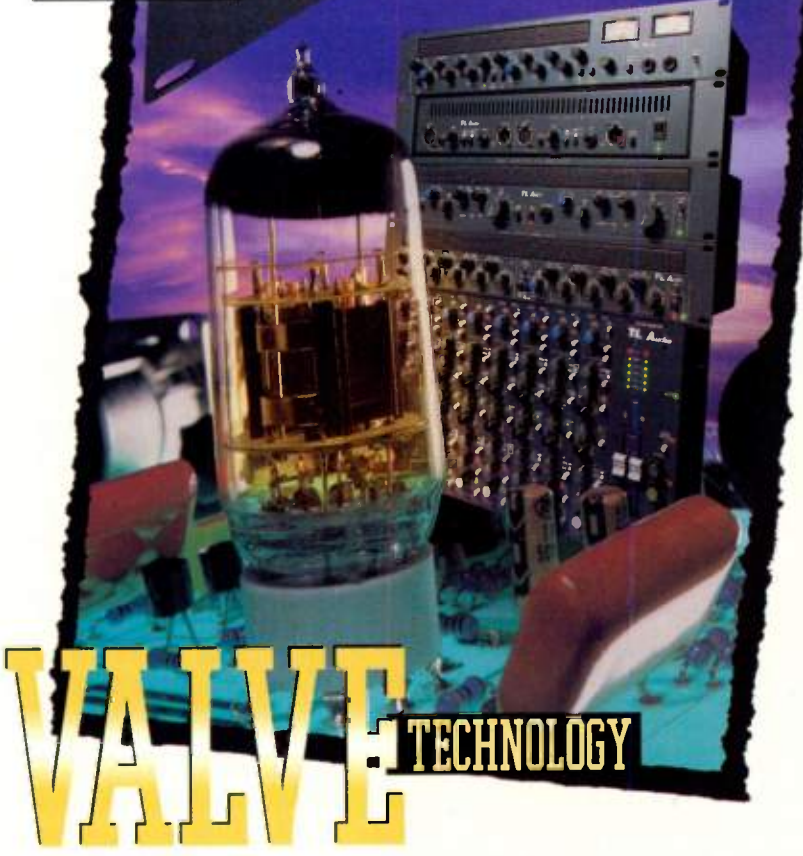
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Hi-tech Servicing

► where it is and dive for a towel to wipe it off. That's the worst thing you can do. Tip off the surplus quickly, get it on its side and let it all drain off, avoiding the keyboard. From our experience of instruments suffering from an ingress of liquid, it's the common sense thing to do."

If, despite emergency first-aid, liquid *does* affect your synth's keyboard contacts, it often means a repair job. Mike Swain: "You have to replace the [keyboard] PCB. A lot of the PCBs now are what we call 'flexis'. [Mike produces a long, slim, flexible PCB, from a synth which had had orange juice spilt over it]. Components are placed on top of these flexi strips, and the contact pads [pairs of small, raised ovals of a graphite material which connect with rubber key contacts when a key is pressed] are also on there. The tracking on these is conductive ink, and that can be etched off. So you have to replace this and the contact rubber."

LOSING CONTACT

Mike showed us how the orange juice had partially removed a graphite contact pad. The only solution here was a whole new board, just because of the loss of one pad. And the cost of a new board? "About £20. Different manufacturers have slightly different boards, but this is the basic principle of modern contacts. And for synths with this keying



Mike Swain (right) and son Adam, of Panic Music Services.

method, it's the main area of failure."

Liquid isn't the only thing that can affect keyboard contacts. Mike shows us a strip of grey moulded rubber, with multiple pairs of black rubber contacts which connect with the graphite contact pads on the flexi PCB. "That's a contact rubber which goes underneath the keys. They use this method for detecting velocity, for velocity sensitivity. The two contacts are arranged in a pair, and you can see that one is higher than the other. That's the back contact, the one that starts the timing process. The microprocessor measures the time taken between that one contacting and the front one contacting. Then it says 'that's so many microseconds, and therefore the note should be played that loud'. But since the front one is the one that actually produces the note, if the back one becomes dirty, the note always plays at full volume, because the contact that helps the microprocessor decide how hard the note has been played isn't functioning. And if the *front* one becomes dirty, there will be no sound at all. The most common fault is that some notes play louder than others. And that happens throughout all manufacturers."

You might wonder whether any manufacturers are working to produce a different contact system. Mike's son and co-worker Adam reassures: "They did change the design moderately. They used to have little vents in the top of the rubber contact strip, to expel the air when the keys are pressed. But they changed the design to stop all the muck from sucking through the vent and dropping onto the contact."

Mike: "When that rubber is sitting in place, it forms a seal, so these vents act like little air pumps. Originally, the contacts were top-vented, so that the air was squashed out through the little holes on the top. Of course, when the air was sucked back in, it sucked all the dirt and everything through. So they changed the design, put the vents through the PCB, and a little filter strip along the back to stop most of the dust. This one's a top vent, and we

PANIC MUSIC SERVICES

Location: The Old Bakehouse, 7 High Street, Swavesey, Cambs.

Tel: 01954 231348.

Fax: 01954 231806.

Recommended service centre for: Roland, Yamaha, Akai, Emu, Tascam, Sansui. Other makes serviced and repaired to the same high standards.

Company background: Founder Mike Swain has been in the music business for almost 30 years. He started out as an electronic design engineer with an interest in music service, and repaired equipment for local musicians. The business grew from there, and now repairs and services practically anything found in the recording studio, as well as undertaking on-site studio maintenance. Panic also specialise in maintaining valve equipment.

Panic is a real family business, with Mike and his son Adam both full-time service engineers. Panic also employ a part-time engineer, and follow BS5750 procedures for all work; in addition, every item is given a full leakage and insulation safety test before it leaves the premises — Panic even check mains plugs and replace them if they're not up to scratch, or put in the correct fuse if appropriate!



Hourly rate: Panic don't have an hourly rate, charging instead in 'units'. As Mike Swain says: "We have a unit charge, because for some of these jobs you couldn't charge by the hour. It could take you a week to repair some synths, and there's no way you could charge for that by the hour and be fair." A unit has a value of £49.50, and "It depends on the difficulty of the instrument as to how many units a repair might be." As an example, a small effects pedal repair might be worth half a unit, and a complete keyboard overhaul two units, while a complete service and line-up on a 24-track would be three or four units. Guarantee: Work is guaranteed for 28 days.

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▶ still have to use those, otherwise it's an expensive repair — you have to change the PCB underneath. To change the contact style, you have to change the board completely."

All this means that if your synth has the old type of board, it'll have to have the old type of replacement rubber contact — unless you want to splash out on replacing a PCB which may be perfectly OK!

MODERN TIMES

If you let your incontinent cat snuggle up on your multitrack, or balance your Kronenberg on your keyboard, you've got no-one to blame but yourself when something goes wrong. But even if you handle your instrument with kid gloves, problems can occur. As we've already seen, manufacturers are keeping an eye on what tends to go wrong

CIMPLE SOLUTIONS

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Company background: Owner Cliff Whitehead has been in electronics for several years, initially with various companies in Gloucester. A move to London with his band later resulted in Cliff becoming service manager for Turnkey. Then an opportunity arose in early 1994 for Cliff to buy the established East Electronics. Cliff moved the

business to new premises in Wembley and has seen it flourish, with the help of former East Electronics engineer Errol Shepherd, who himself used to work in Akai's service department. CIMPLE also employ a part-time engineer and are looking for another full-timer — "all CVs gladly received!". The company produces a MIDI output expander for the Atari ST, for use with Steinberg and Emagic software.

CIMPLE's premises comprise a workshop and office area, plus another area which is to become a studio. They're located 200 yards from North Wembley station on the Bakerloo Underground line. Hourly rate: CIMPLE don't have an hourly rate. Cliff: "We don't charge by the hour. If we see that a job is



CIMPLE SOLUTIONS

going to cost more than £70, we stop and give an estimate. Anything less than that, we just go ahead and get it fixed as quickly as possible. The cost is based on the merits of the machine or the job. If a keyboard's battery had gone down, we'd charge, say £20, plus the battery, plus VAT. If a disk drive had gone down in an Akai sampler, we'd probably charge £40 plus the price of the drive, plus VAT." Guarantee: work is guaranteed for three months.



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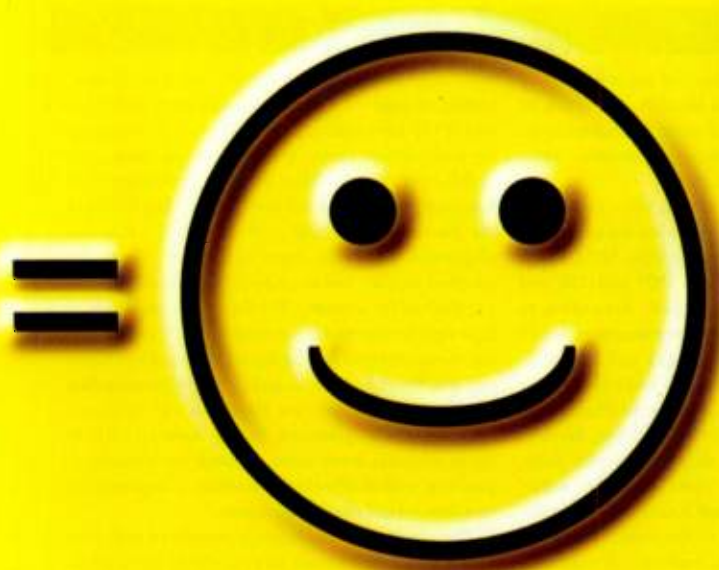
Though with 16-bit sampling at up to

with their instruments and refining their designs continuously; do our specialists think that modern instruments are consequently more or less reliable than their vintage counterparts? You'll be pleased to hear that their replies are a resounding vote of confidence for the manufacturers. Mike Swain: "The more modern machines are more reliable, without any shadow of a doubt, because the component count is less. Also, with the new techniques that are used for producing devices like ASICs [Application Specific Integrated Circuits], the wafer fabrication is so much better than it was 20 years ago, so the chips themselves are much more reliable." Bill Wheeler agrees wholeheartedly: "They're far superior. Because there are less components. With an old synth, you have discrete components to do everything. A modern synth does everything an old analogue would do and more, on a small board. It's more reliable, although certainly not serviceable-friendly." David Croft joins in the general chorus of approbation: "You have a vastly more complex system compared to what you used to, but I would say that they are much more reliable. Admittedly, we are inundated with repairs, but there are far more keyboards around than there were, say, 10 or 15 years ago. I'm sure we get a smaller proportion going wrong."



Cimple Solutions boss Cliff Whitehead.

That seems pretty conclusive: modern synths are more reliable. But are they easier to repair and service? Replies to this one were more equivocal. David Croft: "I don't think you can really compare the two. One of the things that modern gear has, which I quite like, is surface-mount chips. Before, the conventional devices were ICs with legs on a tenth of an inch pitch, which went through the



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► holes in the board and were soldered in place. Now, the legs have a pitch half that, or less, and are actually soldered onto the surface of the board. Some of these devices now have at least 100 pins, and it is quite a specialist operation to get those on and off. With the conventional IC, there was actually quite a lot of work in de-soldering every pin separately, carefully, and then detaching them. It meant that the board was prone to damage, especially if an engineer didn't have exactly the right tools.

"Now it's a different method of assembly, and I prefer it. We design with surface-mount devices and you can fit a lot more into a smaller space. I'm happier to de-solder and re-solder those devices than I am with the earlier type. I think you also get a lot more for your money these days — things are far more integrated, and perhaps less over-engineered than they may have been in the past. Things were made over-strong. Some instruments now have a cheaper construction, and in some cases they're perhaps too cheap, and do break quite easily. But you get good equipment for the money you pay. You get a lot of technology."

Bill Wheeler also singles out modern surface-mount technology for comment: it doesn't present

BILL WHEELER'S TRUE STORIES

What's the strangest problem you've ever had to fix?

Bill Wheeler: "You could write a book from the things I could tell you. We've had to straighten up keyboards after being in aircraft holds — a D70 bent like a banana."

What did you do to rescue that?

BW: "Bent it straight!"

Did it cause a lot of internal problems?

BW: "Well, we had to take it to bits, of course!"

Was it worth the customer's while in terms of the cost?

BW: "Of course. It would have cost the customer a lot of money for a replacement. It was just put in a black plastic bag and shoved in the aircraft hold."

Was it much the worse for wear when you'd finished with it?

BW: "No. You wouldn't have noticed it. It's what we specialise in. The owner didn't know the difference."

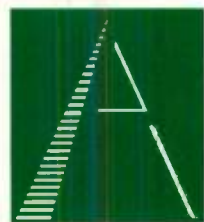
any special problems for qualified engineers, but "the customer has to pick up the tab for the extra time that has to be spent in lifting off 100-pin surface-mount ICs. It's not that it can't be done — it just takes more time to do it, or at least to put it back on to check." Bill also concurs with David's comment about the build of modern synths — perhaps the pendulum has swung too far away from over-engineering? "Comparing an old synthesizer with wooden end cheeks to a modern one that might have plastic end cheeks, the old synth would probably take a good smack on the



Customer's equipment at Panic Music.

ASPEN MEDIA

I used to think that error messages on my multitracker were just there to confuse me, or because I'd made a mistake pressing buttons. But they do actually warn of impending trouble, and if ignored, they don't just go away. The chances are that if you don't get your recorder serviced, it will stop working just at the moment that an important new client you've borrowed from the studio round the corner walks through the door — only to say "adios", and go back round the corner again.



ASPEN
MEDIA LIMITED

I sought the advice of Aspen Media Ltd, whose Technical Services Manager, Graham Bryant, helped Alesis to formulate the service requirements for the ADAT when it was introduced. Graham reckons that 75 percent of 'faults' are a result of lack of regular maintenance, and it's really not advisable to have a go yourself — cleaning

tapes get nowhere near the heart of the problem, and cotton buds can do inordinate amounts of damage, as they leave fibres behind, which wrap themselves round head cores, inducing static-related and spurious errors as well as poor tape-to-head contact.

Graham recommends a service after every 500 hours of recording time. You can bring the total figure up on your ADAT's display by holding SET LOCATE and pressing STOP, or by holding STOP and PLAY and powering up on a Tascam DA88. According to Graham, the commonest warnings that all is not well are messages such as 'noFo', 'Full', 'Error 7', and an intermittent 'Error 2'. These are usually an indication of dirty switches or mechanical problems, the main reason being a slipping transport drive. There are two 'read' and two 'write' heads; if the 'read' heads develop faults, it isn't the end of the world, but if the 'write' heads do, nothing can erase any nasties that go on to the tape. The worst scenario is a chewed tape (usually a master, naturally).

One problem is that these machines will carry on working even with faults, because the error-correction circuitry masks the problems. Then, just as that important session begins, they pack up. This says a lot for design, but doesn't help you when it happens!

Aspen tend to charge a maximum of £100 for ADAT repairs, and parts tend to be at most £50 (plus VAT, in

both cases). The DA88 is slightly more expensive, costing at most £150 to repair, with parts costing at most £130 (once again, plus VAT). So what do you get for your money? Firstly, an evaluation to check what problems are present. Next, a thorough cleaning of all tape paths and mechanical parts, followed by tuning of the power supply, and a check that the loading alignment is spot on. Tape torques are set to the specified tension, and servo control and head voltages are checked for accuracy. The shape and amplitude of tape signals must conform to certain levels, so a host of measurements and fine-tuning now take place. These can also highlight faults elsewhere in the machine that need to be rectified — one element out of order can throw the whole system out. Finally, there's a full line-up to minimise error rates, a check on formatting, punch-in, and all other main functions, a segment test, and then a final check of functions.

The whole process is usually completed and your machine delivered back to you within three days, but, if your requirement is really urgent, a one-day service is possible — at a premium, of course.
Neville Wake

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► side: the modern one would probably not. The move to plastic means less robust equipment, but it is cheaper and faster to produce — a plastic-injected form is far cheaper to produce than a piece of wood that has to be tailored.”

COMPONENT QUALITY

While there might be reservations about the outer construction of new synths compared to old ones. Cliff Whitehead has none about the quality of what's inside them: “On the pro products, the Akai and Emu stuff, it's all really well made. The circuit boards are really high quality. Where chips are put into IC sockets, there are several types available: the best are the turned-pin DIL socket,

which grip all four sides of the pins. All the Akai and Emu stuff uses these sockets.”

Mike Swain has little hesitation in affirming that modern synths have many advantages as regards repair and servicing: “I suppose it is easier. Because the modern synth or keyboard is now using ASICs, the component count is less, so you can say that the fault is probably in one or two of the larger components. So from the diagnostic point of view, it can be easier — though not always, because you don't know what's going on inside some of the ASICs. It can be a bit of a black art, because the manufacturers don't tell you

what happens inside each device. You know what sort of signals are coming out, but manufacturers are trying to protect their own proprietary designs, so nobody really divulges exactly what's going on in their chips. You have to just replace the chip. The component count is less, but it's more difficult to service, because you've got to remove these parts — if you have to change one of the



The all-important soldering irons at Panic Music.

TESTING, TESTING...

All our service experts are firmly of the opinion that you can do more harm than good by poking at the insides of your gear if it refuses to work, unless you really know what you're doing — but CIRCLE's Cliff Whitehead has one bit of advice if your synth is misbehaving...

“Every single modern microprocessor-based instrument has an internal test programme, accessed by a few button presses on the front panel. The test checks out the RAM, the ROM, MIDI, the tape I/O, and so on. It's especially good if someone's buying second-hand, because if they know the test mode, they can go in and test all the functions. One particular test that confuses most people is the MIDI test: they go into test mode, test the MIDI and then get an error or failed report. They immediately ring us and say ‘My MIDI's failed...’, and we ask them if they've plugged a MIDI lead between the MIDI In and MIDI Out. Because the test is sending data out and expects to receive it back, it fails if the user doesn't complete the loop. Another thing is that some test modes are destructive, so you'll need to back up your data before testing.”

And how do you find out what starts your synth's self-test routine? Cliff notes that this kind of information can be found on the Internet, but the net-less should be able to obtain these details by consulting with a manufacturer's product specialists.

larger chips, it can take you two hours to remove it and fit the new one. And remember that the cost of one of these ASICs can be £200-300, and nine times out of ten when you remove one of the surface-mount chips you damage it, because of the heat you have to use. So, you've got to be very sure that the one you're removing is the one with the problem. But yes, the more modern synth is in some respects easier to repair.”

SO

Our four professional engineers had so much to say that one article just wasn't enough, so tune in next month for the truth about vintage synths, some valuable inside information about buying second-hand, plus lots more useful tips and behind-the-scenes stories...

“YOU'VE SEEN NOTHING TILL YOU WORK HERE FOR SIX MONTHS...”

Some equipment faults have been exacerbated, or even caused, by the owner. As Mike Swain relates, people do the strangest things... “Connecting the outputs of power amps to the inputs of mixers — that causes quite a bit of hassle! Trying to dump the wrong SysEx data into a unit — one manufacturer's SysEx into a module from another manufacturer. They don't like that very much...” Presumably, it causes a crash? Mike: “Yes. But it can cause fatal problems. It can cause CPU failures, because the CPU is trying to do something it can't do: it runs around in a loop and then locks up, and that can actually cause micro-component failure. This does not compute!”

Adam Swain continues: “The other thing that can cause a problem sometimes is if customers have tampered with the unit and made the fault worse

themselves.”

Mike: “We've had a few of those this week. They'll squirt WD40 in the key contact, or oil down the capstan bearings — and generally there are no user-serviceable parts inside, the whole thing is static-sensitive, particularly a modern synth, and you only need to put your finger inside, to touch the circuit board, and you could literally wipe out the board. So much damage is done by people having a go themselves.”

Adam: “Plus, they put themselves at risk if they don't know what they're doing, particularly with units that have built-in mains power supplies.”

Mike: “Even on some of the synthesizers that use external power packs, if they've got electro-luminescent displays, you can still get an electric shock

of 100-150 volts from the EL panels. So even battery-operated gear can still be quite dangerous — people just don't realise how dangerous some of the equipment is. Power amps are the worst. If you have a 1000W power amp, the amount of energy that's available from the speaker output, or the power rails... There have been several accidents with power amplifiers, really severe burns from the speaker outputs.”

Bill Wheeler is also familiar with problems caused by foreign substances being injected into equipment. How harmful is this? Bill: “Depends what they squib in. We've had stuff with hair lacquer inside...” But why on earth would someone do that? Bill: “Because it's handy and goes ‘psssh psssh!’ You've seen nothing till you work here for six months...”



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Hot on the heels of Fostex's DMT8, Roland's new VS880 offers another take on the affordable digital multitracker concept. But as PAUL WHITE discovers, beneath the apparent similarities lie significant differences...

End of the

Tape?

ROLAND
VS880
DIGITAL
MULTITRACK
& VS8F1
EFFECTS
BOARD



Roland's VS880 has arrived, not long after the Fostex DTM8 and is, on the face of it, a similar type of product — in so far as it is a hard-disk based, 8-track multitracker with integral mixer. However, a casual inspection reveals significant technical and operational differences between the two products, and it is how these fit in with your own working methods and requirements that will determine which model you prefer.

While Fostex opt for simplicity, with a

multitracker-style format, straightforward analogue mixer and uncomplicated recorder section, Roland have gone for a greater degree of operational sophistication in both recording and mixing. Inevitably, this makes for a more complicated operating environment.

The VS880 comes without a hard drive, though most dealers will offer to fit one, and the most efficient configuration is with a 1Mb internal IDE drive, which should cost around £300 on top of the basic cost of the VS880. A 25-pin SCSI port is

provided so you can use an external drive, and at the recent NAMM show, I saw a VS880 working with an Omega Jazz drive using 1Gb removable cartridges — possibly the best option of all, if you can afford it.

Once a recording has been completed, it can be backed up to an external disk drive via SCSI, or to any audio DAT machine with a co-axial digital S/PDIF input. A 1Gb drive will store approximately 186 track-minutes of audio at a 44.1kHz sampling rate, and the VS880 can be set to sample at 32kHz, 44.1kHz or 48kHz. For applications where longer recording times are necessary, three further recording modes are provided, where data compression is used to extend the recording time to 373, 497 or 596 track-minutes respectively. These four modes are known as Mastering (no compression), Multitrack 1, Multitrack 2 and Live. As you'd expect, the sound quality is compromised most when you use the Live setting. In context, most people should hear little difference between the Mastering and Multitrack 1 modes, but after that, the differences begin to show.

STRAIGHT-EIGHT TAKE

Unlike an analogue multitracker, the VS880 can output MTC without having to sacrifice one track to time code. Because the audio is recorded to disk rather than to tape, there are various sophisticated editing options for moving around and compiling the various elements within a song. A 'virtual' track system stores up to eight alternate takes of each track. Of course, these take up just as much disk space as real tracks, but the benefit is that you can compile one perfect track from the best parts of several virtual tracks — or simply have several goes at something, and then pick the best take. Something else you can't do with analogue tape is to undo steps you wish you hadn't taken, and in the case of the VS880, you can also undo an unintentional undo by holding down the Shift button, and undoing again. The machine even supports multiple levels of undo.

The mixer section of this little machine looks very simple, but that's because most of the functions are hidden behind multifunction buttons, and many of the parameters have to be changed using the Data wheel, which also doubles as a scrub wheel in Scrub mode. In fact, the only conventional controls that you can go to directly (other than the headphone level and the external aux send), are the channel faders, the input gain trims and the Pan knobs. A maximum of four tracks can be recorded simultaneously, and in situations where more than eight tracks are needed, bouncing can be carried out in much the same way as on analogue machines.

Unlike the Fostex DMT8, the VS880 features a



The Locator and reassuringly chunky Transport controls.

fully digital mixer, and all the mixer settings may be saved as a snapshot for later recall. Up to eight snapshots may be saved for each song and recalled during mixing, but if you want full automation, you have to use an external MIDI sequencer. As the mixer is adjusted, MIDI data is sent out corresponding to the parameters being varied, including the master stereo fader and the aux send master. Providing the sequencer is locked to the VS880 (via MTC or MIDI Clock), this data can be stored as part of the song you're working on. Mixer data is available both as controller and SysEx data, (SysEx can be switched off in the System Sync menu), though for most users, the controller information will be easiest to deal with, especially if it needs editing.

The VS880 also includes its own metronome and tempo map facility, for musicians working without a sequencer or drum machine. The internal metronome issues a rather disappointing click, but as the data also comes out as a MIDI note, you can select any MIDI sound of your choice. For those needing to sync the VS880 to an external source, it is designed to lock to incoming MTC if required, and all the usual MTC formats are supported, including drop-frame.

For those working without MTC, the VS880 has an additional dedicated track which can be used to record MIDI clock sync. Unlike analogue machines, however, you don't need a MIDI-to-tape sync box — the VS880 accepts MIDI Clock directly via the MIDI In socket, and takes care of everything from there on.

Though the VS880 provides two external effects sends, an optional effects card is available, the VS8F1, which functions as a dual multi-effects unit and includes a degree of RSS spatial

ROLAND VS880 £1499

PROS

- Fully digital signal path with mix automation via MIDI.
- Useful compression systems for extending the recording time.
- Powerful mixer with flexible 3-band EQ.
- Internal effects board option.
- External SCSI connector

CONS

- Menu-intensive user interface.
- No phantom-powered mic inputs.

SUMMARY

An extremely powerful and flexible audio workstation. Some user-friendliness has inevitably been sacrificed, in order to include so many features for such a low price.

Roland VS880 Digital Multitrack

► processing, as well as COSM guitar amp simulation. This makes it very cost-effective. It also has the benefit that the signal remains in the digital domain.

POWERFUL PACKAGE

For all its power and flexibility, the VS880 is no larger than a typical cassette multitracker, and to make it feel familiar to tape users, is equipped

LCD display is based on a customised liquid crystal matrix, and its readout changes depending on the mode currently selected. For example, during recording and playback, it handles metering for all eight tracks plus the stereo outs and the two aux sends, but it can also show the location of recorder data on the various tracks, or even function as a crude waveform display in Scrub mode. When the hard drive is being formatted, as it must be when first used, the display turns into a clock face to tell you to wait.

The mixer section has four unbalanced analogue jack inputs, each with their own trim controls, and these can handle both mic and line level signals. Duplicate inputs on phono are provided, though the jack inputs always take precedence. However, there are no phantom-powered XLR inputs, so if you want to use a capacitor microphone, you'll need an external mic preamp with its own phantom power supply. Digital signals may also be recorded to tracks 5 and 6 via the S/PDIF input, and the VS880 wisely ignores SCMS copy codes which might otherwise interfere with legitimate operations. When recording digital signals, the same sample rates must be used, and the VS880 must be set to external sync while the recording is being made.

Signal routing is normally set up so that input 1 feeds tracks 1 and 5, input 2 feeds tracks 2 and 6 and so on, but this can be changed so that several inputs feed the stereo mix buss, and then the stereo mix buss (or perhaps just one side of it) is recorded onto a specified track or tracks. However, because the mixer has only four inputs, it might be easier to record things like drum kits by patching in a small external mixer and doing the submixing there. For track bouncing, tracks are again routed to the stereo mix buss, and then this is recorded onto the desired track or tracks. The routing mode is accessed via the Mixer Mode Select button at the top of mixer section, and this must be used in conjunction with the Shift key — a measure



The LCD display, which changes readout depending on the mode selected using the buttons beneath.

with chunky transport buttons for play, record, fast wind, return to zero and stop. All the main mixer controls are located on the left of the front panel, with the rest of the panel space being given over to the display, the data wheel and the controls normally associated with recording. The

SEND & RETURN: THE VS8F1 EFFECTS CARD

At the time of writing, no separate documentation was available for the VS8F1 effects card, so it was a matter of diving in and taking a look. The programming style seems to be quite similar to that in my own Boss SE50, where you switch on or off the various effects available within a configuration, before going deeper to change the parameters and levels of the effects themselves. There seems to be quite a range of editability, with the reverbs having access to decay time, pre-delay, damping, filtering, room type and all the other usual handles. There are also the inescapable delays, stereo delays, multi-tapped delays, flangers, phasers and chorus modes. On top of that, there are numerous amp and speaker simulation effects, auto wah-wahs and other guitar-

related processing, some apparently based on Roland's COSM modelling system.

The effects are uniformly high-class, and because of their diversity, can be deployed conventionally in a post-fade send configuration, put pre-fade, or be inserted in the signal chain as though they were connected via an insert point. This latter consideration is important, as some of the treatments are designed specifically for in-line processing, such as the EQ, compression, guitar amp simulation and gating variants. When you consider that there are two full-function digital effects on this £350 option card, and when you include the benefits of keeping the signal digital at all times, the price of the effects option looks very attractive indeed.

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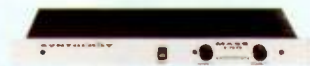
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Roland VS880 Digital Multitrack



The mixer channel controls: physical controls access Pan and Level, but the EQ, effects and aux sends lurk behind the eight select buttons (under the Pan controls at the top of the picture).

"I've a feeling that in a few years' time, we'll regard backing up to DAT in the same way as we now look back on the happy hours spent loading Space Invaders from cassette into our Commodore 64s."

► adopted to prevent accidental switching.

Each mixer channel has physical controls for Pan and Level, as well as a button for setting the channel's record/play/mute status, and another for selecting the individual channels for editing. These latter are dual-function buttons and, when used in conjunction with the shift key, they access the various channel parameters to be edited, including the input/buss selection, the number of the virtual track being worked on, the high, mid and low EQ bands, the two effects sends and the aux send. Once something like the high EQ has been selected for editing, its parameters come up in the main display, after which cursor keys and the data knob are used to change the values. Selecting a different channel then allows you to adjust the same parameters for a different mixer channel. The EQ section is actually very flexible, with a fully parametric mid section, plus shelving high and low filters featuring variable cutoff frequency.

A multicoloured LED above the Status button shows at a glance what the channel is doing; orange means the channel is monitoring the input source, green means the channel is monitoring the tape track, and red means the channel is armed, ready to record. In record mode, the monitoring automatically switches when you punch in or out, as it does on a conventional cassette multitrack. Finally, an extinguished LED means the channel is muted, and changing status is simply a matter of stepping through the options using the Status button. The master output level is controlled via a single-ganged fader, and above this is another Edit button, which also provides access to the mixer's solo facility.

Other features familiar to analogue tape machine users include auto punch in/out, footswitch punch in/out, and cycle mode, which lets you rehearse over a looped section of your recording. Hard disk recording is an advantage here, as there's no rewind time: everything is almost instantaneous. You can set a pre-roll time before auto punch-in operations and eight Locate points (accessed via four buttons and the shift key) let you set eight markers within each song, which can be recalled instantly via the eight Locator buttons. The ten buttons used for handling locates and auto recording also double as number keys, for direct numerical entry whenever the Numerics button is depressed. A further 1000 Tap Markers may be added to each song, with the proviso that they're not closer than one tenth of a second apart, and these may be stepped through sequentially or recalled by number. Because they aren't so quick to access as the eight Locator markers, it is probably a good idea to use considerably fewer than the 1000 on offer!

Up to 200 songs can be specified for a disk, but given the maximum capacity of a disk, you're unlikely to use this many: around five or six single-length songs, with all eight tracks recorded, would fill a 1Gb drive — fewer if you make use of the virtual tracks. However, you can use different recording modes for each song, to make the best use of the available remaining space.

CLOSE TO THE EDIT

Once recorded, tracks may be cut, tracks or parts of tracks may be copied, moved, erased or exchanged, and blank space may be inserted between sections. However, not all these operations are non-destructive: if you paste a new piece of data on top of old data, it will overwrite

BRIEF SPECIFICATION

Audio Format	Four-track simultaneous record, 8-track simultaneous playback
Audio Connectors	Input A unbalanced jacks, all others phono
Sampling System	48kHz, 44.1kHz or 32kHz, 18-bit with oversampling (256x AD, 8x DA)
Frequency Response	10Hz to 22.6kHz at 48kHz sample rate, 10Hz to 21kHz at 44.1kHz sample rate and 10Hz to 15.5kHz at 32kHz sample rate
Internal data path	24-bit
THD	better than 0.08%
Nominal Input Level	-50 to +4dBm
Input Impedance	20kΩ
Output Impedance	1.6kΩ
Residual Noise	(1kΩ at input) -91dB or less
Crosstalk	82dB or less
Dimensions	434 x 317 x 88mm
Weight	4kg excluding drive
Options	Internal hard drive; VS8F1 Effects Expansion Board

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Roland VS880 Digital Multitrack

“Despite the buried functions, the mixer really is hugely flexible, with an EQ system capable of out-gunning most 8-buss analogue consoles.”

► it — although the Undo button does offer a last-chance saloon. Copying sections of a track is a particularly useful facility, as it allows similar sections of a song, such as choruses, to be used as many times as required. During track copy operations, the display screen shows the various sections of recorded data on the different tracks. If you can imagine a *Cubase* screen about the size of a Christmas issue postage stamp, you'll have an idea what this looks like. The actual procedure for copying or moving data is straightforward if long-winded, so it helps to have the manual open at the right page until you've done it enough times to commit it to memory.

Another useful edit operation is time expansion and compression, which lets you change the length of a piece of audio by up to +/- 25%. The source track is processed off-line and copied to a designated virtual track, which means you can always go back to the original if need be. However, you don't seem to be able to switch between virtual tracks during playback: you have to stop first.

Providing the amount of compression or expansion is just a few percent, the sound quality is acceptable, but if you try to use the extreme settings, most types of material will sound obviously processed, just as they would with a conventional pitch-shifter. The process seems to

a visit to the LCD window, followed by a little menu-surfing. Similarly, track-bouncing takes a little planning, but it's really quite easy. However, as track-bouncing appears to work by submixing to the stereo buss and then recording the stereo buss onto one or two destination tracks, you can't monitor the destination tracks during the bounce, otherwise you route the output back to the input, and end up with audible feedback. I found it easier just to turn down the faders on the destination tracks during the bounce, then turn them up again once the bounce was done.

Punching in is accomplished in exactly the same way as on a tape machine, using either the Record and Play buttons or the optional footswitch. I could detect no gaps or glitches at the punch-in point, but as there's a 10ms crossfade time, this doesn't surprise me. The crossfade can be adjusted from 10 to 50ms in 10ms steps, but I never felt the need to change it from the default setting.

Cut and paste editing is a little more involved, because you have to specify your source track (and virtual track number) and then find the desired start and end points of the section you want to copy. This is made easier by the locators, which can be entered on the fly, but the scrub function is also exceptionally useful. After the Scrub button has been pressed, the data wheel controls audio scrubbing, with the selected track waveform displayed on the LCD. As you scrub, the waveform moves along, and because the scrub system constantly replays a loop of audio 40ms or so long, it's very easy to find the starts of notes or percussive sounds.

Having captured your section, you then have to decide which virtual track to copy it to, and also specify the time at which the copy will start. You can also specify more than one copy, which is useful if you want to repeat a riff a number of times. Once the copy has been executed, you can check it out and undo it, if everything's gone horribly wrong. If you can work to the internal metronome, the ability to use bar and beat locations to define your sections makes life much easier than relying on time only.

As with all digital systems, crashes are possible, though I haven't experienced one yet at the time of writing. Even so, it's a good idea to save your song data at regular intervals by pressing Shift Store, and when you finish a session, it's essential to shut down by pressing Shift Stop — otherwise any changes made since the last save will be lost.

On the whole, the basic operation of the VS880 is reasonably uncomplicated, but I really miss being able to reach out for an EQ knob and turn it. Each channel of the VS880 has the benefit of a very powerful three-band equaliser. To make a change, you have to select the equaliser band via the dual-function buttons in the 'Ch Edit' mixer section, use the cursor to select either cut, boost or frequency (and in the case of mid, Q as well), ►



The back panel, featuring the all-important SCSI connector (left) for the attachment of external storage drives.

take rather longer than real time to process, but as it's something you're unlikely to use often, that shouldn't be a problem.

IN USE

Making simple recordings of one mic or instrument routed to its correspondingly numbered disk track is very straightforward, and is very similar to what you'd expect from a tape-based system, except you don't have to wait for the tape to rewind once you've finished. Once you've created a song to record into, it's just a matter of setting the record level, putting the track into record and then playing as usual.

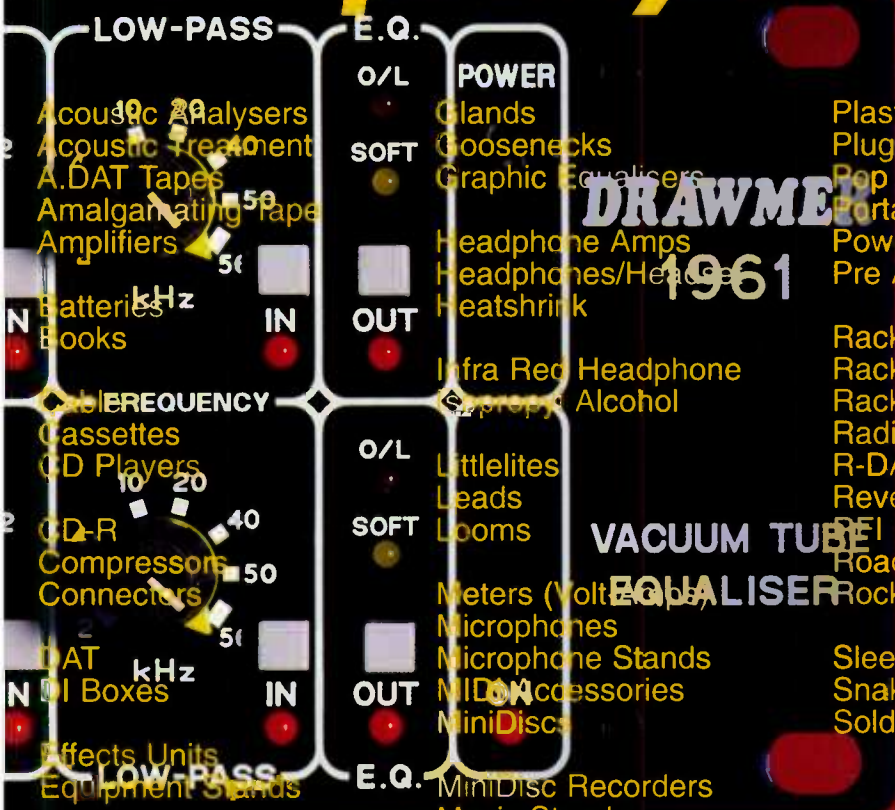
Mixing two or more inputs together for recording is less straightforward, and occasions

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Roland VS880 Digital Multitrack

"I don't think the VS880 will seduce those people who've already experienced the freedom of a good MIDI sequencer with audio capability, but for anyone looking for a compact hardware solution, the VS880 looks to have it all."

▶ select the channel you want the EQ to apply to, then use the data wheel to make the necessary changes. I can live with the system of having one set of channel controls that can be assigned to any channel by means of a single button press, but I don't think I'll ever be able to accept having to plough through menus for controls I was once able to take for granted.

Those using sequencer packages such as *Logic* or *Cubase* might find it easier to create a mixer map with on-screen faders representing the most frequently-used controls, and this is most certainly the case if the mixer automation is to be used to its full extent. The faders and pan pots can be accessed directly, but to automate the EQ or the aux sends via the menus would be too slow during mixing. The only other practical alternative would be to make numerous passes, recording one control at a time onto a new sequencer track.

The ability to mix directly to DAT in the digital domain is very welcome, as is the ability to back-up song data onto DAT, even if backing up a 5-minute song of uncompressed data takes around 20 minutes, and another 20 to load it next time it's needed. Again, the system seems to work well enough, and the very low price of DAT tape (as opposed to something like Jazz disk cartridges) makes the slow rate of transfer easier to swallow. Nevertheless, I've a feeling that in a few years' time, we'll regard backing up to DAT in the same way as we now look back on the happy hours spent loading *Space Invaders* from cassette into our Commodore 64s.

When mixing, the four analogue inputs (and the digital input), are still routed to the mixer, but as there are only eight physical sets of channel controls, there are two mixer modes which determine whether the controls relate to the tape tracks or to the external inputs. Track Mix relates to the off-tape mix, whereas Input Mix relates to the external inputs. The channel routing works as normal, so if you're using the external inputs as effects returns, you can still add effects as you bounce and get the effects going to the right place.

VERDICT


If I tell you the manual for the VS880 deals with everything in as concise a manner as possible, yet still runs to almost 100 pages, you'll realise I've had to miss out a lot of the fine detail. There are aspects of the VS880 that I love, and others that drive me up the wall, but all these have to be

viewed in the light of the very attractive price and the almost dazzling array of features.

As you've probably inferred, I'm no great fan of menu-driven systems, especially where menus are needed to access routine functions such as EQ or effects send level, but you should also bear in mind that I'm the type of person who would rather take up juggling live sea urchins than use a hardware sequencer. I've been brought up on computer-based hard disk recording systems, where if you want to move something, you cut a chunk out with your virtual scissors and then drag it screaming to its new home — end of story.

The great benefits of the VS880 are its good, basic sound quality, the flexibility to use various long-play modes when you can afford to compromise the sound quality to some extent, and the fact that everything is in the digital domain right from step one. I don't know if I'd make great use of mix automation with so few tracks to mix, but the ability to recall the entire mixer, recorder and effects setup at a stroke is very appealing — as I discovered when reviewing the Yamaha O2R. Even the output to DAT stays in the digital domain. The only sad omission is the lack of a phantom-powered mic input, because with a recorder of this quality, some people are going to want to use capacitor microphones.

From what I can tell from my short experience with the VS880, Roland have built a very solid, vice-free machine, and you shouldn't let my comments about the operating system put you off too much, because it's one of those things you invariably get used to, especially when as the centrepiece of the studio, you're going to be using it all the time. The lady demonstrating the system at NAMM flew round the keys almost too fast for the human eye to follow, yet she can't have had the machine for more than a few weeks at most.

I don't think the VS880 will seduce those people who've already experienced the freedom of a good MIDI sequencer with audio capability, but for anyone looking for a compact hardware solution, the VS880 looks to have it all. The effects board is such good value at around £350 (and so convenient) that it should be considered a 'must'. Despite the buried functions, the mixer really is hugely flexible, with an EQ system capable of out-gunning most 8-buss analogue consoles. The machine's ability to lock to MTC means that it is useful in a video post environment, as well as in traditional music applications. I, for one, am very interested to see how the war between the various hardware workstations and the available 'audio-with-MIDI' computer systems develops. 

FURTHER INFORMATION

- E** VS880 £1499 (without disk drive); VS8F1 effects board £340. Prices include VAT.
- A** Roland UK, Atlantic Close, Swansea Enterprise Park, Swansea, West Glamorgan, SA7 9FJ.
- T** 01792 702701.
- F** 01792 310248.

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The Studio Quad offers the four elements used in nearly every mixing application: large reverbs, small reverbs, delay, and pitch / modulation (detuning, chorus, flanging, etc).
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you, saving those valuable mixer inputs for more important things. But for true power, four separate outputs are just a button press away.

LAYING IT DOWN...
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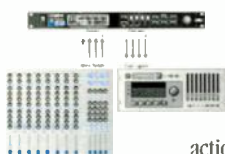
And unlike processors, you're never left wondering how the Studio Quad is configured. The large custom LCD display always keeps you on top of the action, supplying you with all the information you need. The effect routings are constantly displayed in the algorithm grid, and 24 character names leave plenty of room for an accurate description of your custom programs. And if that's not enough, the large, brightly illuminated controls never leave you fumbling in the dark for the right button.

TAKING IT TO THE GIG...
Sure, it says *Studio Quad* on the front, but this product is right at home in any live application, too. Because of its extraordinary capabilities, you can leave two or three of the other processors at home. And as everyone knows, a

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Want to punch up the house mix with a stereo 6-band parametric equalizer? Need a sweet dual-chorus to help the vocals? How about a little slap delay? The Studio Quad does all that, *all at the same time!* Want to exchange the stereo 6-band parametric for a stereo 8-band graphic, all without leaving the current Program? Just hit that FX Edit button, dial up the new EQ and pick from one of the preset curves to get you started. No other product offers this kind of flexibility, these kind possibilities, especially in this price range.

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4 inputs, 4 outputs: Multi-Effects

Multi-Effects Processor should be.....



MAKING IT YOURS...

Editing and customizing the effects to your needs will never be easier than this. The Studio Quad can display up to four parameters at once and full parameter descriptions can be seen by simply pressing and holding one of the four parameter buttons. TapIt-Tempo allows you to correctly set your delay times without reaching for the calculator. And if you need truly dynamic control your sound, try assigning a couple parameters to user definable LFOs or input sensitive modifiers.

INSTRUMENT APPLICATIONS...

Maybe it's a guitar, or perhaps a saxophone, that is needing the help of professional quality sound effects. The Studio Quad is ready to handle anywhere between one and four input signals, offering you the upmost in flexibility.

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Plugging into Pro Tools

TDM SOFTWARE PLUG-INS FOR
DIGIDESIGN PRO TOOLS

MIKE COLLINS
concludes his look at
the available TDM
software plug-ins,
concentrating this
month on those made
by third-party
manufacturers.

Last month, we looked at the TDM software plug-ins manufactured by Digidesign for their own Pro Tools systems. However, many so-called 'third-party' TDM plug-ins are now available. This month, I'm looking at nine of these manufacturers and their products.

INA-GRM

• **GRM TOOLS**
GRM Tools is a bundle of plug-ins (not sold separately) developed by the Groupe de Recherches Musicales of the Institut National de l'Audiovisuel in Paris (hence INA-GRM). A standard interface is used for all the *GRM Tools* plug-ins, with a set of controllers for the various parameters plus 16 memory buttons for the presets. With these, you can make several different settings, store each of them, then click on any of the memory buttons to recall your settings. The current settings will then crossfade automatically to the

1 or 5 filters, in mono and stereo, and it is possible to use up to ten filters per DSP chip used — so you could use ten one-band mono or five one-band stereo, and so forth. You can create great 'robot voice' effects using these at extreme settings, or simply 'fatten up' your vocal or instrumental sounds with more subtle settings.

The *Equalizer* features 23 bands of graphic EQ, and versions are available in mono using one DSP chip, or stereo using two DSP chips. Once you get used to the idea of being able to instantly switch between EQ settings, or to slowly interpolate between settings, the possibilities for mixing quickly multiply — so watch out, or you could find yourself fiddling around with this one for ages!

The *Doppler* effect simulation is available in both stereo and mono versions, and lets you swing your sound source around in space, shifting in pitch as it passes the 'listening' position. The presets here really show off the creative possibilities for special effects, rather than simply simulating trains or motorbikes passing by.

Shuffling offers 'micro-random placing' of audio fragments using one DSP chip, with mono input and stereo output. Using this, you can have fragments of your audio source automatically moving around in the stereo field according to the envelope setting, while they are shifted in pitch between the settings you make for initial and final pitch. You can also randomise the pitch settings. The effects have to be heard to be understood, but I can assure you that you won't be disappointed if you are looking for unusual sounds!

In all, the *GRM Tools* effects are very neatly implemented as TDM plug-ins, and provide a palette of unusual effects particularly aimed at the sound designer working with electronic music or creating sound effects to match pictures.

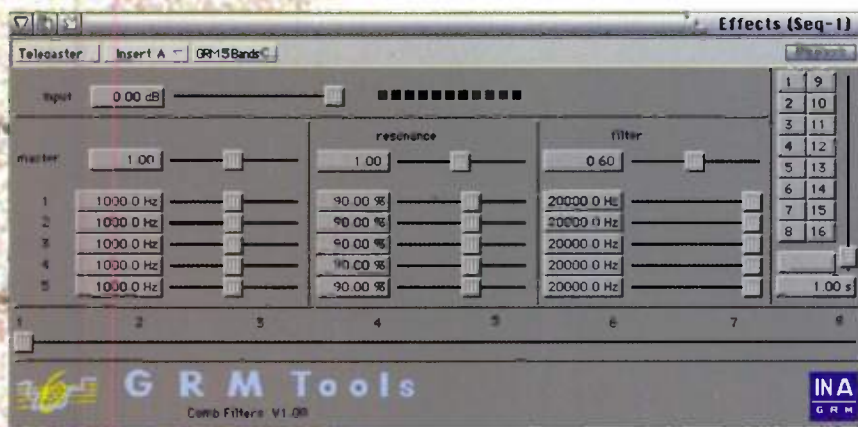
FURTHER INFORMATION

- E** *GRM Tools*; around £250 inc VAT (UK price yet to be confirmed).
- A** Digital Music Archives, 3 Chaucer Lodge, Longfellow Road, Worthing, West Sussex BN11 4NU.
- T** 01903 219407.
- F** 01903 230169.
- E** dgale@pavillion.co.uk

ARBORETUM

• **HYPERPRISM**
HyperPrism effects are now available as a TDM plug-in — currently at version 1.01. This software lets you control two parameters (such as pitch and frequency) by dragging a point across a blue-coloured screen to set values according to the x and y positions within the screen. A wide range of effects is available, and, like *GRM Tools*, they are ideally suited to sound effects creation — particularly for composers working to picture.

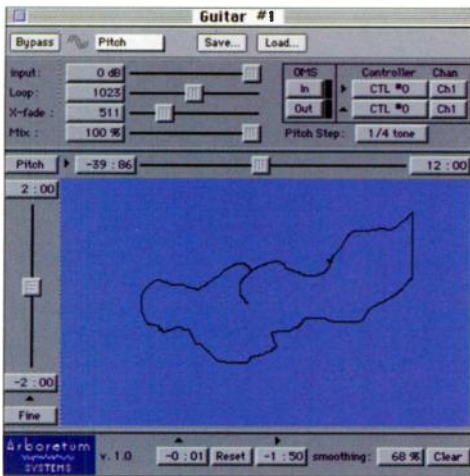
You get 14 real-time simultaneous effects: filters (low-pass, high-pass, band-pass, band-reject), vibrato, a ring modulator, pitch changer, flanger, balance, pan (auto pan, tremolo), stereo dynamics, more stereo, and M-S matrix. *HyperPrism Consoles v1.2*, including *Max v3.0* TimeLine editing features, are also supplied with the software.



GRM Tools' Comb Filters plug-in.

new set over an amount of time which you set (in seconds) using the slider on the far right of each window. Alternatively, you can drag the slider at the bottom of each window to move manually between the first eight of the stored settings.

The *Comb Filters* are offered as banks of either



Arboratum's *HyperPrism*.

HyperPrism v1.1 (which should be available very soon) adds nine more effects: chorus, phaser, quasi stereo, hyper stereo, hyper pan (stereo tremolo, crossing pan, non-crossing pan, sweeping pan), and doppler. You also get new automation features and simultaneous MIDI control of all inserted effects.

You can either apply effects to your audio in real time using File mode, or use the Thru mode, which turns your *HyperPrism* TDM plug-in into a powerful multi-effects box. Built-in MIDI automation lets you record and playback effects variations using a Pro Tools MIDI track, and you can also control or edit your effects from any external MIDI device or OMS-compatible sequencer — synchronised to MTC if necessary. Two instances of the same effect can be used per single DSP chip (except with the pitch changer, where you only get one instance per chip).

The excellent pitch-shifter can also be used as a harmoniser, and the new flanger delivers superb results, as does the ring modulator and the spatialisation effects. The filters offer resonance controls and much more. In short, the *HyperPrism* effects are of first-class quality.

FURTHER INFORMATION

See the 'Overseas Contacts' box.

STEINBERG

• DECLICKER

The *DeClicker* eliminates single clicks or pops on vinyl records, movie soundtracks, or on magnetic tape due to dropouts — or maybe from lip noises in speech, guitar plectrum noise, knocking the microphone during recording, or as a result of sync problems when transferring material between digital devices. *DeClicker* is ideal for removing these, although it is not a de-crackler or a denoiser, so it won't eliminate a series of short crackles or the hiss on a recording. I tested the *DeClicker* on a stereo mix I had edited using *Sound Designer II*, in which several clicks had appeared at the edit points, and it immediately removed these 'just like magic' using the default settings. On the other hand, I digitised a track from a vinyl album which had a loud pop half-way through, and *DeClicker* could not remove this completely, although it

'tamed' it to the point where it was only just audible. Overall, this one is worth buying.

• VIRTUAL FX RACK

The *Virtual FX Rack* is a collection of five TDM plug-ins (not sold separately), including the *Hallelujah* chorus, *Pandora* autopanning, *Stereo Wizard* stereo image enhancer, *PlateRunner* reverb, and the *Y-Cables*, which let you mix two into one or patch one into two. These plug-ins make very efficient use of DSP power — you can run both *Pandora* and the *Stereo Wizard* on one DSP chip, with *Hallelujah* chorus and the *Y-Cables* mini-mixer/patcher on another, while *PlateRunner* uses up a complete DSP chip on its own.

PlateRunner is a digital simulation of plate reverb, and takes a mono input which it outputs as a stereo signal. I found this quite handy for some of the less prominent elements within my mixes — although it is no match for Digidesign's *DVerb*. The *Hallelujah* chorus is OK for softening pads or vocals, or to thicken the sound of a solo instrument — without sounding particularly exciting. *Pandora* is a straightforward autopanner which lets you take a mono signal, position this within the stereo field, and automatically change the pan position. This proved very useful on assorted percussion parts and pulsing synth sounds within my mixes.

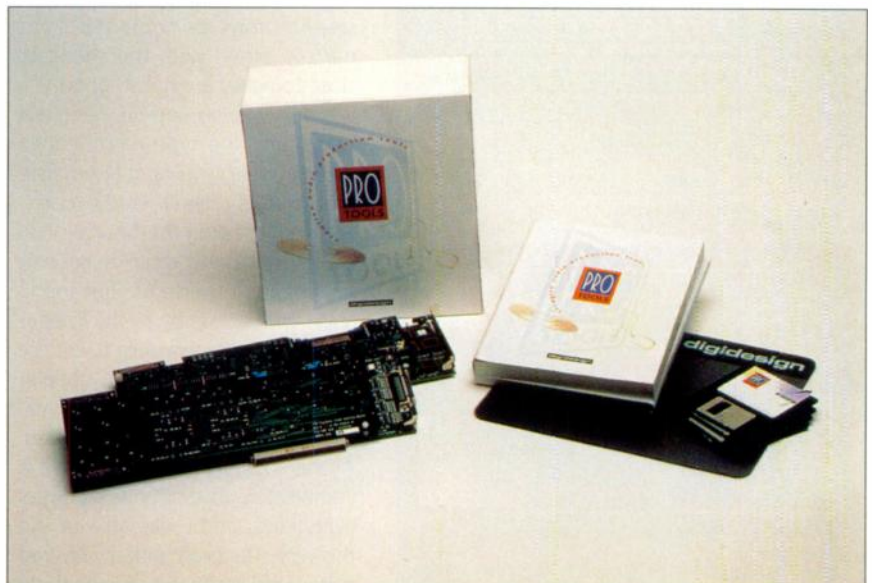
The '2-in, 1-out' *Y-Cables* is basically a mini-mixer. The volume of signals at the input and at the output is independently adjustable, and stereo signals can be phase-inverted. The '1-in, 2-out' module, on the other hand, takes one input and connects this to two outputs. You can use *Y-Cables* to create various useful or just crazy effects by creating feedback loops — you just route an effect signal to the input of the same module or to the input of another module in your chain of effects.



Steinberg's *DeClicker*.



The *PlateRunner* plug-in from Steinberg's *Virtual FX Rack*.



TDM Plug-Ins

RECENT ANNOUNCEMENTS

As this article was completed, Focusrite announced a new software-based EQ plug-in, the *d2*, based on the Red 2 parametric equaliser, the latest version of the Rupert Neve-designed Focusrite EQ. Similarly, TC Electronics have announced their *TC Tools Reverberation Package*, with reverb and chorus effects.

- E** Focusrite *d2 ETBA*.
- A** Digidesign UK, Avid Technology Ltd, Westside Complex, Pinewood Studios, Iver Heath, Pinewood, Bucks SL0 0NH.
T 01753 653322.
F 01753 654999.
- E** TC Electronics *TC Tools*; around £1000 inc VAT (projected price).
- A** Raper & Wayman, Unit 3, Crusader Industrial Estate, London N4 1LZ.
T 0181 800 8288.
F 0181 809 1515.

OR

- A** Digidesign UK, Avid Technology Ltd, Westside Complex, Pinewood Studios, Iver Heath, Pinewood, Bucks SL0 0NH.
T 01753 653322.
F 01753 654999.

► The *Stereo Wizard* is intended to let you change the spatial content of a stereo signal within the stereo field, to achieve a more spacious sound with an increased sense of depth and separation. It is designed for individual instruments as well as for stereo mastering, although it is not fully mono-compatible. The main control here is 'Effect', and higher settings of this are supposed to result in a wider spatial reproduction of the instruments within the stereo field. The *Stereo Wizard* is not as fully-featured as any of the other spatialiser plug-ins, and when I tried using it on a backing vocal, it simply made the vocal quieter, with no audible effect on the spatial positioning — not so clever! If you need a budget reverb with a useable chorus and autopanner, and a couple of other effects thrown in 'for luck' then the Virtual FX Rack is a good buy for the price.

FURTHER INFORMATION

- E** *DeClicker* £799; *Virtual FX Rack* £249. Prices include VAT.
- A** Harman Audio, Unit 2, Borehamwood Ind Park, Rowley Lane, Borehamwood WD6 5PZ.
T 0181 207 5050.
F 0181 207 4572.

CRYSTAL RIVER ENGINEERING

• PROTRON

ProTron is a mono-to-stereo plug-in that allows you to take mono sound files and process them into a stereo spatialised format. *ProTron* uses proprietary technology, which works out what audio should be in the ear canal and reproduces it. This is done for a particular human ear canal and may sound different to different people. It works best over headphones, rather than speakers, and has an extremely easy-to-use graphical interface — where you can just 'mouse around' a source icon to place the sound source at a desired location in your perceptual space.

Nearfield speakers do work nearly as well as headphones, and wide speaker arrays are not too bad, but narrow arrays with the speakers close together are not so good.

The Materials pop-up menu lets you select the type of reflective material which you want to simulate on the walls of your 'virtual room', and you just drag the 'source' icon around within this 'room' to position the apparent source of your sound anywhere in relation to the listener icon. Sliders are available to set the room size, the amount of doppler effect, and the apparent vertical position between floor and ceiling. All this is just a breeze to use, as it is immediately obvious how to control everything, and I was able to use this very effectively with my layered guitars and keyboards to keep these

separated within my mixes. I also found that *ProTron* worked very effectively in conjunction with reverb, as you can use it to simulate the characteristics of various types of wall surface, and adjust the apparent distance between source and listener at the stroke of a mouse. Finally, this processor is mono-compatible, so you don't have to worry about losing any of your mix elements during a mono mixdown!

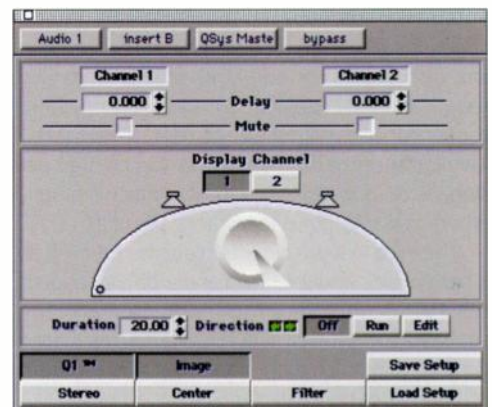
FURTHER INFORMATION

T See the 'Overseas Contacts' box.

Q SOUND LABS

• QSYS

In conventional stereo, you can use panning, relative level adjustments, dry/reverberant ratio, EQ adjustments, doppler shift for moving sounds, and similar techniques to achieve spatialisation within the stereo field. All of these except panning are primarily used to provide an impression of distance. QSound Labs' famous QSound



Applying QSound processing with the QSys TDM plug-in.

processing (and now the TDM plug-in version, QSys), on the other hand, allows you to place sound sources well beyond the bounds of conventional stereo, extending the soundfield into a 180 degree arc in front of the listener.

In a dense mix with many tracks, you can use QSys to spread out the instruments and find spaces for each of the various elements. You simply drag a point within the semi-circular display to place the sound source anywhere you like. In practice, this worked exactly as it is intended on my backing vocals and sax licks. Another useful technique is to position your reverb and echo returns using QSys to put the ambience 'out in the room' where it belongs. This way, you will find that you can use much more dramatic reverb than normal on account of reduced smearing and masking of the dry source. QSys also features the best autopanning I have encountered, where you can draw in the path you want your panned mix element to follow, and edit and store these paths as setups for later.

Crystal River's ProTron.



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Akai DR4 340MB	£1499
Yamaha QY20	£299
Yamaha TG300	£299
Yamaha RX17	£99

TDM Plug-Ins

▶ The *Amused to Death* album by Roger Waters (ex-Pink Floyd) was mixed using the QSound process, and is probably the finest example. This TDM plug-in now offers similar processing at a much more affordable price.

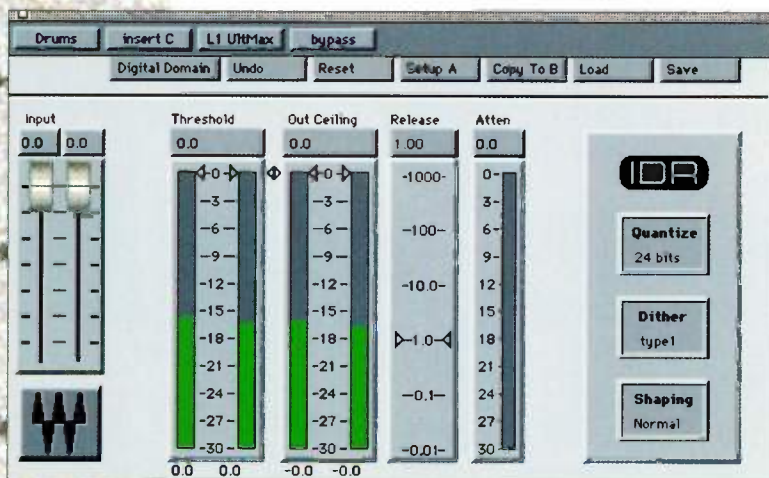
FURTHER INFORMATION

▶ See the 'Overseas Contacts' box.

WAVES

• S1

The *S1* stereo imager is a specialised tool for rebalancing or re-arranging the positions of sound images within a stereo mix, as well as a corrective tool for some typical errors in stereo files. So, for instance, you can pull down the level of left sounds or pull up the level of right sounds, while keeping the volume of centrally-positioned sounds between the two extremes. Or you can keep the stereo balance completely unchanged while moving central sounds over to one side of the stereo stage or the other. This is ideal for correcting lopsided stereo mixes without altering the level balance. The Width control lets you adjust the relative balance of centre and edge-stage sounds and the width of the stereo image, and correction is also provided for the two most common stereo imaging errors: channel polarity errors and stereo channel reversal. The *S1* lets you view and control the stereo sound stage using a stereo 'vector' display, by dragging the mouse to alter the rotation and gain parameters simultaneously.



Waves's L1 UltraMaximiser, using IDR processing to minimise quality loss.

• L1

You can use the *L1* UltraMaximiser to maximise both the level of the digital signal and the resolution of your final audio using dithering and noise-shaping. This is particularly useful for mastering multimedia, or for any other application that requires quantisation of the digital signal. Quantisation from 24- or 20-bit down to 16-bit resolution results in a loss of sound quality, and an

increase in low-level noise and distortion.

TDM processing uses 24 bits, and this has to be pulled back down to 16 bits by rounding or truncation prior to mastering for CD. The resulting rounding error can produce audible distortion at low levels, and if the audio signal is repeatedly processed and truncated back to 16 bits, the losses accumulate. Proper use of dithering techniques can convert the low-level non-linear distortion into a simple steady hiss, at the expense of increased background noise. The perceived level of this can be greatly reduced by optimising the shaping of the overall noise to match the ear's frequency-dependent sensitivity curves — ie. 'noise-shaping'. The *L1* uses Waves IDR (Increased Digital Resolution) processing developed by Michael Gerzon, which is claimed to be much better than simple dithering, and enables a 16-bit system to deliver 18-19 bits of perceived performance. Waves IDR is comparable in quality with many of the more highly-publicised 'bit-mapping' or 'Super-Resolution' technologies currently used for mastering CDs. The *L1* is designed to be used at the final stage of processing or mastering, and includes wider options for IDR than you get with the other Waves plug-ins, to allow fine-tuning prior to mastering.

• Q10

The *Q10* parametric EQ is a precision tool for effects like pseudo-stereo processing, adding or removing pre-emphasis, correction of errors in multimedia files, precision bandsplitting, precision brickwall bandlimiting, hum removal, and much, much more. Each EQ band can cover the full frequency range with a very wide Q range, and

can be set as shelving, pass, or parametric filters. In the control window, you can make A/B comparisons and view the graph produced by the DSP — so you can see the actual response. To edit the settings, you simply manipulate the graph with the mouse. The *Q10* filters are all 'noise-shaped' to preserve the optimum signal-to-noise ratio at all times, giving 110dB signal-to-noise in the digital domain, no matter what EQ settings you use. This noise-shaping also provides a spectral re-distribution of the noise floor, shifting noise products from the mid-range into a higher frequency range where the ear is less sensitive. Michael Gerzon has created an extensive library of setup files for the *Q10* including pseudo-stereo filters, telephone and AM radio EQs, super-parametrics,

deep supernotches, psychoacoustic noise filters and much more. This library includes EQ setups for sample rate conversion, hard bandlimiting for speech and broadcasting, classic EQ implementations such as the Baxandall equaliser, and multimedia applications where compensation is needed for high-frequency losses in *Sound Designer II*. In short, this is the EQ for just about all occasions!



EURODESK MX8000

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Your ear is the Judge

TDM Plug-Ins

• C1

The C1 compressor/gate actually has three independent stereo processing modules which can be used together in many different ways. The compressor/expander can be configured as a high-level compressor, a gentle high-level expander, or as a mid-level compressor whose compression can be 'tuned' at any user-chosen signal level. The gate/expander can operate either as a fully-featured expander or gate. It can also be used to 'compress-up' lower-level signals. The filter has a variety of capabilities from conventional side-chain dynamics processing to the unique bandsplit dynamic EQ mode — which allows compression, expansion or gating of any desired frequency band. The C1

setups library allows the C1 to be configured as a wide range of specialised processors. You get conventional high-level compression or low-level expansion, gating, a de-esser, noise-reducers for background hiss, de-reverberation to reduce the effect of room reverb (especially on speech), rumble removal, a speech intelligibility enhancer, ducking, gating or expansion of one signal keyed by another, dynamic or keyed EQ, mid-level compression and low-level detail enhancer. You can even use two or three of these at the same time — so you could compress a file while removing side-effects, such as increased audibility of noise or room reverberation.

As a suite of plug-ins, the Waves offerings are ideal for high-quality processing prior to mastering your final mixes, and, as such, are worthy of a place in every professional Pro Tools-based project studio.

FURTHER INFORMATION

£ S1 £499; L1 £599; Q10 £459; C1 £649; bundle of all plug-ins £1999. Prices include VAT.

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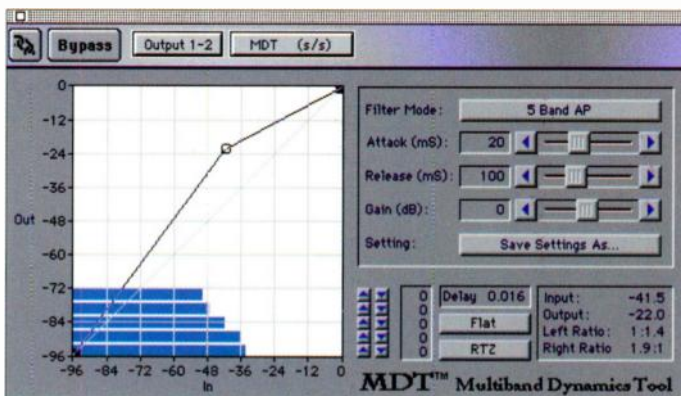
ANTARES SYSTEMS

Note: news reached us as we were going to press that the plug-in company formerly known as Jupiter Systems has changed its title to the new astronomically-related title shown above.

• MDT

Antares' MDT plug-in can be configured to create compressors, limiters, expanders, downward expanders/gates, 'soft-knee' compressors or limiters, 'tube' companders, or any combination of these. In multi-band mode, MDT can create de-essers, spectral enhancers and dynamic EQs, as well as compressors and expanders that suppress the

effects of artefacts like breathing and pumping. This is a serious engineer's tool, which delivers excellent results. Applications include mastering, individual track processing, sound effects, sample editing and so forth.



Antares Systems' MDT — a serious multiband dynamics tool.

• JVP

The Jupiter Voice Processor [no name change on the plug-in yet, then — Ed] includes a de-esser, a compressor with a downward expanding gate, a parametric EQ, and a multi-tap delay. It is particularly intended for vocal processing, and is excellent on individual instruments and sound effects. It can be used very effectively for mastering stereo files, as its compressor/gate and EQ operate simultaneously. Also, the JVP makes very efficient use of DSP power, by running four processes on two audio channels using only one DSP chip — so you get plenty of 'bang for your buck'! Along the top of the control window, there are buttons to switch the controls between the de-esser, compressor/gate, parametric EQ and delay effects — all the typical processing you might wish to use with your vocals. The de-esser lets you remove excessive sibilance — loud 'S' and 'F' sounds — and the compressor/gate has a similar design to the MDT, but with less flexibility. The parametric EQ can handle 140dB of dynamic range, and has three filter sections, two of which can be configured as different filter types including low-pass, low-shelving, peak/notch, high-shelving and high-pass. Finally, the delay effects actually provide more control than the delays normally found in hardware reverb and delay units. In addition to having six individually-adjustable taps, you can use negative gain and adjustable comb filtering to create a wide variety of effects. Presets are provided for typical effects like vocal doubling and telephone voice simulation, and you can save your own favourite setups for future mixes.

In practice, the Antares plug-ins worked very effectively, and were ideal for processing individual tracks. As with the Waves suite, these deserve a place in every well-equipped Pro Tools-based studio.

FURTHER INFORMATION

T See the 'Overseas Contacts' box.

“Waves’ offerings are worthy of a place in every professional Pro Tools-based studio.”

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parametric equalizer,
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Pictured above is the latest plug-in from Waves - AudioTrack - A combination of the most needed processors including equalization, compression/expansion & noise gating. Available for Digidesign, SDII, TDM, Premiere and Deck II (PowerMac native)

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The C1 is a true frequency-selective dynamic processor with phase compensation. That simply means you could compress only the bass without colouring the sound. Or you could limit only the treble, and so forth. The C1 is an expert tool; there is no other dynamic processor like it in the world. Ideal for mastering, voice-over, or even frequency-selective keying, the C1 is supported by an extensive Setup Library.

From £499 inc.



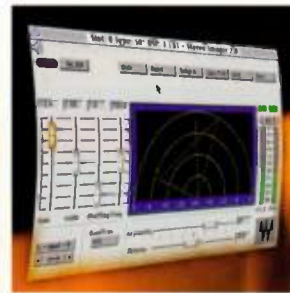
L1 Ultramaximizer is the worlds best known digital peak limiter. The L1 features IDR processing-a better dithering/noise-shaping system than others costing nearly 20 times the price. Ideal for mastering Compact Disc and multimedia audio as loud as the major labels and publishers. The L1 is industry standard for CD and multimedia mastering. Our users include Microsoft, Steve Miller, Sony, Sega, Nintendo, Korg and Tangerine Dream.

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The Q10 ParaGraphic EQ is one of the most powerful equalizers ever made, with 10 band stereo parametric EQ, whether for subtle or extreme adjustments. A 200-piece Setup Library provides pre-emphasis, pseudostereo, multimedia, mastering and many more pro-audio tools. The graphic interface has been called "the model for audio software interface design". The Graphical and numerical control, and the display are unmatched.

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The S1 Stereo Imager brings together a comprehensive set of stereo manipulation tools. Four distinct processes make the stereo image wider or narrower, increase space in the lower frequencies and rebalance the left-centre-right, independently! Three of these processes are phase-compensated, keeping mono compatibility. Beyond any stereo processor on the market, the S1 is excellent for stereo TDM subgroups, reverb returns, stereo mic recording and mastering.

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WaveConvert for Windows & Macintosh is an easy to use audio processing application for multimedia developers. It combines the well known peak limiting technology of the Waves L1 Ultramaximizer with other Waves processors into a powerful one step audio processor. Wave Convert easily converts Mac or Windows based high resolution audio files into lower resolution audio files while retaining optimal sound quality.

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TDM Plug-Ins

APOGEE

• MASTERTOOLS

Once you have finalised your processing and mixing, you need to prepare a final output file which uses just the 16 bits which are available on DAT or CD, rather than the 24 bits available within your TDM system. The TDM buss works at 24-bit resolution to provide the extra dynamic range you

need to mix several 16-bit signals together. You also need extra dynamic range if you process 16-bit audio using any digital effects such as compressors, EQ and so forth. Apogee have come up with a solution here in the form of their UV22 encoding process, which is now available as the *MasterTools* plug-in for TDM systems.

UV22 encoding adds an inaudible high-frequency 'bias' to the digital bitstream, which works rather like the bias

on an analogue tape recorder, smoothing out magnetic tape recording non-linearities. With noise-shaping and bit-mapping systems, users often hear the noise floor changing with the music. Traditional dither adds noise which actually raises the noise floor. In contrast, Apogee claim, UV22 presents a constant, smooth and stable noise floor, unobtrusively at the theoretical minimum level, but through which can be heard undistorted detail up to 30dB lower in level — extending full-fidelity information beyond 20-bit resolution to your 16-bit CD. UV22 is expected to

be the final step in the signal chain before CD mastering, so no more processing of any kind should be performed on the UV22-processed data.

For those of you waiting for an accurate meter for Pro Tools, both in timing and level, *MasterTools* also offers an extremely accurate monitoring system, which shows level, phase and balance information presented both in real time and as a 'history'. *MasterTools* can track any digital 'overs', so you can remix or modify to eliminate these, and a facility is provided to automatically normalise these peaks.

If you edit signals with different levels of DC on them, you can get clicks and pops at your edit points. *MasterTools* can automatically remove any DC offset in real time — a feature not available anywhere else.

MasterTools is ideal for small project studios using Digidesign equipment, where people might otherwise be using a Spirit Folio, a Mackie or suchlike, which would not have the metering, switching or processing features to let you sort these things out.



Apogee's *MasterTools*, offering UV22 encoding for TDM systems.

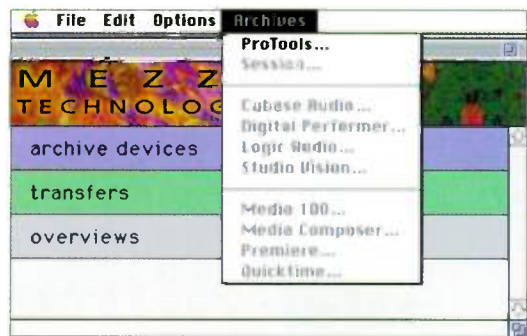
FURTHER INFORMATION

▶ See the 'Overseas Contacts' box.

GREY MATTER RESPONSE

• MEZZO

Lastly, but by no means less importantly, keeping track of all the various files used in a particular project and managing your backup and archiving systems is an extremely important aspect of using



Grey Matter Response's *Mezzo*.

any digital audio system. Grey Matter Response have developed their *Mezzo* backup software to take care of all this for you. This system can even backup and restore files in the background while you continue working on your edits. This is virtually essential for busy studios which cannot afford to have their editing suites out of action for the considerable lengths of time needed to transfer files in or out of the system.

FURTHER INFORMATION

▶ See the 'Overseas Contacts' box.

OVERSEAS CONTACTS

Many of the plug-ins featured in this article do not yet have UK distribution. Consequently, there are no proper UK prices for the plug-ins manufactured by the companies in this box. However, Digidesign UK point out that registered UK Pro Tools dealers, although not officially distributing any of the plug-ins, can usually get hold of the products in order to supply them as part of a Pro Tools TDM package. Furthermore, full contact information for the parent software companies overseas can be obtained from Digidesign UK (01753 653322), should you wish to go direct. The details for all the non-UK-distributed products mentioned in this article follow below.

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F 001 415 931 7725.
E info@arboretum.com

• CRYSTAL RIVER ENGINEERING (FOR PROTRON)

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F 001 415 323 8157.
E proaudio@cre.com

• QSOUND LABS (FOR QSYS)

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F 001 403 250 1521.

• ANTARES SYSTEMS (FOR MDT AND JVP)

T 001 916 878 6666.
F 001 916 878 8577.

• APOGEE (FOR MASTERTOOLS)

T 001 310 915 1000.
F 001 310 391 6262.

• GREY MATTER RESPONSE (FOR MEZZO)

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Fostex



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An in-line mixer with close-focus EQ, and an incredible 22 inputs in remix is another.

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Surely digital multitrack recording and mixing was never meant to be as easy as this?

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AUXILIARIES
2 AUX sends. Dual-function rotary pots enable SUB or post-fader main input to be selected as send source.

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Backing vocals great on the first chorus, but a bit shaky in the second? Why waste time recording them again? With simple copy and paste editing you can take those great vocals on chorus 1 and paste them over the less than perfect ones in chorus 2.

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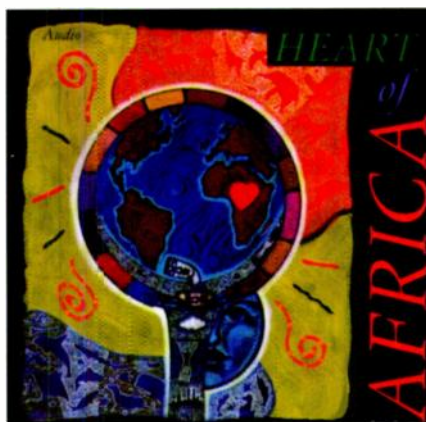
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SAMPLE SHOP

Our regular look at the hottest new sample CDs and CD-ROMs.



HEART OF AFRICA VOL 1 (DOUBLE AUDIO CD/CD-ROM)



As the name of this Spectrasonics release implies, it focuses on African sounds, both vocal and instrumental. In some ways, the content draws a parallel with their earlier and very excellent *Heart of Asia* collection, though to my mind, *Heart of Africa* is far more exciting.

I listened to the audio CD first, to get a feel for what was on offer, and was immediately impressed by both the clarity and power of the recordings. The original recordings were made using both DAT and Nagra analogue recorder, but quite a lot of post-production work has been done, including de-noising using the Sonic Solutions system. Artificial reverb has also been added to some samples, and for me, this is the only flaw in an otherwise magnificent collection of sounds. It's always easier to add reverb than it is to take it off.

Disc A starts out with African choir and vocal sounds, many of which are simply stunning, and loading these from the CD-ROM shows them to be beautifully multisampled, with lots of depth. In addition to the usual sung syllables, there are whispers, grunts, hisses and sung phrases, virtually all of which I could find uses for. Following the choirs comes body percussion, a vast array of drums and percussion, wind instruments, thumb pianos and kalimbas, mallet instruments, ethnic strings and even a few environmental noises.

Disc B is equally impressive, with more vocal samples, stamping feet, yelps, clapping and a few tribal percussion loops. More percussion and string samples follow, with most of the remainder of the disk being given over to loops of ethnic instruments, such as Kalimba, M'birra and slit drums at various bpm's. To conclude,

there's a section including ritual songs and rain dances, plus a few more environmental sounds, followed by a preview of the forthcoming *Heart of Africa Volume 2*. You'll need 16Mb of memory to use the longer programs on the CD-ROM, but most of the sounds can be used with around 8Mb, at a push.

Words cannot do justice to this collection of samples. It's quite simply the most fantastic collection of ethnic sounds I've heard from a single source. Only the inappropriate addition of digital reverb to some of the samples prevents me from giving this volume full marks in every department. I look forward to Volume 2 with great anticipation. *Paul White*

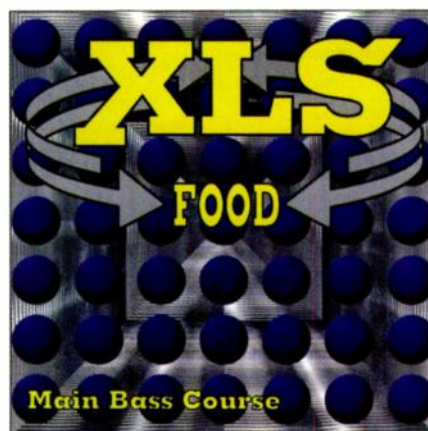
£ Audio set (2CD) £79.95; Akai-format CD-ROM £199. Prices include VAT and UK p&p.

MAIN BASS COURSE (AUDIO CD/CD-ROM)



Main Bass Course is a straightforward sample CD of multisampled bass sounds, many of which seem to have been designed to physically stun! Altogether, there are over 90 multisampled sounds on this disc from XLS Food, created using a variety of analogue, digital and sample-based methods, with hints of ring modulation in places. Virtually all the sounds are aimed at the dance/techno/house school of music production, which means they tend to come in with a slam and go out leaving your entrails vibrating in sympathy! I shudder to think what these patches would sound like over a big PA, but even over my little ATC20s at a modest listening level, some of the deeper sounds could be felt quite strongly.

The overall quality of these samples is



excellent. Although there's at least one 'real' bass guitar sample in there, the main thrust of the collection is unashamedly synthetic, designed to beat the listener into submission. There's plenty of timbral variation within the genre, and for sheer brute power, I haven't heard much to rival these samples yet. If you're into making serious 'take no prisoners' dance music, this is one disc you're going to want to have on your side. However, if you're doing ballads, don't touch it with a bargepole. Not so much food for thought as food for threat! *Paul White*

£ Audio CD £59.95; SampleColl-format CD-ROM (includes content of XLS Food's previous CD *The Bass Appetizer* — see SOS July '95) £149. Prices include VAT and UK p&p.



VINYLISTICS (AUDIO CD/CD-ROM)



This murky, mono, vinyl-style CD of drum and percussion loops and hits is strictly for devotees of the back to basics school of soul.

Tracks two thru 83 contain what sounds like an antique vinyl loop, featuring the usual laid-back drumming. Here we find an assortment of old favourites, plus a smattering of 'new' ones I'd not heard before, which I found pleasantly surprising after all this time. Having said that, the well-used ones tended to be the best; the fresher ones not so immediately useful. Someone has been playing around with MIDI triggers to inject a little obvious variation, but as far as I could tell, all loops are cycled intact at least once at the beginning of every pattern. Each is followed by individual sounds carefully cut out from the loop, suggesting that you are being invited to program up your own variations. And so you should: bpm's are quoted to within half-beat accuracy.

Moving on, tracks 84 thru 87 each contain seven or eight patterns (no singles this time). For sure there must be a programming/layering element to these beats. How else could they keep dropping out the snare? Quite clever stuff, nonetheless. Tracks 88 thru 93 each feature no less than 24 bpm-grouped loop variations, referenced to the main loop section by name

(but not, unfortunately, by track number — so you'll have some searching to do if you want to associate variations with their patterns). Track 94 has 24 snare-less loops, with a silly fade-out at the end of a couple of 1-bar cycles. Track 95 features 13 fills, while 96, 97 and 98 feature just under a dozen kicks, snares and hats respectively.

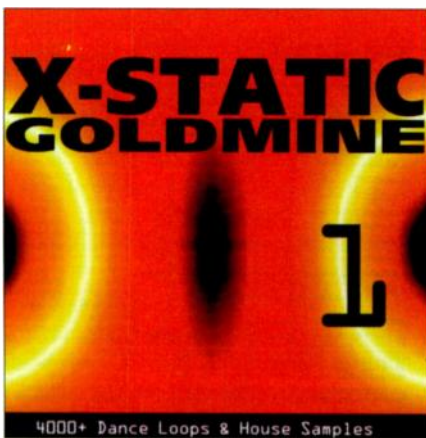
Cut from vinyl for that warm, sexy, streetwise feel, this is a biggish selection of live drum loops which would serve as a welcome introduction to the genre for those fed up with precise techno beats, or transpotters looking for the odd sample no-one has used before. Many of the loops are tried and tested classics, while the single hits cut from the loops are usable and expertly snipped out. Unpretentiously solid. *Wilf Smarties*

£ Audio CD £59.95; Akai-format CD-ROM £149.
Prices include VAT and UK p&p.

X-STATIC GOLDMINE 1 (AUDIO CD/CD-ROM)



Having deleted the hugely successful *XL1* and *X-Static Goldmine* sample CDs, e-Lab have now squeezed them onto a single CD, imaginatively entitled *X-Static Goldmine 1*. The Audio CD times out at well over 70 minutes, and to say that it contains a lot of samples is a bit like saying that Michelangelo dabbled in interior decorating.



The unenviable task of fitting the contents of two huge releases onto one CD has been achieved by tempo-mapping all of the 600+ drum loops, and placing them side by side across the stereo spread. In other words, instead of having one stereo drum loop, you actually get two different mono loops (one on each channel). In a number of cases, the loop on the left hand side is actually a slimmed-down version of the loop on the right, and vice-versa — which is a useful feature if you need a little variety in the course of programming a song.

The CD kicks off with 240 drum loops in the first four tracks(!), then moves swiftly onto the familiar format of a collection of finished 'demos', with drum, bass, keyboard and

occasionally vocal sounds. These are then deconstructed into their constituent parts, ready for your sampler. The same method of maximising on space is employed with these sounds, effectively running two sets of mono samples side by side.

The tempos of these 'demos' range from 95 to 150 bpm, and following on from these are another 30 or so tracks, filled with a mind-boggling number of bass, vocoder, techno effects, pads, bleeps, zaps, and individual drum samples — before finally coming to rest at a rather tired old set of 'Speak and Spell' robotic voices.

The style will be familiar to anyone who has heard the *XL1* or *X-Static Goldmine* sample CDs, and one interesting and welcome step is that this CD retails in audio and all CD-ROM formats for the same low price. This has got to make *X-Static Goldmine 1* one of the most astonishing value-for-money purchases in recent years, even if the emphasis seems to be on quantity, and sometimes at the expense of quality. This is a great purchase for the first-time sample CD buyer, but owners of either *XL1* or *X-Static Goldmine* shouldn't need it. This may not be exactly state of the art, but in the 'pound per sample' challenge, nothing else comes close. *Paul Farrer*

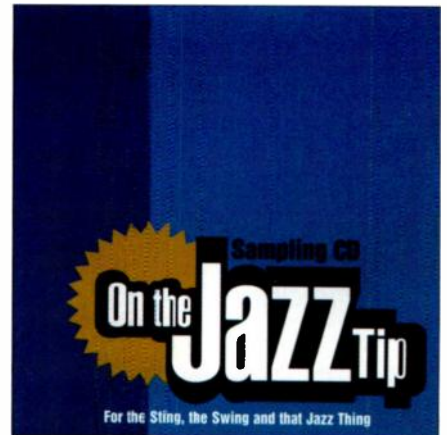
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ON A JAZZ TIP (AUDIO CD)



On a Jazz Tip is one of the first mainstream sampling CD products to dip its toes into the wide world of popular jazz, and begins with a section called 'The Virtual Band'. Each 'band' section consists of bass, bongos, drum kit, guitar, Rhodes, piano, sax and trumpet. Each of these instruments performs a number of riffs and licks at the defined tempo, and in four different key signatures, namely: A, B flat, C, and F.

What gives this CD more of a 'real' edge, is that unlike some other sampling CDs, where a multitrack recording of a piece of music that someone has already written and produced is chopped up into convenient pieces for you to



stick back together again, these riffs appear to be recorded independently of each other. In other words, one of the guitar riffs, for instance, at 90bpm in the key of C, may not always work against one of the sax riffs, played in the same tempo and key signature. This, however, is not necessarily a bad thing, as it invites you to be creative, and encourages a slightly more experimental attitude towards playing samples against each other.

There are six different tempo ranges for each 'band set'; 70 to 120 in ten-bpm bands. Each instrument performs, on average, 12 riffs within each of the tempo ranges, and performs extremely well. The quality of the recording is, overall, extremely good. The only real quibble would be with the Fender Rhodes samples, which although sizzling with authenticity, often contain annoying amounts of initial distortion. Arguably that's what a Rhodes actually sounds like, but distortion is an effect which is easily added later, yet almost impossible to eliminate if it's present in the original sample.

The virtual band section is followed by a large selection of guitar (and Rhodes) chords, and progressions, as well as a handful of short flute and sax improvisations. There are a good number of usable percussion loops, 132 individual drum samples, as well as an unusual section called 'Rebop and Triphop', where all manner of jazz-weirdness is given a good airing, in the form of a set of heavily-effected drum loops.

The style of playing throughout this CD ranges quite dramatically, from jazz hip-hop, right through to the more *avant-garde* and experimental areas of current jazz, and ends up somewhere between Miles Davis, The Brand New Heavies and Portishead. The real stars of the show are undoubtedly the players and their respective instruments, which is refreshing to see. *Paul Farrer*

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ANDY DAVIES casts his eyes, ears and fingers over two new products from Oberheim: a controller keyboard which aims to replace your piano, and an organ module which threatens to do the same with your Hammond...

After a few quiet years on the keyboard front, the legendary Oberheim seem to have stepped up the pace of product launches. The perennially popular Matrix 1000 sound module continues to sell consistently, and the more recent OBMX analogue synth keeps the Oberheim profile high at the top end of the synth market. Now the company have launched not one, but two new products, both of which might seem rather out of character: the Eclipse master keyboard/piano, and the OB3, a retro organ module complete with drawbars and wooden end cheeks.

TOTAL ECLIPSE

Physically, the Eclipse is a substantial instrument, with an 88-note weighted keyboard, built into its own aluminium flightcase. The bottom half of the case serves as a base, attached to the keyboard, while the top half can be removed. The case and keyboard are sturdy and well made, and the Eclipse package also includes a



Eclipse Double Cream

OBERHEIM ECLIPSE ELECTRONIC PIANO & OB3 DRAWBAR ORGAN MODULE

floor unit comprising three foot pedals for sustain, sostenuto and soft pedal — just like a real piano.

Oberheim describe the Eclipse as a 'piano/controller'; it's a non-multitimbral instrument with 12 high-quality preset sounds, and though very little editing is possible to modify those sounds, Oberheim have provided on-board digital effects to enhance them.

I'll start the tour of the Eclipse's front panel with the pitch and modulation wheels, which are mounted on the left of the panel, above the keyboard. I always feel that pitch and mod wheels are rather uncomfortable to use when positioned so far from the front edge of the keyboard, but it's a personal point. Moving swiftly on, we come to the two sliders provided for Master Volume and Brilliance, which are nicely notched for precise control. The sounds themselves are selected using the two rows of six buttons, labelled Piano 1, 2 and 3, Harpsichord, Electric Piano 1 and 2, Pipe, Vibe and Jazz Organ. There are also two basses, Electric and Acoustic, which, when selected, effectively split the keyboard and occupy only the first three octaves, leaving the remainder for the main instrument. The last sound, Strings, can be layered with any one of the other sounds, and a Strings Volume slider lets you set a good balance between the strings and the chosen main instrument.

The Eclipse's effects processor is useful, if not exactly full featured. Physically, the effects section consists of eight buttons, and a slider marked Parameter Adjust. The first four buttons — Hall, Stage, Room and Ambience — relate to four reverb types. The remainder access Chorus, Flanger, Tremolo, and a Rotary (Leslie simulator) treatment. Any sound can be processed by one type of reverb, plus Chorus or Flanger, and Tremolo if required, although the effects themselves cannot be edited in any way. The Rotary setting is only available when using the Jazz Organ preset, and the soft pedal then acts as a fast/slow switch for the Rotary effect. The Parameter Adjust slider simply alters the amount of combined effects level in normal use, but it also operates as a speed control for the fast setting on the Leslie simulator when using the Organ preset.

The last couple of control buttons, on the far right of the front panel, access global functions that affect the keyboard as a whole. These are labelled Transpose, Dynamics, MIDI and Demo, and are used in conjunction with selected keys on the keyboard. I assume the Dynamics button has something to do with controlling velocity via keyboard response, but I was unable to detect any difference with it switched on or off, and as the review model came without a manual, I called UK distributors MCM to see if they could help. Unfortunately, they didn't know either!

OBERHEIM ECLIPSE £1780

PROS

- Great acoustic pianos.
- Built to a very high standard.
- Easy to use.
- Footpedal unit included.

CONS

- Keyboard feel could be better.
- Price is high for facilities on offer.
- Lack of some MIDI controller functions.

SUMMARY

A practical choice for the gigging musician who needs good acoustic piano sounds plus the usual stock electric pianos, organs, and so on. However, the keyboard action and the limited facilities make the price hard to justify for studio use.



Back-panel controls and connections comprise an on/off switch, mains socket, 5-pin DIN for the footpedal unit, a recessed grub screw for tuning, and a jack plug for a pedal to control the volume of the strings. Also at the rear are the obligatory MIDI socket trio, a pair of jack outputs for connection to an amp or mixer, and a stereo headphone output.

THE PLAYING EXPERIENCE

The Eclipse seems designed to appeal to club and live performers — it's fairly simple, offers stock sounds, and it's built to travel. It doesn't, however, have the hammer action of a real piano, and I found the keyboard action a little light for true control during quiet passages. If you're using the Eclipse as a master controller, you might require MIDI functions it doesn't have, such as keyboard splits, or the ability to transmit controller information; both features I'd look for in a master keyboard. A greater cause for concern is the keyboard's aftersustain implementation, which seems to be extremely coarse. After setting up a one-octave rise in pitch, on a rack module using aftersustain, I was surprised to hear it stepping up and down, almost in semitone increments, as pressure was applied to the keyboard.

The sounds themselves are very good, with the pianos being comparable to the best I've heard. There are no dramatic changes in tone as you move from note to note, and no buzzy loops or digital noise during note decays. In these days of 64-note polyphony, the Eclipse's 24 notes appear a bit on the mean side, but in practice the difference is hardly noticeable, unless you deliberately try to bring on note stealing. With the acoustic pianos, the Brilliance control is especially welcome, as all three are a little bright in their normal state.

The effects processor, although very simple, actually sounds very good, the reverbs are quiet and well behaved during the decay stage, and the Chorus is particularly pleasing on the Electric

Piano 2 preset. The Rotary effect too, is quite convincing on the Jazz Organ preset.

CONCLUSION

After playing the Eclipse for some time, I began to like it very much, particularly for the acoustic piano sounds and the expression offered by the three footpedals. However, I think the keyboard is let down by its feel and its scaled-down controls, which (for the price) could have been comprehensive. I could find no way of storing sounds along with their effects, and a method of selecting patches via a footswitch would have been useful for live work. Keyboard splits and transmission of controller information to remote modules, as mentioned earlier, and effects editing would also have added so much to the desirability of a unit which has been built to last and sounds great. No one has yet succeeded in shoe-horning a grand piano into a portable keyboard, but the Eclipse comes close.

Ultimately, this instrument will appeal mainly to those who need a rugged, good-sounding piano for live use, but as a master keyboard, it misses a few tricks. Though the Eclipse does what it does exceptionally well, I don't think the £1780 price tag is really justified.

OB3 DRAWBAR ORGAN EXPANDER

For most of us, the words 'synth module' bring to mind an image of a black rackmount box with an LCD display — a picture which couldn't be further from that of the OB3, a cream-coloured unit with wooden end-cheeks and a decidedly '60s look. In these retro days of valves and vintage equipment, the sound of the tone-wheel organ is making something of a comeback, and the OB3's antique appearance fits in perfectly with its intended function. Oberheim, in common with a handful of other manufacturers, have set out to build the digital equivalent of a Hammond into a small, transportable package, but

"No one has yet succeeded in shoe-horning a grand piano into a portable keyboard, but the Eclipse comes close."

OBERHEIM ECLIPSE & OB3

► whereas some manufacturers wed the old sounds to a modern push-button control system, the OB3 stays true to its roots, complete with mechanical drawbars and an integral Leslie simulator.

The OB3 is not rackmountable, because it's intended that you should be able to get at the drawbars during performance, just as you can with a real organ. The top of the unit is stepped to form two flat areas, with all the controls positioned at the front, and the rear section far too tempting as a repository for mugs of coffee (or bottles of Jack Daniels, depending on the nature of the music...). The control area is divided into two rows of buttons, each equipped with an LED, and above these there's a row of nine drawbars, which enable you to create your own organ tones. The two remaining controls take care of Volume and Overdrive; the latter is used to progressively add distortion, for the creation of an overdriven rock organ sound.

The first six buttons in the bottom row are used to select different organ sounds, rather like calling up patches on a synthesizer. These sounds cannot be altered in any way, and can be considered as presets. To the right of

these is a button labelled Drawbars, which allows the user to construct sounds from the nine drawbars mentioned earlier. Two further buttons control the Rotary effect, one labelled On/Off, and the other Slow/Fast, though the speed change can also be controlled by a foot pedal connected to a socket on the rear panel.

The second row of buttons is divided into three groups, the first used to add a percussive edge to the basic sound. It's possible to add an accent to either the 4' or 2' drawbar, and to simulate 'key click', an unintentional side-effect of traditional Hammond construction that found its way into electronic music history. The speed and volume of any selected accents can also be changed, using buttons labelled Slow/Fast and Soft/Loud. To the right of these are three more buttons that bring in vibrato at differing rates and finally, a single button to set MIDI mode and channel.

At the back of the OB3 we find a captive mains lead and power on/off switch, a headphone socket and main output (surprisingly, in mono only), two MIDI ports (In and Thru), and three jack sockets to accommodate the rotor speed switch, a foot switch to cycle between presets or drawbar settings, and a volume pedal.

IN USE

Operationally, the OB3 is a very easy machine to come to terms with — you simply pick a preset sound, or use the drawbars, then add any Vibrato, Rotary, Overdrive, or percussive effects you require. Drawbars were first introduced to serve as an electronic version of the pipe organ, with each drawbar representing the sound made by a pipe of a particular length. The OB3 has bars at 16', 5 1/3', 8', 4', 2 2/3', 2', 1 3/5', 1 1/3', and 1', each with 16 notched graduations between off, and fully on, which effectively alter the

volume of that particular harmonic. When playing some musical styles, it's not uncommon to hold a chord down with one hand and move the drawbars with the other, to create a constantly changing timbre, and of course this can be done on the OB3. Regrettably, however, the drawbar data can't be sent or received over MIDI, so you can't automate this function — a serious missed opportunity.

If you switch between presets or drawbars while playing, the OB3 will obediently wait until all notes are released before making the transition, which allows any sound changes to be carried out at a convenient time during the playing of legato passages.

To my ears, the sounds produced by the OB3 are all very authentic, with plenty of character and tonal variety, and the 'key percussion' section works effectively to recreate many classic organ sounds. However, being more of a synthesist, I invited an organ-playing friend over for a second opinion. He agreed that the basic sounds were full, with plenty of depth, but was not so complimentary about the Rotary effect which, he said, lacked the phasing element necessary to be quite convincing. In fairness, no one has yet produced a Leslie simulation to exactly equal the real thing, although we both agreed that other manufacturers have come closer. He also commented that the Overdrive effect was not entirely authentic, but in my opinion it comes close enough once the sound is in the context of a mix.

CONCLUSION

As most players are happy to use an organ patch from one of their synths when the need arises, I feel this module must be compared directly with a traditional organ used by the more discerning player. With this in mind, I found the facilities on offer and the basic sounds very good, although I would like to have been able to store my own sounds with some form of patch system and record the drawbar movements via MIDI. In addition, the lack of a MIDI Out port, the lack of programmability, and the mono output seriously limit the creative potential of this machine, which ultimately offers you little more than a traditional organ would have offered. In fact, the mono output is a step backwards, because a true Leslie rotating speaker effect has to be heard in stereo — maybe this is why the Rotary effect isn't quite up to scratch. On the plus side, having access to real physical drawbars makes a world of difference for true organ players.

Though I found the OB3 pleasant and easy to work with, its lack of sophistication in the MIDI department leads me to conclude that Oberheim have set their sights on the cabaret market for this instrument, rather than trying to meet the needs of the creative synthesist.

SOS

FURTHER INFORMATION

- E** Eclipse £1779.95; OB3 £549.95. Prices include VAT.
- A** MCMXCIX, 9 Hatton Street, London, NW8 8PR.
- T** 0171 723 7221.
- F** 0171 262 8215.



OBERHEIM OB3 £550

PROS

- Good range of organ sounds.
- The tactile pleasure of real drawbars.
- Extremely user-friendly.

CONS

- Rotary effect and overdrive don't quite make it.
- No way of storing your own sounds.
- Mono output.
- Does not allow drawbar movements to be recorded via MIDI.

SUMMARY

A well-built unit that will appeal to the traditional organ player with a bad back! Good basic sounds but lacks programmability and MIDI controllability.

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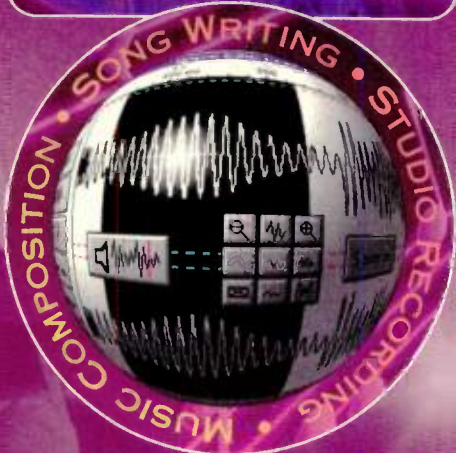
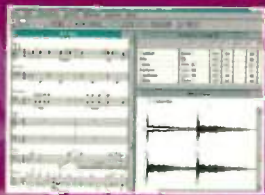
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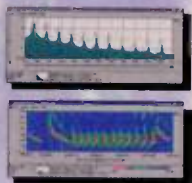
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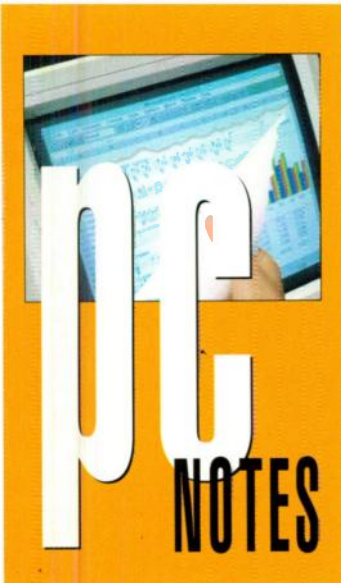
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BRIAN HEYWOOD
gets all analytical on us...

While the musical uses of a MPC-based soundcard are pretty obvious, it is worth considering what other applications could take advantage of its ability to 'listen' to the world using the audio input, or 'speak' to it using the audio out. The most obvious tasks are voice control of the PC — which could be useful in the studio, when your hands are full of musical instrument, or getting the computer to read out instructions — a boon to those with a visual impairment. The next level of complexity is to get the PC's processor to analyse the audio, so for instance the G-Vox guitar system allows you to tune the guitar by analysing the notes' frequency.

One sophisticated audio application I've been using recently is *Spectra Plus* from Pioneer Hill Software in the US. This package is a powerful frequency analysis tool that uses FFT (Fast Fourier Transforms) to process sound — and essentially turns your soundcard-equipped PC into a high-specification audio spectrum analyser. This kind of audio analyser is very useful in virtually any kind of musical environment, especially if your room is less than ideal. While some people can afford to design their studio/music room from scratch, most of us have to convert a room (or rooms) that we



Using Spectra Plus, you can analyse the acoustic of a room. Here, the two traces show the off-axis and direct acoustic.

already have. An audio analyser can therefore help to make the best of the audio environment that fate has dealt us.

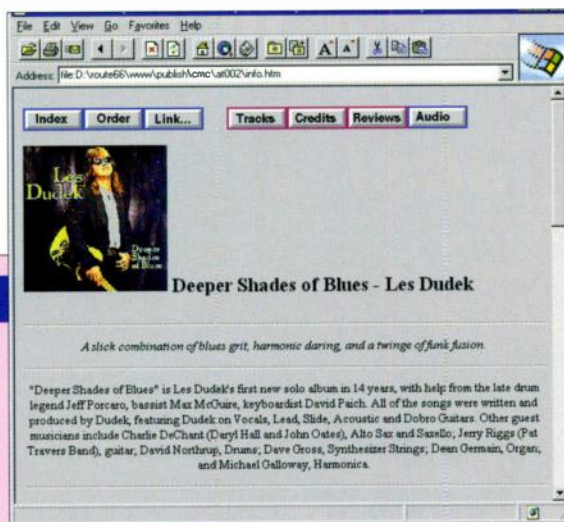
SPECTRAL ANALYSIS

In case you are not familiar with the device, a spectrum analyser allows you to display the frequency components of an audio signal, and display them in a number of ways. At its simplest, the analyser will display a real-time frequency response diagram showing what frequency components are present in a particular audio signal. Since we often process a sound in terms of its frequency — for instance by equalisation or 'tone' controls — the spectral analysis of the signal actually contains a lot more useful information than the simple waveform plot known as a 'time domain' representation (ie. amplitude versus time).

Simple as it is to get the PC to display audio data in the time domain — almost all Windows-based waveform editors will do it as part of their editing interface — the ability to analyse the frequency components of a signal is less common. There are editors (like Turtle Beach's *Wave for Windows*) that give simple frequency displays, but nowhere near the quality required for serious analysis. Obviously, you need to see the waveform to perform basic edits, but once you get past the 'razor blade' stage, then you need a more sophisticated way of

looking at your audio data.

Spectra Plus gives facilities that are only found in hardware analysers that cost around ten times the price of the software, plus some features only possible on a computer-based system. It has five display modes, which show various views of the current audio data. These are: Time Series (amplitude vs time), Spectrum (amplitude vs frequency), Phase (phase vs frequency), Spectrogram and 3-D Surface (time vs frequency vs amplitude). The audio signal can be captured in real-time or can be recorded as a WAV file and then processed.



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CYBERSPACE CORNER

• CMC ON-LINE

I've mentioned CMC (Creative Musicians Coalition) in these pages previously, but to remind you, they are a US-based alternative distribution network whose aim is to get new — including non-mainstream — music out to the listening public. You can now order CMC products on-line, using a Worldwide Web browser (such as Netscape) and your credit card, by accessing their CMC International Web site. Take a look at what's on offer by pointing your browser at: <http://www.complink/~route66/publish/cmc/>

• IDF ARCHIVE

In my January 1996 column, I wrote about the IDF (Instrument Definition File) mechanism in Windows95, that replaced the Windows 3.1x MIDI Mapper. A reader in Jakarta (Geoff Wood) has suggested that an archive be set up to hold IDF files for non-GM MIDI instruments. Geoff is looking for IDFs for EMU Performance (and Performance +),

Alesis D4, DB50XG card, and TX81Z. This seems like a good idea to me, so if anyone would like to make their efforts more widely available, send them to me at: IDF Library, PO Box 649, Dunstable, Beds LU5 4BZ.

The IDF should be on a IBM-compatible 3.5" diskette, with a text file describing what the IDF applies to. I will make the files available on the World Wide Web via the PC notes area of Route66:

<http://www.complink/~route66/magazine/sos/pc/notes.htm>

PC NOTES

► All views allow you to capture and hold the peak values for any frequency, so you can build up an overall picture of either the audio programme material, or (by using a white or pink noise source) the audio environment through which the signal passes (ie. speaker → room → microphone → mixing desk → PC soundcard). One neat feature is that the software allows you to calibrate the displays, to compensate for any effects that the microphone, speaker or mixer may have on the frequency make-up of the audio signal you are testing.

COSMETIC SURGERY

Spectral Plus has a wide range of uses in any situation where you need to process audio for music applications. For instance, it can be used to determine the frequency response of a recording area or live venue — say for a studio recording area or a live gig. In this case, the spectrum analyser view can be used in real-time mode to directly monitor a pink noise source, allowing you to use a 1/3-octave graphic equaliser to compensate for the room's acoustic characteristic. You could use a portable PC with built-in MPC sound facilities, or record the audio onto DAT, and then process the audio later.

Another use is to analyse a WAV file that is to have its resolution downgraded for release: say from 16-bit stereo sampled at 44.1 kHz to 8 bit/22.05 kHz sound (eg. for a game or multimedia soundtrack). The 3D or Spectrogram view can be

used to check for high-frequency components that can then be removed by the filtering function. Since I've had the software, I've used it to analyse the acoustics of my studio's recording area, as well as track down an annoying frequency artefact in an old recording that was used on the *Worlds Apart* CD by the American artist Keope.

The software allows you to use the mouse to directly read the values off the displays in the various views, although you will need to calibrate the PC's soundcard to take absolute amplitude readings. There is an overlay facility that allows you to compare two frequency characteristics, so you can perform before/after tests, and also generate the compensation files used in the aforementioned calibration feature. These overlay files are stored as text files, so they can be imported to a spreadsheet program, or even generated by hand from the device's specification, using your favourite text editor.

While the ability to look at the frequency components of a piece of audio is one of those facilities that you are unlikely to need on a daily basis, it can be terribly useful when you do need it. The software will operate on any Windows PC equipped with a soundcard, although if you just want to analyse WAV files, you can dispense with the soundcard. The software is available from Broadleaf Engineering and Design (0181 466 6211) and costs £260 (plus VAT) — which is considerably cheaper than a hardware analyser of equivalent functionality.

SOS

STARBASE ONE CD ROM

Slightly off the musical track, anyone interested in astronomy, or who just wants to see some great graphics of the heavens, should check out the *Astrofest* CD from Starbase One. It's packed full of images (3400+), programs, catalogues, animations, and includes loads of Hubble Space Telescope, Shoemaker-Levi 9 (the comet that hit Jupiter), and Apollo 13 material.

If you have e-mail, then you can get full details of what's on it by sending a message to cdinfo@starbase1.computlink.co.uk, for an automatic response. The CD costs £15, plus p&p. You can also contact Starbase One via their Astronomy/Space earthphone on 0171 703 3593 or 0171 701 6914.

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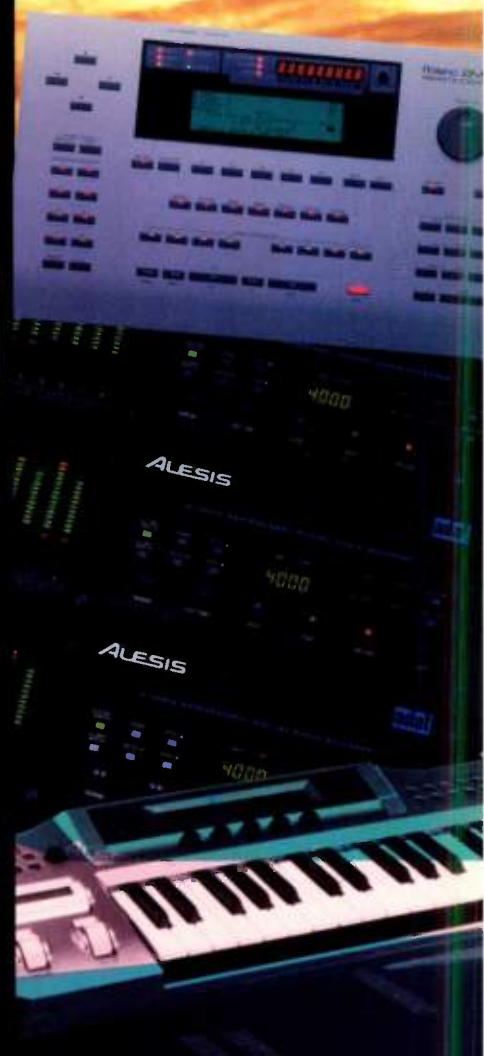
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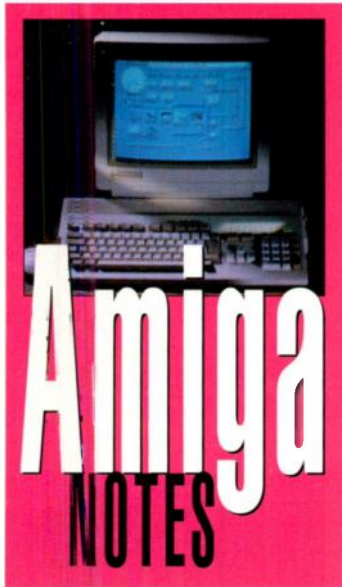
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The Amiga has a lot of catching up to do if it is to outgrow its past as a games module. In Amiga Magic, however, PAUL OVERAA finds much to attract the musician.

Despite getting Amiga Magic packs out into the shops at last, Escom and Amiga Technologies are still not having an easy time of it. There seem to have been a few software compatibility problems with the new A1200 machines, (namely some older software, and a few new titles refusing to load). Some sources say that the difficulties stem from the anti-piracy code used with certain programs, so the chances are that it is drive timing-related. Amiga Technologies have announced that drive modifications to eliminate the snags are already in hand!

These sorts of minor hiccups are neither here nor there, but the trade are already moaning that the £499 Amiga Magic pack comes with software that won't run properly without an extra 2Mb of RAM. It looks as though warning stickers about this are going to be slapped on Magic Pack boxes from now on. Memory problems can, of course, also happen with any number of heavyweight Amiga packages; one example being Blue Ribbon's *Bars & Pipes Professional* sequencer. Once you realise how good the software is and start finding yourself short on memory. Unfortunate, of course, but Mac and PC users have been in exactly the same predicament for years — so Amiga users shouldn't be too upset that additional memory is needed for some sequencing and graphics applications. Relative to other machines, Amiga software remains generally very memory-efficient!

One last current gripe seems to be the attitude (or perhaps the lack of knowledge) of some assistants in some Escom shops. Escom are supposed to be pushing the Amiga back into the limelight, but by the looks of it, many shop staff know little or nothing about the Amiga, pointing potential Amiga Magic pack purchasers in the direction of a PC instead. Now PCs are fine, but it costs far more to get a workable PC system up and running than an equivalent Amiga-based setup. In fact, as DOS gets dumped (which is going to happen over the next few years), and increasingly memory-hungry Windows 95 applications continue to arrive, PC users are going to find that they'll be forking out more on just upgrading their PCs than they would need to spend to get a complete Amiga system. This price factor alone ought to ensure that the Amiga remains a viable platform for a long time to come.

Make no mistake — the Amiga is *the* most

cost-effective multitasking machine that has ever appeared, and since Workbench 3 was introduced, the software in many areas has gone from strength to strength. It's true to say that in many ways the real potential of the Amiga was only just becoming apparent as the Commodore liquidation fiasco broke. Thousands upon thousands of loyal Amiga owners already know that the Amiga is great — all they ask is that Escom and Amiga Technologies give it a long-term future. One thing that would surely help would be to get Escom sales staff fully clued-up about the product!

SURF'S UP

News on the Amiga front in other areas is much better. To start with, a new Amiga pack called *The Surfer* is about to be released, which consists of an A1200 hard drive machine complete with modem and internet software. With interest in the internet showing no signs of slowing, this idea shows that Amiga Technologies are on the ball in some areas. With the right marketing, this Amiga-based communications package could do really well. No prices announced as yet, but you can bet your life that *The Surfer* will be far more cost-effective than similar offerings on other platforms. In the longer term, there has also been news from Amiga Technologies that plans for super-fast RISC-based Amiga models and upgrade boards are already in the pipeline for users of top-end Amigas.

AURAL SYNTHETICA V1.0

This is a brand-new sound synthesis program from Blachford Technology, which uses a synthesis approach best described as the software equivalent of an analogue synth with modern digital waveform generation. As far as signal routing and sound modification pathways were concerned, the early patch cord connection methods of working were more flexible than those found on most modern synths. It is in this spirit of mix'n'match that *Aural Synthetica's* sound-generation is designed, with its menu of 'virtual' oscillators, envelope shapers and other sonic building-blocks.

The lower half of the main display is the DMS (Digital Modular Synthesizer) window, most of which is taken up by the buttons for accessing the sound generators and sound-shaping modules. All the other sample control facilities, namely the Wave Editor, the Basic Synthesizers window and the program's Patch Programmer, are also reached

from this window. Oscillators can use either combinations of the dozen basic waveforms, or up to 24 user-defined ones. With six sliders controlling waveform, amplitude, delay, note and octave, and detune facilities available for each oscillator, there is plenty of flexibility. You can also add waveform, phase shift, pulse width and frequency modulation effects.

The waveform editor similarly allows endless possibilities. You can brighten up a waveform by

Aural Synthetica's main display.





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increasing the number of harmonics in it, change the harmonic content with time, reverse, invert, add varying amounts of noise, and so on. One of *Aural Synthetica's* most complex windows is a patch program, which is chock-full of buttons allowing the user to arrange the various oscillators, envelopes and filters in any way desired. A bit of a nightmare if you had to program each patch from scratch, but luckily you don't have to: there are a large number of 'basic synthesizer' presets available to get you started.

A lot of work has clearly gone into *Aural Synthetica* but, whilst the program is clearly capable of producing good results, I'm not sure that it's the sort of program that all Amiga musicians will take to. *Aural Synthetica's* sample generation is not performed in real time, so you can't just alter the controls and expect to hear the modified sound. In fact, so many calculations are needed to produce the final waveforms that sample rendering, even on an A4000/040, can take several minutes.



Aural Synthetica's options provide almost unlimited flexibility.



Aural Synthetica's envelope generator control layout.

The result, initially, is always in 16-bit digital form, and the program can save this waveform in one of five ways: SAFF, AIFF (the 16-bit file format), PC WAV files, MAUD (for Wavetools soundcard users), and 8-bit IFF 8SVX format. Needless to say, you lose resolution if you have to work with the 8-bit IFF format, because only every *other* byte of the sample's waveform will be saved. Once a sample has been saved, incidentally, it is often necessary to do a touch of editing, to remove clicks or other glitches that tend to appear at the beginning and end of *Synthetica*-generated samples.

One thing that was apparent right from the start is that *Aural Synthetica* provides a bewildering array of controls, and if I have any worries at all, it is that the average Amiga musician will be daunted by the sheer number of options and variables available with this program!

Blachford Technology's *Aural Synthetica* requires Workbench 2.04 or higher, and 2Mb of RAM, although additional RAM is recommended. It costs £30 (+ 50p p&p), and is available from Seasoft Computing (tel: 01903 850378).

SOS

AMIGA NEWS IN BRIEF

• WORLD OF AMIGA

The venue and dates for the always popular World of Amiga Show have finally been officially announced. It's being held at the Novotel, Hammersmith (a well known Amiga show venue) on the 12th and 13th of April. Tickets are £7 for adults and £5.50 for children. Ticket hotline: 01369 706346.

• AMOS

F1 Licenseware are relaunching (under license from Europress) the *AMOS Pro 2* compiler for just £14.99 (+50p P&P). This can take *AMOS* source code files and turn them into stand-alone executable programs. All you lucky *AMOS* users can get details from F1. Tel: 01392 493580.

• VIDEO AMIGA PACKAGE

Springfield Multimedia (SMM) have produced an Amiga Magic-based pack especially for video users. It consists of an A1200 with a 170Mb hard drive, a 4Mb trap door expansion board, and the superb LOLA L2000 YC/RGB Genlock. The package is offered with a half-day training session at SMM, and costs £1150. You do, of course, also

get all the usual Amiga Magic pack software, including *Scala MM300*, *Personal Paint*, *Photogenics* and so on. Further details from SMM. Tel: 01245 227588.

• A GOLDEN OPPORTUNITY

Golden Image have launched a £249 quad-speed CD-ROM drive especially for A500 users. The unit requires the AlfaPower hard drive interface, which Golden Image can also supply. If, however, you add a hard drive at the same time (an 80Mb AlfaPower drive will cost £149) you'll get a £20 discount. Details from Golden Image. Tel: 0181 900 9291.

• MUSIC UTILITIES

MIDICraft have just released a second special utility disk containing music file converter programs: MIDI file format 1 to format 0, *OctaMED* to MIDI file, tracker mods to MIDI file, *SMUS* to MIDI and so on. There are eight programs in all, and they are stored in LHA format, with documentation accessible from the regular MIDICraft magazine menu. The price of the utility disk 2 is just £2.50. Details from MIDICraft. Tel: 01928 563762.

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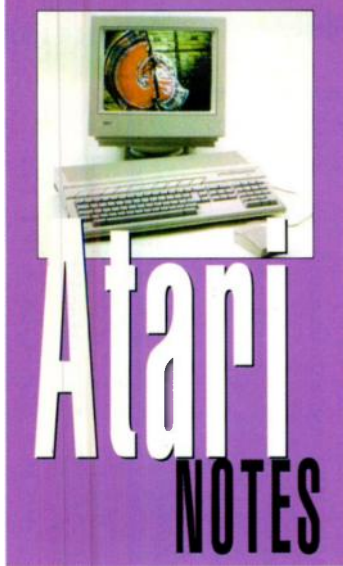
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Rising Falcon-like from the ashes, the Atari is now the subject of a wealth of operating systems and software. OFIR GAL interfaces with a new generation of enthusiasts.

Digital Media is a new, UK-based company dedicated to professional Falcon audio products. Set up earlier this year by two aficionados, John Sharp and Alf Sealey, Digital Media joins a select band of Falcon Dealers, which includes Digital Village in Barnet, and Music Village's two branches in Chadwell Heath and Cambridge. Digital Media aims to be a 'one-stop Falcon shop' for all musical applications.

John and Alf have spent the last few months negotiating distribution of a number of professional audio products in the UK. These include SoundPool software and hardware interfaces, Friendchip interfaces, Zero-X editing software, Sunrise Electronics 8 input/output expanders, Sound Studio software, and the Bernd Lohrum CD Recorder. They are also acting as sub-distributors of Yamaha CD-ROM recorders and all Steinberg Falcon products. The latter would be of interest to Atari Cubase users, as technical support and upgrades are to be provided by the new company. All negotiations were completed successfully to meet the February launch date, except for one vital ingredient: the Falcon itself, which is now manufactured by C-Lab in Germany.

Paul Wiffen, the person who helped put the Atari and C-Lab deal together and currently runs Digital Awareness, will be joining forces with Digital Media as Managing Director at the beginning of March. His arrival coincides with the shipping of the Falcon Mk X (announced in last month's Atari Notes), and will make Digital Media C-Lab's main point of contact in the UK. Music Village will continue to handle educational applications, however, and Soundivision remain responsible for selling C-Lab into the DJ and club market.

THE PRODUCTS

Digital Media will mainly provide Falcon-based products, but they also intend to have some

interesting Mac and PC hardware and software. Among these are the Terratec range of PC sound cards and MIDI keyboards. Of interest to Atari users migrating to the PC is the STzer (pronounced 'Es-Teaser'), an ST on a plug-in PC card for less than £300. In March, C-Lab will be showing the product for the first time at the Frankfurt music fair.

Unlike similar products such as the GEMulator and Janus, the STzer is a complete ST, including the MIDI interface and cartridge port, aimed squarely at Cubase and Notator users. The STzer does not use any software emulation, and therefore promises 100% compatibility and full performance (regardless of PC speed) with all ST applications, including Cubase, Creator and Notator, as well as hardware devices such as the Unitor 2 and Midex+. Atari programs run



The SE800 adds 8 high-quality analogue inputs and outputs to the Falcon, with accurate metering and a flat frequency response.

alongside other PC programs inside a Microsoft window, but it is not yet clear whether the product is Windows 95-compatible. In addition, a SMPTE/MTC card, specifically designed for the STzer is in the pipeline.

DIGITAL AUDIO INTERFACES

The Falcon is capable of recording eight or 16 tracks of digital audio, but lacks the ability to output them separately to the outside world for further tweaking and mixing. That would have been fine if you could EQ, add reverb and compress in the digital domain, all at the same time, but unfortunately this is impossible.

Cubase already pushes the Falcon to its limits, providing automated mixdown via the MIDI Mixer and limited effects. Until now, the FA8 and Audio 8 were the only devices available to assign each track to a separate output. Sunrise Electronics, a UK-based company specialising in digital audio, has produced two devices that provide this and more. Choice at last!

The SE600 is an 8-output expander for the Falcon that works with Cubase Audio and AudioTracker with no installation software. It fully emulates the FA8 or Analog 8, but offers 64x oversampling delta sigma D/A conversion, giving 15Hz to 22KHz audio bandwidth on all eight channels. The SE600 sells at £499 for standard jack outputs, or £550 for the balanced XLRs version. The SE800 has the same 64 x oversampling delta sigma A/D and D/A conversion, 8-LED level meters and 8-input level controls as the

CD Recorder features a friendly user interface, and enables you to write CD-ROM disks in a variety of formats. The program supports post-production options such as pre-emphasis and PQ-encoding.



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....So Little Time

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In Analogue...

The Sunrise Electronics SE-800 gives you eight high quality A/Ds with gain control and LED level indication (as well as the same 64x oversampled delta/sigma 8 outputs of their S E - 6 0 0 rack). Working

in conjunction with the FDI (SPDIF) interface, it turns your Falcon into a 15Hz-22kHz 8-in, 8-out fully professional hard disk recorder. The bundled AudioTracker program gives you full multi-track editing, DSP reverb & dual 10-band EQ as well as mixer automation and MTC synchronization. Files can be exported from AudioTracker in AIFF format (for use in Cubase Audio 16) or AVR, WAV & DVSM.

Bundle price (1/4" jacks) £799

Bundle price (XLRs) £899



...or Digital!

The SoundPool ADAT Interface allows the Falcon to send and receive all 8 channels in the digital domain from any product with an ADAT™ multi-channel digital interface. This includes not only the old and new ADATs & other products like the Alesis

Quadrasynths and Quadraverb 2, but many products from other manufacturers into the bargain. With the bundled AudioTracker software, your Falcon becomes the lowest cost system for editing your ADAT™ recordings or mixing them through the Falcon & FDI (SPDIF) interface to DAT.

Bundle price £599



Distributed by Digital Media Ltd, Halifax, W. Yorks Tel: 01422 340 875

Atari NOTES

- ▶ SE600, but with the addition of eight analogue inputs. The unit costs £799 with standard jacks, or £899 with balanced XLRs.

BERND LOHRUM SOFTWARE

CD Recorder v1.0 is a software package capable of driving a writable CD-ROM drive. It enables you to write your own CDs, containing computer data, pure audio playable on any CD player, or a combination of both. Since it supports PQ encoding, it is ideal for post-production and mastering purposes, making those DATs and U-matics seem a little dated. This is the same software covered in the SoundPool piece,

35 minutes to write and it is multi-session compatible, so a CD can be partially recorded and extra material added later. If you need extra speed, *CD Recorder 1.0* also works with the Yamaha CDE100 MkII, a 4x writable CD unit that only costs a little over the £1000 mark. The software itself retails at £249, and boasts a slick and modern user interface.

SOUND STUDIO

New from France is a sound editing program for the Falcon which is ideal for putting audio to video and other post-production needs, adding real-time effects (6 reverbs, chorus, flanging, etc) and mastering to stereo. The program supports audio scrubbing, cut and paste editing and multiple markers, among many other features. It can play back up to four stereo tracks simultaneously, for final mixing and dubbing. *Sound Studio* can import a range of file formats including *Cubase AIF*, *AVR*, and *D2D*, and comes with a free CD-ROM of sound effects. The program costs £349.

C-LAB DANCE SERIOUS CD-ROM

This CD-ROM was designed for use with *Cubase Audio*, and contains dance loops that have been cut up using *Zero X*. These auto-load directly into the *Cubase Audio 16 Sampler*, together with the MIDI file to trigger loops, which can be speeded up or slowed down from the *Cubase* clock tempo without any need for time-stretching. When remixing, this makes tempo-matching a breeze.

The CD-ROM also contains all the individual drum sounds from the Roland TR808, TR909, R8, CR78, TR707, TR727, the Alesis HR16, and many other drum machines, which also auto-load into the *Cubase* sampler — all mapped out in General MIDI format, for overdubbing or sequencing via MIDI. The sounds and loops are all in AIFF format, so they can also be loaded into *AudioTracker*, *Zero X* or *Sound Studio* for use with those programs as well. The CD retails at £99.95, and is now the second CD-ROM specifically designed for *Cubase Audio* on the Falcon.

SOUNDPOOL

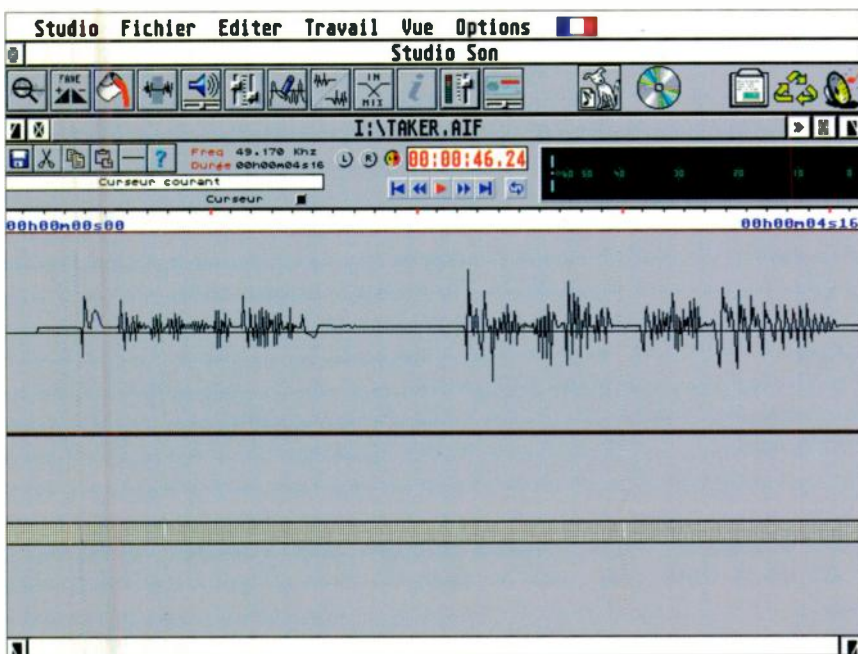
Digital Media also distribute the full SoundPool range, covered in a previous instalment of Atari Notes. The products include the Analog 4 and Analog 8 digital audio interfaces, the SPDIF interface and the MO4 multiple MIDI outputs expander. The software range includes *Zero X*, *AudioTracker*, *Audio Master* and *DataDAT*.

C-LAB FALCON MK X

The long-awaited new Falcon from C-Lab failed to materialise in time for this instalment of Atari Notes. As mentioned last month, the new model is basically the same as the MkII, but is housed in an ergonomic case, making upgrades much easier. The Mk X features four standard-size jack sockets for audio in and out.

Digital Media can be contacted at 42 Glen Terrace, Savile Park, Halifax, West Yorks HX1 2YN. Tel: 01422 340875

SOS



Studio Sound is a fully featured digital audio recorder and editor aimed at post-production users with features such as normalising, cross-fading, clipboard support and even hand-drawn waveforms to clean out audio spikes.

and is also available from System Solutions, but Digital Media plan to provide a more music-oriented support for the product.

CD Recorder works with a number of drives including the Philips CDD 522 and CD2000 but most excitingly with the new Yamaha CDE102, which is the first writable CD under £1000. This 2x write/4x read unit can be used with the new Falcon Mk X expandable unit. The program writes audio CDs and CD-ROMs in Atari, PC or Mac format, and even hybrid CDs containing both audio and CD-ROM data. A 70-minute CD takes

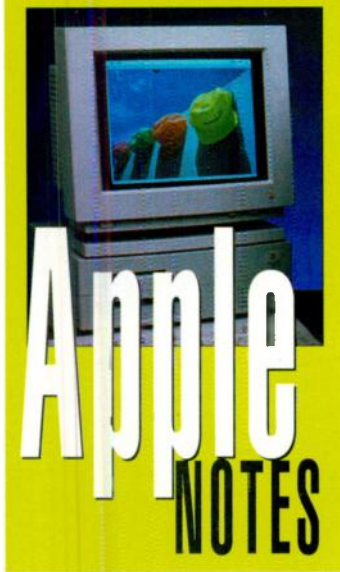
blame for this problem remains a mystery.

Steinberg development of *Cubase* for the Atari range has slowed down to infrequent bug fixes, while the Mac and PC versions are steaming ahead, despite the inherent problems of both platforms when it comes to MIDI. This grave state of affairs is bad news to all Atari users out there, and the only course of action is to write to Steinberg HQ in Hamburg and protest. Their address is: Steinberg GmbH, Eiffestraße 596, 20537 Hamburg, Germany.

IT'S GOOD TO TALK — NOT

Both NVDI 4 and MagiC 4 were on display at the Atari World Show in December, but shipment of the final versions has been delayed several times for a variety of reasons.

MagiC 4 is the first version that will run on the Falcon, providing true pre-emptive multi-tasking among other features. The bad news is that the only MIDI sequencer that seems to work with MagiC is *Breakthru*. *Cubase* refuses to run, and the problem has been acknowledged by both MagiC authors, 2B and Steinberg — although who is to



Whatever the reality of Apple's finances, the money men have decided the company is ripe for the picking. But will upsetting the Apple cart produce a windfall for the user? MARTIN RUSS keeps his ear to the ground...

By the time you read this, the Apple world may be very different. Okay, in the past, there have been rumours of a possible takeover, but they have always had the feel of a rumour, and so far none of them have come to anything. But this time, it looks like something far more serious is going on.

Released in a press statement in the middle of January, Apple's first quarter results (the quarter ended in December 1995) made interesting reading. Both net revenue and unit shipments were at their highest quarterly totals ever: \$3.1 billion revenue and 1.3 million units shipped. Both of these are more than 10% up on the same time a year ago. And yet in spite of this, the bottom line is that Apple made a loss of \$69 million, which compares with a profit of \$188 million this time a year ago. Apple also announced a company-wide restructuring, and some redundancies — 1,300 people out of a total workforce of approximately 16,000.

The rest of the news release stresses the strengths of Apple: brand identity; loyal customers; technological leadership; excellent products and key market advantages. It goes on to describe the sort of belt-tightening and non-essential service pruning that bedevils local government, and is no more than you would expect from a company attempting to recover from a temporary blip in its finances.

But the world money markets are a savage place, and Apple's share price fell. Once the

rumours about a takeover started, memories of the previous IBM offer were resurrected, and rumours began to circulate about Apple and Sun talking. Motorola have also emerged as a potential suitor, but in spite of their denials, there are strong indications that something is going on between Sun and Apple.



Unless you have ever been exposed to serious computing power in research laboratories, Sun may sound more like a dishwashing powder than a computer company to you. They make powerful workstations — the type that often provide WWW servers, or do the computer graphics for movies. Sun's marketplace is very different from the

cut and thrust of consumer computers where Apple operates. Sun workstations start at a few thousand pounds, and rapidly move up to hundreds of thousands. They run Unix, use RISC-based SPARC processors, and to paraphrase Atari, offer 'power with the price'.

Sun's greatest asset has always been its hardware, but as the internet has burgeoned, so people have put their hardware to other uses. This has prompted a number of developments in software, with the programming language Java perhaps being the most significant. Whilst at the moment, WWW pages are scripted using HTML, and then converted into text and images by a WWW browser like Netscape or Mosaic, Java is an interpreted programming language. It therefore allows programs to be written which will work on any computer (with a suitable interpreter, of

HOW IT WORKS: THE MODEM

All this talk of the internet rarely mentions the nitty gritty technology that you need to make it happen. There's two parts: the software and the hardware. Both have their problems and their traps for the unwary. This month I will deal with the hardware side, while next month I will start on the software side.

You connect to the internet via your telephone line. However, the internet is digital, and requires a special interface instead of the audio interface which the telephone provides. As you might have gathered if you have ever tried to get audio in and out of a computer, computers and audio aren't exactly well suited to each other. So, just as MIDI requires an interface to convert the Mac's serial port into suitable musical event messages, so your Mac requires an interface to get at cyberspace — and it's called a modem.

As with most technological equipment, the word 'modem' is a clever combination of other words: MOdulator/DEModulator in this case. As usual, knowing what the word means doesn't really help much, since modulation is probably most familiar to you as the vibrato wheel on a synthesizer. Well, as it turns out, this is actually not a bad starting place.

Computers work with digital signals: on and off, whilst audio is a continuous series of values. Turning one into the other is what a modem does, and it does it by turning the on and off signals from the computer into audio signals — using something very similar to vibrato. At the other end, another modem undoes the process and retrieves the digital information. So the information from your computer is converted into a warbling audio sound, sent along the telephone line and converted back again. If you have ever listened to decent quality audio after it has been sent down a telephone line, you might begin to appreciate how hard a modem has to work to transmit the digital information correctly without errors.

The amount of information that a modem can convey is measured in bits per second. MIDI runs at 31,250 bits per second, and the fastest modems in normal use manage almost the same rate: about 28,800 bits per second. A 28.8K modem (as they are called) won't set you back more than £200 these days, whilst one with half that speed won't be half the price, except second-hand. It makes no sense to buy one that's slower than this. 9,600 or 2,400 bps modems may be very cheap, but they are so slow that they

are unusable for internet purposes.

With a modem, you get a serial lead to connect to the 'Modem' port of your Mac — aren't Macs wonderfully obvious! For the other end, you need a telephone socket to plug into. For occasional use, it makes sense to buy one of those telephone extension socket kits and put an extension near to your computer, whilst for serious net-surfers a separate line may be worthwhile, if only to free up the telephone for voice calls! Look out for deals on installing extra lines from your local phone company, and check for cable TV companies: some of them offer free local calls and low-cost extra line installations if you subscribe to both their TV service and their phones. Beware of Call Waiting (that service where the phone bleeps to tell you that another caller is trying to talk to you), because it can cause modems to end a call prematurely.

Appearance-wise, a typical modem looks suspiciously like a MIDI Interface. There's the same plug-top power supply, the same LEDs lighting up like a car's brake lights, and lots of cables going in and out. Unfortunately, the two aren't interchangeable, although, as we shall see, they may well need to share the same serial port on your Mac.



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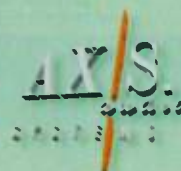
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DON'T MISS OUT!!



How to become a Record Prod

To the budding pop star, A&R managers hold the power of life and death — and it's not much easier for the producer. DAVID MELLOR explains how to win friends and influence people...

PART 3 — WORKING AS A TEAM

two (and usually more) heads are better than one.

So, who else is likely to be on the payroll? Well, as a typical example, many dance tracks are created by an artist, programmer, producer and engineer under the ultimate guidance of the record company's A&R manager. They'll all be 'good people', because top professionals only work with other top professionals. So, how can you compete when you are working from your bedroom studio?

THE FIRST STEP

The first step is to accept that you can't go it alone, and you need to find other people to work with, to pool your talents and abilities. The one advantage you have over the top professionals is your creativity. Creativity, that is, in the sense that as a newcomer to the industry you will find your own methods, techniques and, most importantly, sounds. The Top 40-buying public basically demands 'more of the same', but almost always spiced with something new that they haven't heard before. You might have this magic ingredient where the top pros have used up all of theirs.

All you have to do is work out where you want to specialise; as a musician, programmer, engineer or producer. Then, find other like-minded people as talented as yourself to work with, and go out and make that hit! If you can't find someone to fulfil a particular role, then you will have to pay for the necessary expertise. There's no shame or stigma in paying a professional musician, engineer or whatever — it just hurts! You will reap the rewards of knowing that the people you hire are doing their job professionally, and allowing you to give your full attention to your own role.

Perhaps the most difficult form of production is trying to take a mediocre band or musician and

The motto of one of the biggest-selling recording artists in history was "surround yourself with good people", and this holds true for producers too. You can try to be a 'one man band' producer, especially now there is an incredible array of equipment available to make that possible, but when you consider that virtually every record that hits the charts is a joint effort, you have to face the fact that

THE A&R MANAGER'S VIEW — DAVID BATES

David Bates is A&R Director of Phonogram, working with many acts ranging from Oleta Adams to Definition of Sound.

• CHOOSING A PRODUCER:

"You wouldn't necessarily put Oleta Adams with a heavy metal producer, but if the safe option is busy, then sometimes you try a more adventurous choice. I work with Chris Hughes a lot, and he has produced people like Paul McCartney and Tears for Fears. I put him with Definition of Sound ('Pass the Vibes' was their recent single), because they wanted to be different and not forced into a rap mould."

• BUDGETING:

"Not cutting off creativity to meet a deadline is one of my weaknesses in the eyes of the accountants. I don't try and make something fit into a budget; I try to make the best record I can. You only get one shot at a record. If you had an idea you wanted to try and you didn't, and then the record didn't chart, you would be cursing yourself."

• IF THERE'S NO OBVIOUS SINGLE:

"We spent a year with Lloyd Cole, getting him to try and write a single with different people, but it just didn't work. Having done that, we said, 'Let's just mix the record and see if there's a track that stands out'. Suddenly this track 'Like Lovers Do' began to stand out. It was Lloyd's first hit in nine years!"

make them sound good, and I'm afraid this is the route upon which many aspiring producers start off. It may just be the road to nowhere, but on the other hand, some people might find it just the challenge they need.

THE A&R MANAGER

The A&R manager (A&R stands for 'Artists and Recording' or 'Artists and Repertoire') is certainly a creative person in his or her own right. Of thousands of artists, musicians, writers and bands, the A&R manager has to pick the one that is going to be successful, and nurture their career into the big money zone.

Many people outside the industry see the A&R department of a record company as a barrier, an obstacle to their success. But in fact it is the opposite. The A&R manager is going to be the enabler of success — but only for the chosen few. And of the few to be groomed for stardom, many

ucer

will fall at the first hurdle: their CDs don't sell, the record company invokes one of its many 'get out clauses' in the contract, and bids them goodbye. Among the many who would like to be successful as a solo artist or band, most see that elusive recording contract as their goal. In fact, a recording contract is only the beginning of a high stakes game of snakes and ladders where unfortunately the ladders are few, long and steep, and the snakes are many and exceedingly slippery — as any contract artist-turned-van driver will tell you!

As a producer, your dealings with the A&R department of a record company will take one of two forms. Either the record company has signed an act and approach you to produce it, or you're associated with — or have even created —

"The Top 40-buying public basically demands 'more of the same', but almost always spiced with something new that they haven't heard before."

an act, which you offer to the company. Choosing a producer is a key part of the A&R manager's role, because the producer can potentially make or break the record. It is usually considered important that the artist or band gets on well with the producer, and can work with them comfortably. If there is stress in the studio, sessions are not likely to be musically productive, although there have been exceptions to this rule.

The band also need to respect the producer.

THE A&R MANAGER'S VIEW — GEOFF TRAVIS

Geoff Travis is Director of A&R for two labels, Rough Trade and Blanco y Negro. With Rough Trade Management he works with acts including Pulp and The Cranberries. He realises the importance of the producer, taking Stephen Street as an example. "Stephen Street (producer of both Cranberries albums) has a very clear view of what works and what doesn't, but he's not afraid of trying things. He is the kind of person who is there to bring the best out of a band rather than impose his will. He is totally open-minded, and he is more likely to say, 'That sounds like an interesting idea, let's try it', than he is to say, 'That sounds like a crap idea, why don't you go home and let me get on with it'."

• NEW PRODUCERS:

"If I didn't know a producer, I would listen to what they had done and then meet them. The same way when you meet an artist — if they talk sense to you, and they've got a kind of spark, I give them a try. The band need to feel comfortable with a producer; they are the ones doing the work."

• KEEPING TABS ON PROGRESS:

"I like to go to the studio and see what's happening. Some bands invite you to make comments and want to get feedback. Other people just want to get on with it. I don't try

to impose and interfere, unless there is something drastically wrong. My experience of bands is that the better the band, the more they know what they want."



Geoff Travis on producers: "The band need to feel comfortable with them".

Many bands have the attitude of, 'we know what we are doing and we don't want to be produced', but you just have to look at how many bands have made it big with a producer's assistance, and how many bands haven't. Naturally, the producer should also have respect for the band, because if he or she doesn't think that the band is any good, then the motivation to do a good piece of work just won't be there.

Often, the A&R manager will look at a producer's track record. If a producer has a history of success with guitar-orientated bands, then it would be a safe option to choose him to produce your newly-signed guitar band. If a producer has had dancefloor success, then he could be exactly right for your new solo artist.

But there's a little more to it than that. Perhaps a band has already done an album and achieved moderate success, enough success to be allowed to do a second. If you were the A&R manager, would you choose the same producer? Perhaps if the producer was new to the business and you thought he might be capable of greater achievement, then you might choose the same person again. But if the first album had been produced by an established name, then you would start to consider why it had only been a moderate rather than a stunning success. Since the album *did* sell, there must have been something good about it, so the trick is to choose a producer who can replicate all of the good points, and add even more to the band's sound, songs or performance.

This was the case with the current Pulp album, *Different Class*. Pulp's management, who are

How to become a Record Producer

▶ handling this aspect of the A&R role, decided that although they had been pleased with the previous album, certain elements had been missed. They felt that there was a richness and depth to the band's live sound which hadn't been fully captured. Chris Thomas was engaged to produce the record, and



*Pulp's
Different Class
— producer Chris Thomas
was engaged to more fully capture the
group's live sound.*

of great music about that hasn't sold nearly as much as it deserves to. Some A&R managers rely on their instincts to make a good choice, and then let band and producer get on with it. Unless they think something's going wrong in some way, (for instance, that there are no obvious singles among the tracks that have been recorded) they won't interfere.

For many acts, singles are a vital marketing tool, without which an album cannot be a success. In this case, the A&R manager will get the band to write some more songs, re-record one of the songs with more attention given to chart potential, release one of the album tracks as a single and hope for the best, or if the worst comes to the worst: scrap the whole project! This last situation is one you would probably prefer to avoid, because you'll find yourself on the scrapheap too.

THE ENGINEER

Producers who started their careers as engineers are obviously perfectly capable of doing the engineering themselves, and some do. In a decent studio, there will be an assistant engineer available to handle all the menial tasks of setting up mic stands and plugging in cables, so the producer will be able to concentrate on getting a good sound whenever he wears his engineer's hat.

The problem with this arrangement is that being a great engineer is a very difficult and demanding job, and so is being a producer. Those who can fulfil both roles all of the time are fairly few and far between. There are also many producers who probably wouldn't know what a sweep mid was, let alone know how to twiddle it. In these cases, an engineer is necessary, and not just a studio junior taking a break from boiling the kettle. With a first-class engineer at the desk, a musically-orientated producer can concentrate fully on creating a good arrangement and maximising the potential of the performance, while the engineer deals with the sound.

"Engineers, being dedicated to achieving the ultimate in recorded sound, sometimes don't know when to stop."

In this situation, you might think that the producer takes a superior position to the engineer and tells him what to do, but where top professionals are involved this is unlikely to be the case. The engineer may take a couple of hours getting a drum kit sound, and during this time, the producer will usually trust the engineer's judgement, unless he has very specific requirements. His only

their subsequent chart position (number four as I write) vindicates that decision.

Alternatively, you might start your career as a producer by associating yourself with a band, developing and recording them, and then presenting them to a record company. This is a slightly risky business, because the record company might say that they like the band, but they don't like you! If you have done the groundwork properly, you won't be too upset, because you will have drawn up an agreement with the band, so that you receive a payoff, or at least reimbursement of any costs you have incurred. A&R people I have spoken to confirm that this is a viable approach, but you do have to present an 'act', and not just a recording. A band that can play live is an act, for example, and so is a solo singer with obvious sex appeal. Other than that, you will have to find an angle that the record company can use to market the material you produce.

The A&R manager's role certainly doesn't end with finding bands and choosing producers. He or she will nurture the creative team all the way through recording. The producer's skill will be in creating great music, or at least assisting in the creation of great music.

The A&R manager understands what sells — and I'm sure you are well aware that there is a lot

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How to become a Record Producer

▶ comment might be to give the go-ahead to record, once he's happy with the sound. Engineers, being dedicated to achieving the ultimate in recorded sound, sometimes don't know when to stop.

One problem about being an engineer/producer is that you have no-one to ask what they think about something. You could ask a member of the band, to which the reply would probably be, "I don't know, you're meant to be the producer". Having an engineer as a sounding board for your ideas and opinions is a great help, because you can rely on a good engineer to give you good advice, and he'll probably also have the psychological skills to know when to give you the answer you are looking for, and when to disagree with you openly. An established engineer may

even suggest to you that something isn't working well, musically. You may regard this as an intrusion into your role, but you would be unwise not to pay attention to the advice of someone who has probably worked on thousands of sessions, and achieved an understanding of music equal — or superior — to your own.

If, as a producer, you don't have any engineering knowledge or skills to speak of, then at the very least you should develop an awareness of what the engineer can do for you, what tricks and techniques he can deploy, and gain a feeling for how long something you ask for may take to set up or perform. One of the worst things that will happen to an engineer is for a producer to bring in a demo cassette and say, "I want it to sound like this". This situation isn't as common as it used to be, but it is still very easy for a musician to be working in his or her home studio and come upon a particular sound just by chance, which they then develop into a major feature of the song.

The problem may be that the song structure will change, the key may change, the multitrack tape of the demo may be of poor quality, or may have been lost. Any of these factors will mean that the sound will have to be re-created somehow, and anyone who has any experience of this will tell you that it is sometimes very, very difficult. You may have to accept that it could take a long time to work out how the sound was achieved (unless the musicians involved have long memories), or you may have to settle for a near alternative. Of course, you won't settle for second-best, but trying to re-create a sound — sometimes not even of the same band — may prove impossible. On the positive side, the chances are that along the way, you will stumble upon something at least as interesting, that you would not have thought of if you had just started from scratch.

At the mixing stage, producers often just leave the engineer to get on with it in his own time. You might have thought that if the producer is supposed to be in charge of the recording, then he or she should supervise every aspect of the recording process, including every detail of the mixing. Of course, any engineer will tell you that you have to be an engineer to appreciate fully the subtle art of mixing. Having a producer in the studio in the early stages of mixing would only be inhibiting. If the engineer is left to his own devices for two or three hours, then the producer can come in and apply his fresh ears to the mix and comment on what is going well, or what isn't working.

There is always a balance to be struck between how much the engineer will stick to what's on the tape, and how much he will alter the sound of the individual tracks with EQ and effects. I'll return to this delicate subject next month.

505



Gregg Jackman on Trevor Horn: "He just wants to make a great record".

THE ENGINEER'S VIEW — GREGG JACKMAN

Gregg Jackman is a very well-established and respected engineer, and is one of the few engineers who can command royalties on his recordings rather than just a flat fee.

• WORKING WITH A TOP PRODUCER:

"The Seal album took a very long time. Trevor Horn (pictured right) doesn't worry too much about the time it takes, or the budget. He just wants to make a great record. Sometimes when you think you are getting somewhere, he'll scrap it and start

□ all over again: 'Now I know how to make this record. Wipe it, and we'll start again'. You learn not to take any of these things personally."

• DISCUSSIONS WITH THE PRODUCER:

"Very often, people will ask me my opinion. As long as they are prepared to accept that I may say something they don't like, that's fine.

"Producers tend to observe what it sounds like. Sometimes they'll point out something you haven't heard. They'll say, 'The vocals sound a bit topsey,'

when all you're worrying about is the bass guitar. It's good to have two sets of ears concentrating on the job in hand."

• STYLES OF PRODUCTION:

"Some producers don't know anything about sound. They are just very good musicians, good at sorting out arrangements. As long as there isn't something terribly wrong with it, they hardly ever seem to comment about the sound. Having said that, there are many more technical producers than there used to be."

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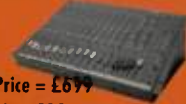
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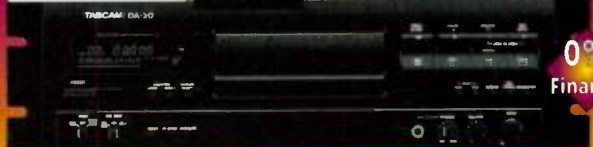
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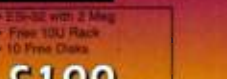
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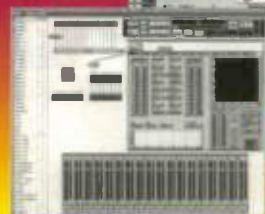
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PAUL WHITE plugs into the all-singing, all-dancing digital box that can perform graphic, parametric and shelving EQ functions all at once — and even handle real-time room analysis and auto EQ'ing during its quieter moments...

Behringer have built their reputation on low-cost analogue processors, and more recently, their Eurodesk analogue mixing console, but the Ultra-Curve is their first foray into the world of digital signal processing. Because the Ultra-Curve is a DSP audio processor, the only limit to flexibility is its software, so it isn't surprising to find features that would be prohibitively expensive to implement in an equivalent analogue device.

The Ultra-Curve performs two main tasks: it can operate as a dual, 31-band graphic equaliser with additional filtering, or it can be used as a real-time room analyser. The audio path is 20-bit, though the quoted signal-to-noise ratio of 108dB suggests that the actual resolution is nearer to 18 bits. The two internal DSPs are 64-bit devices; hence the reference to 64-bit in the product description. The sampling rate may be selected by the user, and though no digital I/O is provided as standard, an AES/EBU plug-in option will shortly be available.

In addition to the graphic equaliser capabilities of the system, the Ultra-Curve can generate high- and low-pass shelving filters with variable slope,



Soft Curves

BEHRINGER ULTRA-CURVE SIGNAL PROCESSOR

plus three further bands of fully parametric EQ, or a precision notch filter per channel. When used live, an automatic feedback terminator function automatically deploys and adjusts the parametric filters to notch out troublesome frequencies whenever feedback occurs. Because digital circuitry doesn't take kindly to being overloaded, the Ultra-Curve also includes a multiband limiter with a user-variable threshold, plus integral noise gating. Provision has been made for an expansion option (the Delay 8000), to compensate for the distance between loudspeaker stacks in large concert systems, but as with the digital I/O, at the time of writing this is not yet available.

The system is fully programmable, and up to 100 user presets may be stored. MIDI control over both individual parameters and snapshots is available, and the user can select a crossfade time. This means that when EQ patches are changed, the filters change to their new values over a period of seconds, to prevent abrupt changes. This is potentially useful as a creative effect in the studio, where you can effectively morph between different filter programs.

THE HARDWARE

Housed in a 2U, mains-powered case with balanced jack and XLR in/outs, the Ultra-Curve has a very simple front panel layout, the centrepiece of which is a large, multifunction 240 x 64 pixels LCD window. A single LED registers the arrival of any MIDI messages, and all the operations are controlled via just 12 buttons. The EQ and RTA functions have dedicated selector buttons, with a further button activating the relay-driven 'hard' bypass, which connects the inputs directly to the outputs in bypass or in the event of a power failure.

The Setup button accesses a menu of the same name, where the usual utility functions are to be found. On the Ultra-Curve, these include MIDI parameters, password anti-tamper protection, LCD viewing angle, sample rate selection and so forth. The four buttons directly to the left of the display are soft keys, so called because their job varies depending on what screen is visible. Their functions are displayed down the left of the screen, though some of the functions are displayed by icon rather than name, and I'll be



looking at these in more detail later.

To the right of the display are four keys arranged as a cross, and these function as cursor keys for selecting frequency bands, adjusting filter gains and any other functions that require the on-screen cursor to be moved. Holding down an up or down cursor button will cause the appropriate value to step up and down, and in now familiar fashion, holding the opposite button down at the same time will accelerate this process. The Setup menu is used to select the sample rate of the Ultra-Curve, which may be run at 32kHz, 44.1kHz or 48kHz. Unless you have the digital I/O option, there's no reason to use anything other than the fastest 48kHz sample rate.

IN USE

The equaliser part of the system is the easiest to use, and other than the fact that you have to use the cursor buttons to move from slider to slider, and the up/down buttons to change the values, it operates much like a conventional graphic. All 31 EQ faders are graphically represented on screen, with a further fader to the right to control the master level. By hitting the Meter softkey, a pair of bargraphs showing both peak and RMS levels (switchable from input to output) is available, and the peak level is held so you can see whether or not you have any troublesome peaks. Because this is a digital system, it's very important that the peak input level is not exceeded.

The three parametrics provide full range coverage, and setting up is, once again, a matter of moving a cursor and using increment buttons.

After using a system with knobs on, this is actually a real pain. I guess knobs were ruled out on cost grounds, but I know I would have liked using the Ultra-curve far more if I didn't have to deal with an endless succession of button-pushes. Another thing I found irritating is the fact that there is no printed frequency scale under the equaliser — so the only way to find out what's going on is to move the cursor to the band you're interested in, and read off the frequency and the amount of cut or boost.

The equaliser can be used in stereo link mode or as two monos, and if the stereo link mode is activated after both channels have been set up to different values, any further adjustments will be applied to both channels equally. If an adjustment tries to take any fader in the opposite channel past full scale, all the fader settings are scaled down to compensate.

In edit mode, you can load or save settings into 100 user memories, name patches or even opt to add or subtract the current EQ settings from a curve already in memory. Each patch memory contains the graphic equaliser, parametric/anti-feedback and shelving filter settings, as well as the level, gate and limiter setting.

A spanner icon provides you with certain editing tools, including the option to reset to a flat line, though the parametric settings have to be accessed via the EQ setup button. A separate Clear function puts all the parameters in a patch to neutral — a good idea when you're starting a new patch from scratch. Using the loudspeaker icons, settings may be copied from one channel to the other. An EQ curve pictogram lets you choose a filter

BEHRINGER ULTRA-CURVE £649

PROS

- Very good value.
- Clean audio path with smooth program crossfading.
- Includes parametric, graphic and shelving EQ as well as limiting, gating, anti-feedback filtering and real-time frequency analysis.
- Real-time MIDI control possible.

CONS

- All-button operation makes the operation slower than ideal.
- MIDI Out not yet implemented.
- No permanent readout of the currently selected program number.

SUMMARY

Though not ergonomically perfect, the Ultra-Curve is fairly straightforward to use, and packs a lot of facilities into an attractively-priced package.

Behringer Ultra-curve

- ▶ characteristic, either a bandpass or a pair of shelving (high- or low-pass) filters — and this is on top of the graphic and parametric filtering. In shelving mode, the slope is variable in 6dB steps, from 6dB/octave to 30dB/octave. You can also directly compare the original loaded settings with any changes you might have made, using the A/B button.

CHASING SHADOWS

In a live situation, any or all three parametric filters may be switched to feedback suppression mode, in which case they lock onto feedback as it happens, and pull down the offending frequency band. If feedback then occurs at another frequency, the second filter steps in — it's quite interesting to watch the parametric parameters change on screen as this happens. Eventually though, you get to a situation where all three bands are being used, and then if feedback recurs at a different frequency, the first parametric goes after it, leaving the original feedback frequency unsuppressed.

I tried this to see how the system would react in a real situation, and as the gain is increased to the point of feedback, the filters deal with it very effectively. However, if you keep turning the gain up, the filters end up chasing the different feedback frequencies, so what actually happens is that the feedback keeps changing frequency, as first one, then the other feedback frequency is dealt with. In a real-life situation, the system does offer a very real benefit, providing you don't pile on too much gain, though it's obviously not going to be as effective as something like a Sabine Feedback Exterminator, which uses far more filter bands.

Unusually for a graphic equaliser, the Ultra-Curve also includes noise gating, which could be useful in the studio as well as in PA applications. This is a simple-to-use system, where only the threshold may be set by the user. Users wanting to employ MIDI control may use program changes to switch between programs, or controller information to regulate the individual bands, or the master level faders directly. No data is output over MIDI, so there is no way to store SysEx dumps of patch data, but a MIDI Out socket is fitted to

facilitate future developments.

I checked out the EQ crossfade facility, and it worked smoothly with no sign of glitching, but handling real-time switching from the front panel is tricky, because of the number of button presses required. There is no dedicated patch increment/decrement system — you have to go via the Edit menu. This being the case, MIDI control is pretty much essential for any creative purposes.

SUMMARY

Given its relatively low cost, the Ultra-Curve is a very sophisticated piece of signal processing equipment which, although designed with live music in mind, has a range of applications in the recording studio. The 20-bit converters deliver an impressive 108dB signal-to-noise ratio. The equalisers, while lacking the charm of top-end analogue equivalents, perform smoothly, without any obvious vices. The operating system is pretty straightforward, but the need to move the cursor along a row of 31 virtual faders obviously makes adjustment less straightforward than grabbing a fader. However, the additional features more than compensate for this, especially the additional parametric and shelving EQs, the limiter and the noise gates.

As far as creative potential is concerned, the ability to switch programs and control the master fader levels via MIDI means that you can use the Ultra-Curve (via your mixer's insert points) to set up two very powerful channels of mix automation using your sequencer. The variable crossfade time allows you to set up some very neat filter morphing effects which, with more radical filter settings, can sound more like dynamic flanging than EQ. The RTA side of the unit is less obviously useful in the studio, other than for checking out your room and monitoring system, but it's a powerful tool for PA applications, as is the feedback suppressor. For larger PA rigs, the delay option means that spaced speaker towers can be time-aligned, though I suppose you could use it with feedback from your mixer to provide a nice Shadows guitar echo at a pinch!

The main irritations are simple things like the lack of a printed scale around the display, a

THE ULTRA-CURVE IN FULL

The Ultra-Curve part of this system bears more than a passing resemblance to the BSS Smart-Curve concept, in that the power of DSP technology has been brought to bear in an attempt to compensate for the interaction that takes place between bands in a conventional analogue graphic equaliser. With an analogue graphic EQ, the actual EQ curve may be quite different from that suggested by the fader positions, purely due to the degree of filter interaction that takes place, especially when adjacent sliders are set to radically different gain settings. While digital filters also interact, it is possible to largely compensate for this interaction, and the idea behind the Ultra-Curve is that the EQ curve you see on the screen is the curve you get. The reason parametric equalisers are included is so that very steep filter slopes can be created by combining the effects of the parametric and graphic equalisers — but they're needed in any event, for the anti-feedback part of the system.

The real-time analyser section of the Ultra-Curve proves third-octave analysis to an accuracy of 0.25dB, and the Auto Q system enables the Ultra-Curve to automatically adjust its own filters to compensate for venue acoustics and speaker positioning. When using Auto Q, you can select any one of the 100 user equaliser settings to be the target response, then Auto Q will endeavour to adjust the filters until the sound received back at the measuring mic corresponds to this ideal. An input is provided for a reference microphone, and the Ultra-Curve can generate either pink or white noise, as well as sine tones for automatic measurement — though pink noise (equal energy per octave) is the usual way of making room measurements. Because not all reference mics are as flat as they should be, it's also possible to store a correcting EQ curve in one of the 100 memories, and use this to compensate for the mic response during measurement.

ROOM WITH A VU

The Real-Time Analyser or RTA section of the Ultra-Curve is mainly for use in live situations, but is also useful in the studio, both for learning something about the monitoring environment and for seeing what kind of spectral shapes different sounds have. An internal noise source generates either white, pink or sine wave test signals (pink is favourite for normal room measurement), while an integral mic preamp allows any mic with a flat response to be used to measure the result. Unfortunately, the phantom power on the mic socket is only 15V, which rather limits your choice of microphone. I managed to find a suitable back-electret

mic with a nominally flat response which would run from a 15V power source, and was reassured to find no gross anomalies in my studio when measurements were taken in and around the listening position.

In live situations, the RTA can be used to create a graphic EQ curve which is the inverse of the room measurements, so as to give a nominally flat response. Alternatively, one of the user memories may be selected as the target response. This helps improve sound quality and legibility when setting up a PA in a live venue, but I'd caution against doing this in a studio. Apart from the fact that EQ isn't the way to solve control room problems,

I feel a system like this is far too open to misinterpretation to be used as a sound basis for control room equalisation. The RTA can give you a broad idea of what's right and wrong, but I wouldn't like to take it much further than that.

The RTA has a good selection of operational parameters and the results can be stored in ten user memories. Peak or RMS measurements can be made, and the decay time of the measurements can be set from 15ms to 1s, which has the effect of averaging the results over time to give a smoother display. The peak levels can be held and read off using the cursor buttons to move along the bands.

functioning MIDI Out, or a direct means of stepping through the programs from the front panel, without having to go via edit mode. Nor is there any direct readout of what patch number is currently active — but as this is a software-based system, improvements can be added with later software revisions. Already, the manufacturers are looking at a MIDI master/slave setup for using multiple units, and PC-based control software is also under development. Options include the Delay 8000 and the AES 8000 digital I/O, though from what the handbook implies, these are not user-installable.

On balance, the Ultra-Curve is a very proficient processor that brings digital EQ within reach of many more recording musicians, live performers and PA operators.

SOS

FURTHER INFORMATION

- E** Ultra-Curve £649 inc VAT; Delay 8000 option £TBA; AES 8000 digital I/O option £TBA.
- A** Behringer UK, St Vincent House, 59 Woodbridge Road, Guildford, Surrey GU1 4RF.
- T** 01483 458877.
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THE POWER RANGERS

OPCODE DIGITRAX • OSC DECK II • DIGIDESIGN SESSION

Several software houses are producing modestly priced programs which take advantage of the audio capabilities of the Apple Power Macs. The result can be high-quality multitrack digital audio at a surprisingly low cost.

PAUL D. LEHRMAN finds he's got the Power...

It's amazing how much the 'entry fee' for high-quality digital recording has come down. Around 10 years ago, the cheapest multitrack digital system cost tens of thousands of pounds — and that was just for a single tape machine, with no editing or mixing capabilities. Digidesign's launch of *Sound Tools* in 1987 abruptly changed the world of two-track digital editing, for the first time bringing it within reach of a project studio budget. It also represented a sea-change in audio editing user interfaces, and a few years later, Pro Tools did the same thing for multitrack recording, mixing, and editing.

Now the RISC-based Power Macintosh computers from Apple have arrived, and the field has changed again. Apple's design includes data and disk I/O paths that can support multiple streams of digital audio inside the computer's central processor, and 16-bit, 44.1kHz A/D and D/A converters, so that no additional hardware is required for work with high-end audio. For the first time, multitrack digital production is almost entirely a software issue. With the hardware already provided, the only decisions to be made are what features the software should have, and how the user interface will look and behave. With Power Macs now available for under £1000, and the necessary software costing no more than a good MIDI sequencer, musicians and engineers can now own a system for what, only a few years ago, it would have cost to rent one for a day.

To be fair, maybe we shouldn't go quite that far

— the audio capabilities of the Power Macs don't really equal those of a dedicated digital recording system. For instance, you can only record two tracks at a time, and you only have two output channels. In addition, you're unlikely to want to master CDs from a Power Mac's audio outputs. Owing to considerations of cost and the exigencies of computer design, the A/D and D/A circuitry in the Power Macs is pretty low-rent: inputs and outputs are via mini-jacks, and the converters are capable of a dynamic range of about 76dB — not exactly Super bit-mapped CD quality.

Still, it's a lot better than any computer has provided before, and entirely adequate for multimedia applications. If you need higher quality, bringing the Power Mac up to hi-fi standards is not at all difficult: buy (or borrow) a Digidesign Audiomedia II card (£1056.33 from Digidesign UK) and use it at the recording and final output stages. It will increase the dynamic range to about 86dB, and also provide S/PDIF inputs and outputs, so that you can import files from digital sources without compromise, and send your final stereo mix directly to DAT. You can still use the computer's converters to hear what you're doing during editing and mixing, and the process won't affect the fidelity of the data itself.

THE THREE CONTENDERS

There are currently three programs designed to take advantage of the Power Macs' audio facilities. OSC's *Deck II* (£399) is the senior member of the club. Originally, *Deck* was marketed by Digidesign as a way to bring multitrack audio to its lower-end customers (ie. Audiomedia card owners), but Digidesign gave it back to OSC a couple of years ago. *Deck* runs native on the Power Mac, as well as on the short-lived Quadra AV series of computers, which used the AT&T DSP 3210 chip for high-quality audio, as opposed to the more common Motorola 56001 chip. It will also run on any NuBus Mac equipped with RasterOps' MediaTime or Spectral Innovations' NuMedia cards, both of which use the AT&T chip, or with any Digidesign (Motorola-based) hardware, except Pro Tools III. Got all that? The version in general use as I write is 2.2, though 2.5 is shipping, and may be generally available by the time you read this.

Next up is *Digitrax* (£189), which was recently obtained by Opcode Systems from a company called Alaska Software. *Digitrax* was originally designed for use with the old AV computers, and the AT&T-chip NuBus cards. The new version (which is still being shipped with Alaska's manual) has been optimised for Power Macs. It still does not, however, support any Digidesign hardware. The current version is 1.2.

The newest contestant is Digidesign's *Session*

SOUND AND VISION: QUICKTIME AND CDS

For multimedia types, all three programs can import QuickTime movies directly. If the movie already has a soundtrack, it can be discarded, or incorporated as a session track (or tracks, if it's stereo), and in *Session* you can bring in audio from other movies as well. When you play, locate, or scrub around the audio, the movie's video will follow. In *Deck* it also works the other way: when you scrub the movie, the audio scrubs with it. This is particularly useful when you need to drop a piece of audio into a particular video frame.

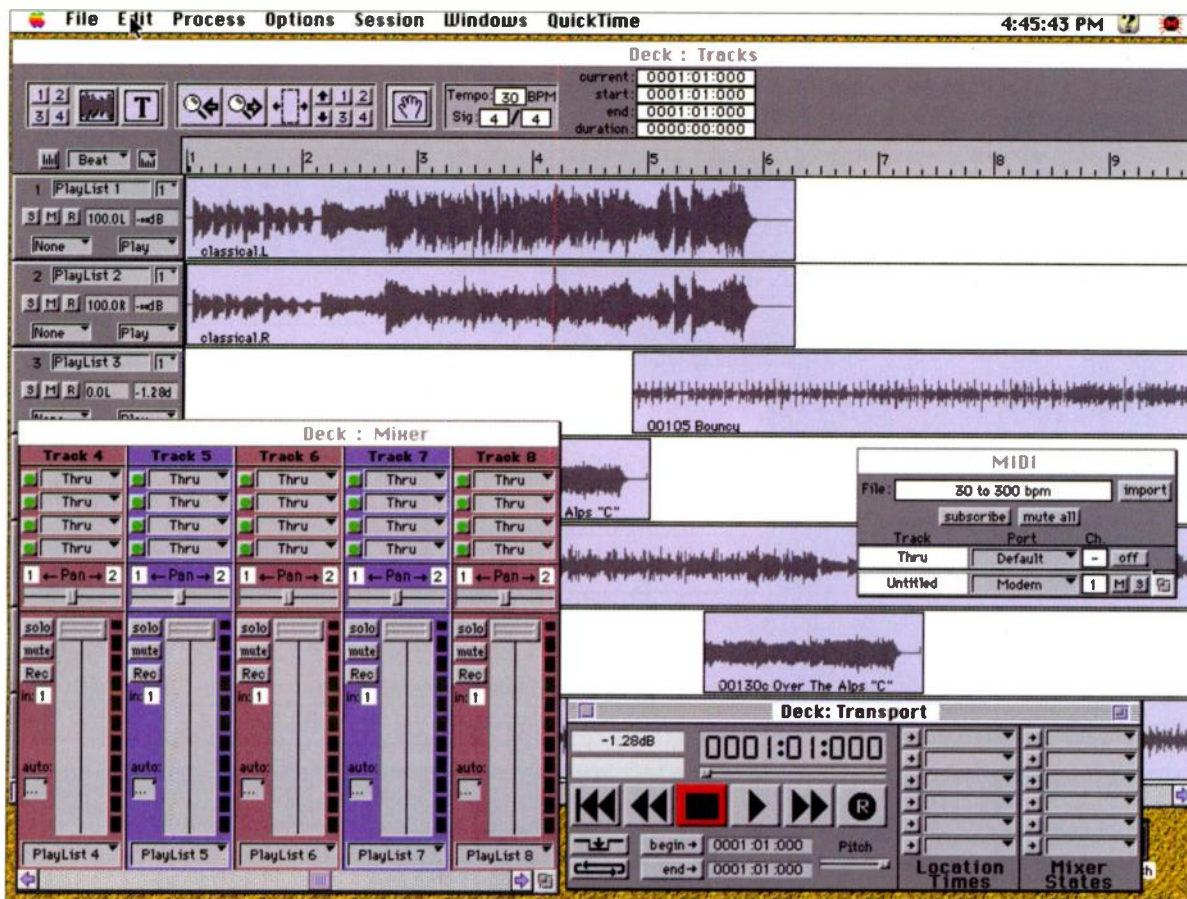
When you finish a session, you can save it all — sound and video — as a QuickTime movie. In *Session*, you can offset the video start time, which is a useful feature if you want to add opening or title music to a movie, but unfortunately, you can't save the result as a movie: instead you have to save the soundtrack as an audio file, go into your QuickTime application and insert time at the beginning of the movie to accommodate the music, then import the soundtrack.

Another feature of interest to multimedia producers and sound editors is the ability to control audio CDs, and to import tracks, or sections of

tracks, directly from them into the program. *Session* and *Digitrax* both include control panels for selecting and auditioning tracks from a CD that's in an internal CD-ROM drive. In *Digitrax*, the CD and main transports are integrated: you can cue up the CD player to a certain point, then put the program into record, and it will automatically start recording from the cue point on the CD — a big time saver. On the downside, the program uses an analogue signal path from the CD to the Mac, and relies on the CD player's and the Mac's conversion circuitry, which some people will not be happy with.

Session offers either an analogue path or a SCSI path, which keeps the data in the digital domain. The analogue path uses the AppleCD Audio Player desk accessory. The SCSI method (in which the audio track is treated like a movie) can also access an external CD-ROM drive.

Deck can import CD audio over SCSI, using Apple's *MoviePlayer*, but it's a two-step process, because the file that *MoviePlayer* produces is interleaved stereo, and it must be broken down into two mono tracks before *Deck* can deal with it.



OSC Deck II.

(£175). Like the original *Deck*, *Session* is a low-cost alternative to Pro Tools or the company's mid-range *Session 8*. Besides being Power Mac-native, it supports Audiomeia II, and in pre-Quadra computers it may run (although the company doesn't guarantee it) with the original Audiomeia or Audiomeia LC cards. For more on *Session*, check out David Mellor's full review in *SOS* December '95.

RECORDING AND EDITING

The overall operation of the three programs is similar. Audio is recorded through the Mac's input jack, or imported from a QuickTime movie, an audio CD, or other source. One or two tracks can be recorded at a time, and tracks are displayed on the screen in dedicated 'timeline' or 'tracks' windows as waveforms; you can zoom in and out to see either greater detail or more of the file. Additional tracks can be added while you listen to the original tracks. Automated non-destructive punch-in and punch-out are provided, and *Digitrax* also supports punching on the fly.

On the screen, audio can be moved around in time, and referenced to a ruler showing seconds and SMPTE frames or other scales. The audio sections can be trimmed from the beginning or the end, or chopped up into pieces which can then be moved around — all non-destructive procedures. Besides letting you create complex layerings and montages of sounds, this also makes it easy to assemble pieces of different takes of a track, to make a perfect one — and it's very fast.

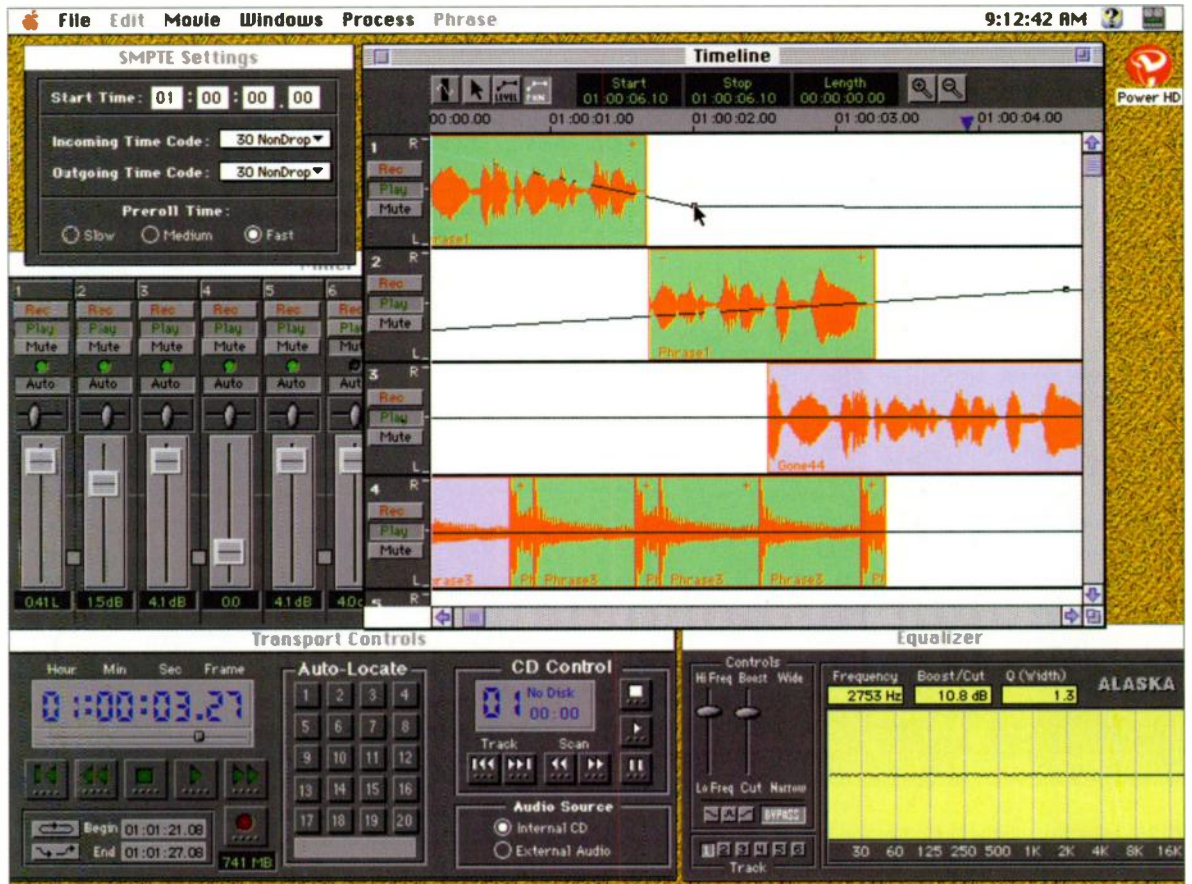
To help you find your edit points, there are markers, sync points, and/or auto-locate registers, and in *Deck* and *Digitrax*, audio can be scrubbed. *Digitrax's* scrubbing, however, only works in a

forward direction, and is always exactly half the normal speed of the audio, while *Deck's* goes in both directions over a wide range of speeds. *Deck* and *Session* provide four memories for location and zoom settings, so that you can recall a screen setup instantly — very useful when you're lost in a long file.

MIXING

The number of tracks which can be displayed and played varies between the three programs (see box 'How Many Tracks?' for full details). However, in all of the programs, the volume levels of the various tracks are controlled in real time from mixer windows, all of which use a mixing console presentation, with faders, mute and solo buttons, pan sliders, and other familiar controls. Fader movements and pan position can be recorded. In *Digitrax*, adjacent fader pairs can be linked, following each other directly. In *Session*, up to four different fader groups can be created, and the faders within a group maintain their relative position to each other when one is moved. In *Deck* and *Session*, you can use an external MIDI controller, such as a JL Cooper MixMate, to move the faders, and these can be recorded with the session, just like on-screen moves. *Deck* also includes 'state' automation, in which all of the current control settings are memorised and stored. Any state can be recalled at any time, and the transition time between states is adjustable. All three programs include visual editing of automation moves in the timeline window, so you can see the moves overlaid on the visual waveforms, using rubber band-like 'breakpoints'. *Session* includes a feature called 'Smart Breakpoints': this means that if you're editing automation within a selected region, the levels at

"For the first time, multitrack digital production is almost entirely a software issue."



Opcode *Digitrax*.

- ▶ the very beginning and very end of the region are automatically preserved, regardless of how you change levels within the region.

A crossfading function is available in *Deck* and *Session*, which automatically overlaps two pieces of audio on the same track — up to several seconds' worth. You can specify the curves of the fade-out and fade-in with great precision. Crossfading is non-destructive: the fades themselves are stored as separate audio files on disk. To accomplish the same thing with *Digitrax*, you have to use up two tracks, overlap them, and create manual fades on each.

EFFECTS

Effects are an important part of any multitrack studio, but they are not easy to implement in a computer-based digital system: even *Pro Tools*, for which a huge variety of real-time effects is available, needs expensive extra hardware (DSP farms) to use more than a handful of them at a time (for more on using *Pro Tools* with effects, see Mike Collins' two-part feature on TDM plug-ins, which started in last month's *SOS*, and continues this month). The three programs under examination here, because of their non-destructive orientation, lag behind even such comparatively primitive programs as *Macromedia's SoundEdit 16* in the types of effects they can impose on the audio. *Deck* and *Digitrax* provide a short list of destructive functions, including normalising, reverse, and invert (flipping the phase). *Deck* lets

you normalise a group of files in one operation, looking for the single maximum level and adjusting all the files accordingly.

Digitrax also includes a 2-band parametric EQ for each track, which can be applied non-destructively (as the session plays) or destructively. Unfortunately, the EQ clips badly if you apply any boost at all to the signal, and there's no way to pad down the input to keep this from happening. Also, the real-time EQ is disabled when you're doing a mix to disk (as opposed to simply recording the Mac outputs). The program has flanging and chorusing effects, but they only work on AT&T-chip systems, not yet on Power Macs.

Session includes two single-band non-destructive EQs on each track, which work well. They seem to be post-fader, so there's no problem with clipping. For other effects, we'll have to wait until later this year, when Digidesign release the *Audio Suite* set of plug-in processors. Likewise, *Deck* owners have to wait for fancy effects, but they should arrive soon: the forthcoming revision 2.5 of the program (possibly out by the time you read this) will be compatible with audio plug-ins created for use with *Adobe Premiere*, and these include an impressive palette of time- and frequency-based processing algorithms from *Invision Interactive*, known as *Cybersound FX* (and for more on *this*, see my article on software synthesis in last October's *SOS*). The *Cybersound* processing, unlike *Pro Tools'* TDM plug-ins, is non-real-time and alters the actual audio files. ▶

"Deck and Session are running neck and neck, piling features on with each new revision."

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Digidesign *Session*.

► **EXPORTING AND MASTERING**

Besides saving a session as a QuickTime movie (see box 'QuickTime & CDs'), all three programs give you a number of options for a finished project. You can simply play it through, recording to another medium like DAT or videotape, or you can 'mix to disk', creating a new hard disk file containing the finished stereo mix, in AIFF (the Apple audio standard) format. *Session* and *Deck* can also save files as Apple SND resources, or in the DOS world's ubiquitous WAV format. (They can import those file formats too.)

When you mix to disk, you have the option to trim down the audio to 8-bit, and/or lower the sample rate. *Digitrax* can handle all common sample rates, and simply truncates the samples. *Deck* lets you resample only at half or a quarter of the original rate, but it does provide four different bit-conversion options, including fairly decent-sounding dithering, which reduces quantisation noise at low levels. *Session* can save at any sample rate, and five levels of quality are available for the rate conversion — the best one can take literally hours to work, but for critical applications the results might be worth it. When it deals with word length, the program will round off the samples, or 'squeeze' them, using a fairly aggressive form of audio compression that keeps the level consistently high. It's nowhere near as sophisticated as Waves' *L1* Ultramaximizer for Pro Tools, but it does the job.

SYNC AND MIDI

The programs are all designed to synchronise to SMPTE timecode, via MIDI Time Code. The timecode is handled either with Apple's MIDI Manager (in *Digitrax* — surprising, for an Opcode product) or Opcode's OMS (in the others). Audio is usually played from timecode in 'trigger' mode: once the code is read and the audio starts, it chugs along, following the Mac's internal clock. In long files, or when locked to an unsteady source of sync, such as a consumer VCR, this can lead to drift between the digital audio and the master tape, so *Deck* offers the option of 'continuous resync' mode (as featured in Pro Tools), where the audio's clock constantly monitors the SMPTE frame numbers and makes periodic adjustments in the playback rate. This mode places a heavy load on the CPU, however, and in some cases the program will simply refuse to use it (and will tell you so).

Deck also has a SMPTE capture function, which grabs frame numbers on the fly, so you can easily spot sound effects or automation moves — particularly useful if you're using vertical timecode (VITC), which can be read while a video deck is paused. In *Digitrax*, sad to report, SMPTE sync doesn't work: hopefully, Opcode will fix that before too long. Similarly, all three programs are designed to sync to MIDI sequencers, using internally-routed MIDI Time Code. This feature, however, is not working in the current version of *Digitrax*.

For serious MIDI users, *Deck* gives three additional options for linking with a sequencer: first, you can ►

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Ashley Sheinwald, Alchemea student. 2 hours sleep between two recording sessions and digital editing session.
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► import a Standard MIDI File right into the session, and play it back along with the audio. The time ruler can be set to display the tempo of the imported file, and you can tell the program to 'snap' audio events to MIDI beats or bars, which can be a great help when you're aligning audio tracks or sound effects to sequenced music. But there are two major problems with this feature. One is a limitation of MIDI Files themselves: a MIDI File cannot (although this may change before long) address multiple MIDI ports. So, if you've created the sequence in a multi-port MIDI studio using an interface such as Mark of the Unicorn's MIDI Time Piece or Opcode's Studio 5, you won't be able to play it correctly from *Deck*. The other problem is that if there are any tempo changes in the MIDI File, they won't show up on *Deck*'s ruler — so unless you're doing tracks that never change tempo, the MIDI-based ruler is actually pretty useless.

The second option for working with a sequencer is using OSC's *Metro*, a full-featured sequencer designed to work symbiotically with *Deck* — it syncs automatically, and even uses a common transport window. The third option is setting *Deck* to generate MIDI Time Code, so that a sequencer can sync to it.

WHICH ONE IS FOR ME?

Unless you're a complete beginner at digital audio, my recommendation would be to stay away from *Digitrax*, at least for now. It's not that I don't like it — it's simple and sleek, its limited talents are actually very well suited to the majority of conventional audio needs, and a couple of its functions (such as auto-starting CD audio and on-the-fly punching) are very cool. But when Opcode purchased it from Alaska Software, I feel they got (to coin a phrase) a half-baked product. The EQ is not much good, and there's a serious problem with tracking when two faders are linked as a stereo pair: at the bottom of their range, the difference between them is 6dB, with the result that as you fade a signal out, it skews over to one side. The screen doesn't scroll automatically as the audio plays, so after a few seconds you can't see what you're hearing. The lack of a crossfade function is annoying, and basic editing operations, like butting sections up against one another, are clumsy. The syncing problems are inexcusable, but hopefully they will go away when Opcode makes the program OMS-compatible. *Digitrax* is worth watching — despite its problems, it could grow up to be a good program.

Deck and *Session*, however, are running neck and neck, piling features on with each new revision — and both are already excellent tools. If you're into MIDI (and what reader of this magazine isn't?), you may feel that *Deck*'s superior handling of MIDI files and integration with *Metro* give it the edge. But the lack of support for MIDI tempo changes in files created with other programs is unfortunate.

For post-production work, *Deck*'s ability to continuously sync to SMPTE, and its frame-capture feature, are very useful. Other advantages are the advanced scrubbing, flexible automation,

normalising, and off-line no track-limit mixing, as well as a feature that automatically removes silences from a track, and some very clever key-cursor combinations that make many editing operations a cinch. *Deck* is also the only one of the three programs considered here to support Pro Tools (although not Pro Tools III). Using the optional *16-Track Tool* program, it can squeeze 16 tracks out of a single Pro Tools interface (when it's hooked up to a Power Mac), which is more than Digidesign can! The program has been around for several years — always a nice thing to know — and it works perfectly happily with only 8Mb of RAM, although you'll want more if you're syncing up to *Metro*.

Session's built-in CD-audio importing (which OSC says will be in *Deck*'s next revision) and multiple sample-rate algorithms are a big plus for multimedia work. The 'squeezing' 8-bit export algorithm, while it may not please everybody, will help a lot of multimedia soundtracks, and the non-destructive EQ is likewise genuinely useful. The program has a brilliant, continuous zoom function, that should (and no doubt will) be emulated by every other audio program, and the interface in general is quite stunning. The lack of scrubbing, however, is a drawback.

Session uses Digidesign's DAE audio engine software, which makes it a glutton for memory: you shouldn't consider running it unless you have at least 16Mb of RAM. But it seems very stable, especially for a new program, and it's cheaper than *Deck*. It should be interesting to see what happens to the program, as Digidesign's recently-announced software-only version of Pro Tools (which will run native on Power Macs) becomes available. Will *Session* continue to get better and more feature-laden, to keep up with *Deck*, or will the company allow it to drop back, to differentiate it from Pro Tools?

Regardless of what the future holds, *Session* and *Deck* are good products today. Both companies are well-established, and know their fields thoroughly. If their record so far is any indication, the best is yet to come. But right now, if you want to mix audio on your Mac, I doubt you can go wrong with either of these programs.

SOS

FURTHER INFORMATION

£ Opcode *Digitrax* £189 inc VAT.
 A MCMXCIX, 9 Hatton Street, London NW8 8PR.
 T 0171 723 7221.
 F 0171 262 8215.

£ OSC *Deck II* £399; *Metro* £199. Prices inc VAT.
 A Natural Audio, Kinetic Centre,
 Theobald Street, Borehamwood, Herts WD6 4SE.
 T 0181 207 1717.
 F 0181 207 2727.

£ Digidesign *Session* £175.08 inc VAT.
 A Digidesign, Avid Technology Ltd,
 Westside Complex, Pinewood Studios, Iver Heath,
 Pinewood, Bucks SL0 0NH.
 T 01753 653322.
 F 01753 654999.

HOW MANY TRACKS?

Digitrax displays and plays six tracks, regardless of hardware configuration. With the others, the situation is a bit more complex, and the number of tracks that can sound simultaneously is determined by the hardware used.

Deck will play:

- Eight to 16 tracks on a Power Mac, depending on CPU speed.
- Four tracks with an Audiomeia card or Sound Tools.
- Six tracks on a Quadra 660 AV or AT&T NuBus card.
- Eight tracks on a Quadra 840 AV.
- Either eight or 16 tracks with a Pro Tools system, using optional software. (If you have Sound Tools II or Pro Tools hardware, you also get four discrete output channels.)

The program can show up to 999 tracks on the screen: when the hardware limit is exceeded, the excess tracks are simply muted. However, a 'virtual' off-line mix-to-disk function is available, which can handle as many tracks as you want — you just can't hear the mix until it's done.

Session plays:

- Four tracks with an Audiomeia II card.
- Eight to 16 tracks on a Power Mac, depending on speed.

It will display up to 16 tracks, but once you have created and edited a track, you can store it off-line as a 'Playlist in a bin', from which it can be dragged onto the screen any time. The number of Playlists in a session is unlimited.

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HERB

Recording Venue: Home.

Recording Equipment: Studiomaster Gold 16:8:16:2 mixer, Mackie 24:8:2 mixer, Behringer Intelligate, Composer and Ultraflex, Alesis Quadraverb effects and 3630 equaliser, Drawmer compressor, Akai S3000 sampler, Atari 1040 computer running Cubeat software, PowerMac computer running Logic software, Aiwa DAT recorder, Shure and AKG microphones.

An outrageous bribe in the form of a rather excellent T-shirt came with this demo — thanks lads! As any unsigned touring band will know, you make more money from T-shirt sales than you do from cassettes. Herb travel up and down the land playing the college and London club circuit, and for a band who never seem to be in one place for long, it comes as no surprise to read that their demo was recorded in two home studios. One studio belongs to them and the other to engineer friend Graham Pattison. The result is a natural-sounding recording which brings out the boogie element of the band nicely.

top tape

Given the restrictions of 8-track recording, the drums have a solid, modern, open sound. This is achieved without resorting to much in the way of artificial reverb. The snare is rocky, but more in the Charlie Watts sense than heavy rock — pitched up. Meanwhile, the weighty bass drum, blues style, is the perfect foil for a full-sounding bass guitar. There are some nice touches on the opening track, 'Favourite



Chair', including the addition of a Leslie effect to one of the guitars. I felt that the organ could have been louder and it was a bit too overdriven for my taste. It sounds as if some digital editing has been used to repeat half bars towards the end of the song in a most unmusical fashion — certainly something to cringe about in future playbacks.

'Winner' is the title of the second song which keeps the retro Stones feel going with some ace old-fashioned Fender Rhodes-style electric piano. Yet the band are heavier on this track with some riffing guitar that is more Chilli Peppers than Stones. The heavy guitar is backed, layered over strummed clean guitar, which works well, especially on the anthemic chorus.

The last song retains all the elements I like about Herb's recording — good basic sounds from all the instruments and no overproduction to ruin the character of the band's sound. In fact, the absence of obvious processing makes quite a refreshing change. □

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ROYCE

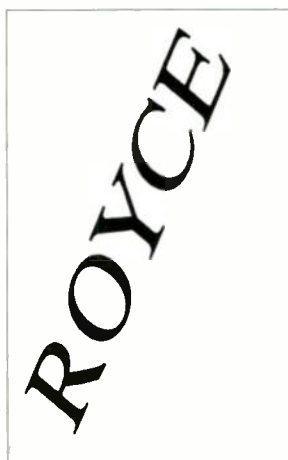
Recording Venue: Home.

Recording Equipment: Tascam 488 Mk1 Portastudio, Alesis RA100 amp, Monitor One studio monitors and Quadraverb effects, Pioneer CT S8305 cassette, AKG C3000 microphone, Aphex 107 mic preamp, Digitech GSP2101 effects, Peavey Bassflex bass guitar effects, Tandy PZM microphone.

Royce are a guitar-based pop band from Newcastle (and thankfully don't play rock 'n' roll as the puns would have been flying thick and fast). They also manage to avoid being Britpop, as this current trend wheezes towards its last gasp. The scratchy guitar and lightweight vocal sound of Royce bears more resemblance to some of the better American bands, such as Counting Crows.

Technically the tape suffers from several problems, the most noticeable

being EQ overkill. When I mentioned that the guitars were scratchy, I was actually being quite polite. There doesn't seem to be much in them below about 300Hz, which makes



them sound like they've been recorded through a transistor radio speaker. As it happens, the guitars were recorded using the speaker simulator output from the Digitech GSP2101, which is capable of better performance in the bass end. If another guitar were to be recorded underneath to double track or just play chunky chords, the composite sound would work really well, but sadly the bass guitar alone can't fulfil this role.

Leaving aside the guitar problems, the vocals tell a completely different story. They are well delivered and sound light, yet full and throaty, preventing the band from sounding too transatlantic. Despite some technical shortcomings, catchy melodies and simple but effective guitar chord voicings make this tape a good listen. □



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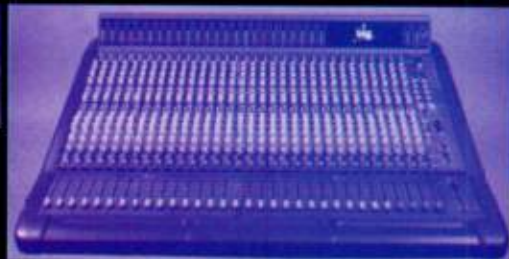
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GOAT MUSIC

Recording Venue: Home.

Recording Equipment: Fostex 160, Studiomaster 24:8:2 mixer, Shure SM58 microphones, Boss ME6 effects processor.

Goat Music sent two cassettes. One is a 'studio' recording made in the back of a truck,

▶ the other is a live recording of their stint at the Glastonbury Festival. The studio cassette sleeve states that Goat Music are a mixture of traditions and styles with Irish and mediaeval overtones. Indeed, many of the instruments played on the tape were built by the band, including the Eryri bagpipes — constructed with a goat skin for the bag, hence the band name. Are these the only 'Welsh'



bagpipes in existence, I wonder?

An original composition opens side one of the studio tape and features percussion, acoustic guitar, whistle and vocal. I thought that the bongos could have been mixed a bit louder and given some more bass end. Likewise, the guitar is also a bit lightweight. I mention this because in folk music it's often the only instrument with the potential to put any real bass in the overall mix. You need to use your better judgment when to add bass, and while bass boom must be avoided, positioning the mic nearer the sound hole (but never close in to it) will help. For electric guitar it's a simple case of using EQ.

The Eryri bagpipes are used on the second track and sound pretty good. The sound is perhaps a bit thicker than Uilleann pipes, but they seem to record well, with just the odd tuning problem (only to be expected). I was surprised at how much they sounded like a saxophone in places, especially in the expression. This is borne out on the live recording too.

The mixing on all the tracks emphasises the lead instrument and keeps the backing in check. This suits the majority of the songs and is what you'd expect from some older folk album mixes, but I would have preferred to hear the energy of the drums, in particular, coming through. A more modern sound would have resulted, as is demonstrated on their live tape where real drums and bass guitar are among the instruments which join the line-up. I really think that the lads should get in the studio with this band. Do some gigs to raise the money — it's worth the effort! □

SHEBANG

Recording Venue: Home and CMG, Birmingham.

Engineer: Chris Cuthbert.

Recording Equipment: Atari 1040 computer running Notator software, Akai S900 sampler, Tascam Porta 2 Portastudio, Fostex 3805 cassette multitracker, Fostex R8 open reel 8-track, Sony DTC750 DAT, Boss digital pitch shifter and SE70 processor.

It is interesting that Andy Brooks of Shebang chooses to portray himself with a guitar in his press photo when his gear list is full of sexy keyboards, such as the Novation BassStation, Korg M1 and Moog Rogue. Being a guitarist myself, I can understand this traitorous behaviour, yet it emerges from his letter that Andy was originally a guitarist and that the defection is actually to keyboards, not guitar!

It is clear that dance music had a bearing on Andy's decision, as his demo is peppered with influences from Bassomatic to Bjork. Vocally, it seems that some of the Gothic scene music Andy listened to in earlier years has left its mark too. Breathily, almost whispered singing with plenty of echo sits low in the mix, almost blending with the instrumentation, and although he brings this off very well, by track four, I'm hoping for a little variation in treatment — perhaps some heavy phasing for example.

I like the way that the backing has been put together — medium-paced and mesmeric in its repetition of phrases, yet still with clear dynamics. Some synth countermelodies are dubbed into the mix to sit with the vocals and lift the music for what are, I suppose, understated choruses. I also like the uncluttered dance grooves and the general warmth of the sound. Given the soft nature of the voice and its intentional low place in the mix, this seemed to me the perfect backing. □

PULSE

Recording Venue: Home.

Recording Equipment: Tascam 488 Portastudio, Shure SM58 microphone, ART reverb.

How ironic that Pulse choose to boldly print the statement 'Pulse — let the music talk' on page one of their seven page document! We are told that singer Gary's passionate vocals soar over the band's 'tight musical arrangements', and the phrases 'instantly accessible', 'magnificent' and 'entertaining' dot the text like stars in the sky.

Back on earth, the tape sounds like standard American rock fare recorded with some degree of success, given the Portastudio set up. Live drums, eh? That's a tall order on a Portastudio, but the sound is pretty well balanced, if lacking in treble. The compressed sound of the drums and the sizzling nature of the hats suggest that the levels were high and pushed the Tascam's noise

reduction into a frenzy of side-effects.

The guitar is played with some passion and energy by Dave Corbett, but the sound has obviously been heavily EQ'd in the upper mids. This gives it a spikey quality, which helps the energy but separates it from the rest of the track. Some lower mid added around 250Hz would have homogenised it with the rest of the instruments, especially the bass. The lead guitar sound bears the fizzy hallmark of DI, and while that might suit some music, it doesn't seem to work with American rock/pop.

The vocals are a bit dry and hard-sounding, but singer Gary Taylor has a good voice. Some mid-range cut on the mix, or singing closer to the microphone on the take (with a pop shield of course)



would have helped to warm up the vocal sound.

Musically, the songs are quite catchy and for want of a comparison, a bit like the Spin Doctors in style. I can also imagine that Pulse are quite entertaining live and if this is your musical bag, you should be able to catch a gig in the Manchester area. □

quickies

DAY GLO FISHERMEN: An interesting title for a tape that takes a while to build. The instrumental backing of funk guitar, pad synth bass and drums is handled adequately, even if the guitar is a little low in the mix for my taste —



perhaps that merge of keys and guitar is what they were looking for. Still, that's no excuse for a guitar solo in the wrong key! I know that DGF are

being 'experimental', but sometimes you can just try too hard. On the drum side, I really liked the additional snare. This had a long, heavily EQ'd reverb that gave it a kind of deep-sea diving quality and worked well within the track. The second composition bears some resemblance to serious '80s popsters Ultravox. Eighth-note analogue-style bass synth, drum machine, grand theme on a string synth and a lead electric guitar undoubtedly create this impression. Side two of the tape sounded much more interesting, with some genuine and successful attempts to push the synth gear and effects to the max. However, you can do far stranger things to a guitar with a screwdriver and a distortion pedal than anything I heard the guitarist do on this tape.

SPHINX HOLOTRONIC: Here's a tape from a South African band that is genuinely experimental, but has an awful tendency to ramble. Industrial instrumentation, interesting sounds and diabolical vocals in the background (made up with tons of delay) are all very creative, but are rather milked to death. The gratuitous *Blackadder*-style guitar break did little to alter the monotony of the opening



track, but the fade-out with auto panned swirling chords, was a nice redeeming touch. 'Bloodbath' is the title of

the second composition, and this anarchic mix of distorted vocals, frantic keyboards and guitar noise is pretty disturbing. Not a bad sound for an Fostex X15 either, which is a pretty minimal machine.

ALPHAWAVE: Believing that ambient should be a very wide category, Alphawave's Joski has sent three quite different tracks. The first is more trance dance, using up-tempo, hypnotic repetition of phrases. Slow, rhythmic filter modulation enhances the hypnotic effect, and some melodic string lines are added. It seems a bit manic for true trance dance, but that's just a matter of taste, of course. The second composition has some



wonderful synthesized underwater and surf sounds that perfectly match the title, 'Solar Substance Sea'. Excellent programming from Joski borders on the dangerous in places, with deep sea discords and a fine grasp of watery grave reverb. Finally, the ace Novation BassStation is brought into the limelight, for 'Uncivilisation'. This manages to sneak into the ambient category, with some fine Korg DW8000 programmed sounds, but is verging on the aggressive with the drum programming. Perhaps a little upper mid EQ cut would be in order to mellow those drum voices out?

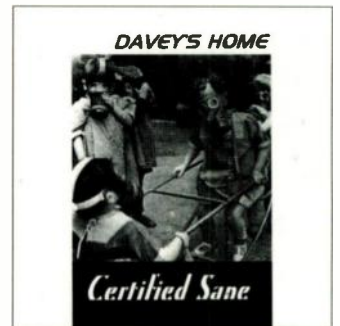
S O'NEIL: I once went through Thetford, home town of Mr O'Neill, but sadly I can't remember much about it. Yet this tape proves

that there is life and talent in the town. The vocals and programming are excellent, but the influences are rather obvious — one of them being Robert Palmer and his early days messing around with synthesizers. The uptight funk, stabs and punchy rhythm on the opening song complement the vocal style perfectly, but the production is stylistically dated. While the balance of the mix and the sounds are well chosen, I did wonder if the BBE Sonic Maximiser had been overused just a bit on the upper frequency enhancement. This makes for a bit of sizzle in the already digital percussive sounds and creates a lightweight bass end. I guess the bass control could have been adjusted on the Sonic Maximiser to compensate, but using less on the top end would be the right thing to do.

DAB: Oxfordshire-based Dab are seeking work writing and producing jingles and music for film and TV. The music on the demo contains elements of this, but also shows their interest in dance music. Technically, the tape sounds a little dull, and although the instrumentation is there in the form of hi-hats and synth sounds, it lacks presence. This is not helped by the heavy mix of bass synth and kick drum. In its favour, the tape has a mellow, warm feel which is helped by the occasional touch of clean guitar. Perhaps the Duane Eddy style hinted at could be developed too. Given the length of the compositions, this is not a tape I would submit to jingle or TV companies. Shorter pieces and strong themes are what they require, so perhaps some edited highlights of this demo would be more appropriate.

DAVE MILNER: *Certified Sane* is the title of Dave's CD. An eclectic journey through different styles, but always held together by the continuity of his gravelly voice. No doubt it's been commented upon before, but he doesn't half sound like that bloke who sings for the *Crash Test Dummies!* The attention-grabbing 'Mess' begins the CD with some crunchy electric

guitar — a sound that suits the mood of the songs and their subject matter very well. Other songs change the mood with the use of synth and drum machine,



which has the potential to sound tacky, but avoids the trap with some cunning rhythmic twists in the programming, and that sad, gravelly voice. Some of the sounds are a little on the dry side, but this 'in your face' production suits the songs.

JUDY JOSLIN: Judy has been working on these songs with Dave Warren, a Demo Doc regular. Taking a basic acoustic guitar and voice arrangement, Dave does a decent job in the production department with his trusty Atari. He is also aided by partner in



crime, Keith Hobbs, on guitar. I think that the second song, 'Painful Words', is the best, where some

production opportunities could be picked up on. For example, the backing vocal section where Judy is tracked-up on the line 'I need you here by me' could have more presence and extra reverb. Sometimes the crash cymbals are overpowering and the short decay of the sample a bit too obvious. The tone of Judy's voice is good, and the lightweight backing suits her slightly nervous vocal delivery. Even so, Dave, in his role as producer, should also do a bit of work with Judy on the pitching. □

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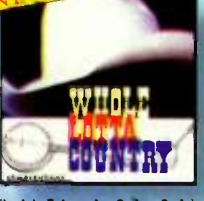


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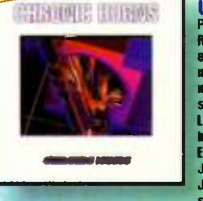
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brief encounters

CONCISE REVIEWS OF ESSENTIAL ACCESSORIES

SOUNDS OK K2000 SOUND SOFTWARE

Programmed by Simon Rae, these four disks from Sounds OK are for use with Kurzweil K2000 and K2500 synthesizers. Two of them are purely keymap/program/effect data, requiring no sample RAM to make use of them. Many excellent patches are to be found amongst the 100 in *Acoustica*. I was particularly taken with some of the plucked string sounds, such as the zither and the guitar/flute patch, which kept me enthralled for quite some time. The brass patches are also pretty good, most notably 'Hot Cookin' Brass', which has some vicious bite at higher velocities that I had not previously heard from a K2000. Both solo and orchestral strings fare well too — the inspiring 'Film', with its control slider phase-shifter, has gone straight into my main work bank! Anyone building a library of general acoustic and orchestral sounds should find much to their liking here.

Vintage to Modern aims to provide a selection of 100 synth sounds,

ranging from old analogue simulations to modern digital textures. This is the best disk of the four in my opinion, making extensive use of the Kurzweil's powerful VAST synthesis engine to produce a wide range of usable material. Highlights for me are the obese 'Larry's Big Moog', and the smoothly evolving 'WS Traveller'. Most of the basses are good, with many offering resonance and cut-off control on the data slider and mod wheel, for TB303-style tweaking on the fly.

The other two volumes, *Matrix 12* and *Vector Waves*, form part of the K2000 Sample Series and, as such, require your K2000/K2500 to be fitted with at least 2Mb of sample RAM. The samples are taken from the MetraSound sample library.

The *Matrix 12* disk was a disappointment. Anyone who has experience of an Oberheim Matrix 12 in the flesh will be well aware of the fat, warm and gutsy sounds of which the machine is capable — and these samples and programs just don't do it justice. I was hoping for more from the *Vector Waves* disk too. Although I'm not naive enough to believe that wave sequencing could be coaxed from the K2000's synthesis engine, I would have hoped for a better choice of samples to avoid the obvious changes in speed across the keyboard. Many of the programs on each of the four disks make extensive and effective use of the K2000/2500's performance controls in changing texture and character — sometimes quite dramatically. The control pedal seems to have been ignored as a modulation source, though this is easily remedied with a quick edit or two.

In conclusion, I'm happy to recommend the *Vintage to Modern* disk, with *Acoustica* arriving a very close second, but the Sample Series are considerably less successful, and even at their lower asking price, I can't help feeling they are best avoided. I hope Sounds OK take this as constructive criticism, since the samples are more at fault than Simon Rae's program construction. *Paul Ward*

FURTHER INFORMATION

- £ *Vintage To Modern* and *Acoustica* £29 each; *VectorWaves* and *Matrix12* £19 each. £2 p&p per order. Prices include VAT.
- A Sounds OK, 10 Frimley Grove Gardens, Frimley, Surrey GU16 5JX.
- T 01276 22946.
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PORTASOL TECHNIC GAS SOLDERING IRON



Behind every smooth-running studio is a man with a soldering iron, and when you're working in a cramped corner or with your head stuck inside an equipment rack, the idea of a cordless soldering iron seems very attractive. There are a couple of butane-powered, cordless irons on the market, so I decided to treat myself to the Portasol, which is available from Tandy for around £20. This particular model can operate for up to one hour on a quick fill from standard butane lighter fuel.

At the heart of the iron is a catalytic heater, which forms part of the bit assembly. When you change the bit, which costs around six pounds, you get a new heater. The whole iron is designed to look rather like a fat ballpoint pen, and a flint and wheel spark mechanism is fitted to the end of the cover. This is used to light the butane, although within a couple of seconds the flame is gone, and all that's left is a warm glow from the heater. A few seconds later, and the Portasol is hot enough to use — much faster than most electric irons. When you want to finish work, a slide switch shuts off the gas supply, and the switch is held in the off position when the cover is fitted.

At the base end of the iron is a rotary heat control, which gives a range nominally equivalent to a 15W iron when on minimum, and around 50W on maximum. This is a very useful feature, as you can use low settings for soldering ICs or other small components, and higher settings for wiring connectors. I had no trouble wiring heavy banana speaker plugs with this iron.

Having used the Portasol a few times now, I can confirm that it works every bit as well as a typical electric iron, while it's portable enough to keep in your gig bag for dealing with faulty leads on the road. I wouldn't be without it now. *Paul White*

FURTHER INFORMATION

- £ £20.02 inc VAT.
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Bubbling Hot

MOOG SOURCE SYNTHESIZER

*Squelchy as a Minimoog
and programmable as a PC,
it's time to re-evaluate the
Moog Source — so says
STEPHEN BENNETT.*

There was a time when the name Moog was synonymous with synthesizers. Had the company remained the only player in the market, the verb 'to Moog' might have achieved common currency, along with

on mine as it was waiting to be loaded into its flight case at a gig. A quick rinse with water and it was right as... er, rain. Disgusting, but true.

WHAT IT IS

The Source is a monophonic analogue synthesizer with two oscillators per voice, a noise generator, a self-oscillating filter and two envelope generators. The keyboard is a light, 37-note C to C type, and there is an octave up/down switch next to the modulation and pitch wheels. The two oscillators can be set at three fixed, roughly octave-apart pitches, and oscillator 2 can be fine-detuned to plus or minus an octave.

though these are called 'contour generators' on the Source. The final link in the signal path is the ADSR controlling the output amplifier. The Low Frequency Oscillator (LFO) has triangle and square waveforms, and can be applied to the VCOs or to the filter, but you can't use it as a third oscillator, as you can on the Minimoog. The performance panel has the Moog-type, non-sprung modulation and pitch wheels — and very nice they are too.

The main feature which sets the Source apart from other monophonic synthesizers of its day is its programmability. The Source was, I believe, the first synth to use the parameter access system of programming which is so ubiquitous today. Before the Source, each parameter on a synth had its own knob or slider for setting the value. On the Source, as you choose the parameter to be edited, its value appears in the LED display. You then you use a continuously rotating knob to change this value.

The Source's 'alpha dial' is a very interesting device in itself. It uses a bar code-type widget set around the spindle of the knob, like a skirt. An optical reader measures the direction and amount of movement of the dial. It also has a really nice spin, in keeping with the overall 'quality' feel of the Source. Remember, this was 'state of the art' in the early '80s! Edited patches can then be stored in 16 memory locations, and these can be dumped to cassette tape. More echoes of the Sinclair ZX!

CLEVER BITS

The innovations on the Source continue with the synth's method of promoting pitch stability. Analogue VCOs (Voltage Controlled Oscillators) are renowned for their inability to stay in tune. This is mostly, as long as high-quality parts are used, due to the changes in ambient temperature affecting the components



Photo courtesy Museum of Synthesizer Technology.

Hoover and Sellotape. I remember someone coming up to me at a gig and asking, "Is that Moog you're using an ARP?" With its oscillators, mixer, filter and amplifier, the Minimoog's signal path blazed a trail for a generation of analogue synths. Moog's reputation for innovation was well deserved — nowhere more so than in the subject of this retrospective review, the Moog Source.

The Source is a strange beast to behold, its tasteful, wooden end cheeks paired with a rather 'dayglo' front panel. The switches are the flat bubble type you may remember from the Sinclair ZX81. Believe me, this panel is impervious to liquids. Someone once urinated

There are three waveforms on each oscillator. These are sawtooth, triangle (which is very smooth and almost a sine wave) and square wave. The latter has an adjustable pulse width, but this cannot be modulated in any way.

The oscillators can be sync'd together, and have that typical Moog 'distorted' quality at their maximum level. The outputs of the two oscillators can be mixed together and sent, along with a variable white noise source, into the voltage-controlled filter (VCF). The filter cutoff can be set to open up as you play higher up the keyboard, and has its own Attack, Decay, Sustain and Release (ADSR) controls —

WHAT'S IN A NAME?

One of the many arguments of the trivia-hounds is the pronunciation of Dr Robert Moog's surname: does it rhyme with 'fugue' or 'vogue'? I remember that in the late '70s, there was an advertisement that went something like, 'Be in vogue — buy a Moog!'. So there you have it, proof positive. Another clue might lie in the fact that Moog Inc never produced a synth called the 'Moog Fugue'...

making up the VCO. When I played a Minimoog live, I had to retune the bloody thing every 20 minutes, otherwise the oscillators would be playing a fifth apart by the time the encore came. Moog tackled this problem on the Source by raising the internal temperature of the synth to about 35 degrees centigrade. As a result, the Source runs very hot indeed, and as it bears a passing resemblance to a ceramic hob, it's tempting to try and fry an egg on it during those long overnight sessions. Despite this, I have to say that having the synth run that hot seems to work — mine stays pretty much in tune.

There are a few other features on the Source, aside from the sound generating part. Firstly, there is a nice, if unsophisticated arpeggiator. Just press the arpeggio switch, hold a few keys down, and the arpeggiator goes off cycling around them. You can apply sample and hold to both the pitch and filter cut-off, for those Radiophonic Workshop 'Bleep and Booster'-type sounds. There is also a very simple and virtually useless sequencer. The Source was (just) pre-MIDI, and the only controller inputs are gate trigger and control voltage, using the Moog standards of S-Trigger and a 1 volt/octave control voltage (CV). Only the pitch of the instrument can be controlled by CV, though there was apparently a later model produced for a while, which had a

WHAT TO LOOK OUT FOR WHEN BUYING

The Moog Source is quite a rare instrument. When it was introduced in 1981, its price was about the same as a good polysynth, and consequently it was not a very big seller in the UK. This is reflected by the limited sources of second-hand Sources. The Source used some very new technology for the time, such as microprocessors, specialised chips and so on. This means that getting the Source serviced could be a problem. Having said that, mine has worked perfectly for the past ten years. Check any specimens

out thoroughly. Unless the parameters change correctly, all the keys work and it stays in tune over a period of about an hour, I would recommend you decline the offer — unless it's going very cheaply, of course!

A quick trawl through back issues of SOS brought up only a couple of Sources in the last two years. Both were going for about £300 which, considering the inflated prices of some inferior-sounding analogue monosynths, seems a pretty good buy to me.

primitive MIDI specification and, I believe, a filter CV input. I have to say I've never seen one, however. My Source works perfectly well with a MIDI-to-CV interface.

WHAT DOES IT SOUND LIKE?

The Source has the 'classic' Moog sound: a dirty, warm low-pass filter, and those rich oscillators. The sound oozes quality and class; the lead lines sear, and the bass is deep and squelchy. To my ears, when it was side by side with a Minimoog, the Source sounded identical, so long as the Mini was using only two oscillators. It is definitely a richer-sounding synthesizer than the Moog Prodigy or Moog Rogue — and it's programmable!

With the current fascination for analogue

monosynths, and considering the fact that some machines are fetching really silly prices, the Source is an inexpensive way to get 'that sound'. If you can track one down, it's perfect for deep, floor-shattering bass and the kind of lead line once favoured by Stevie Wonder (and more recently, Jamiroquai).

The Source's only real drawback is that you can't get very 'thin' sounds on it — like you can from some Roland monosynths. This baby sounds mean all of the time [*what, like it's lost its rattle?* — Ed]. While other synths become 'must haves' (or 'wouldn't be seen dead with'), the Moog Source watches from the sidelines. For me, it's a very tasty piece of analogue history. So if you see one, do consider it. This synth is 'hot' — quite literally!



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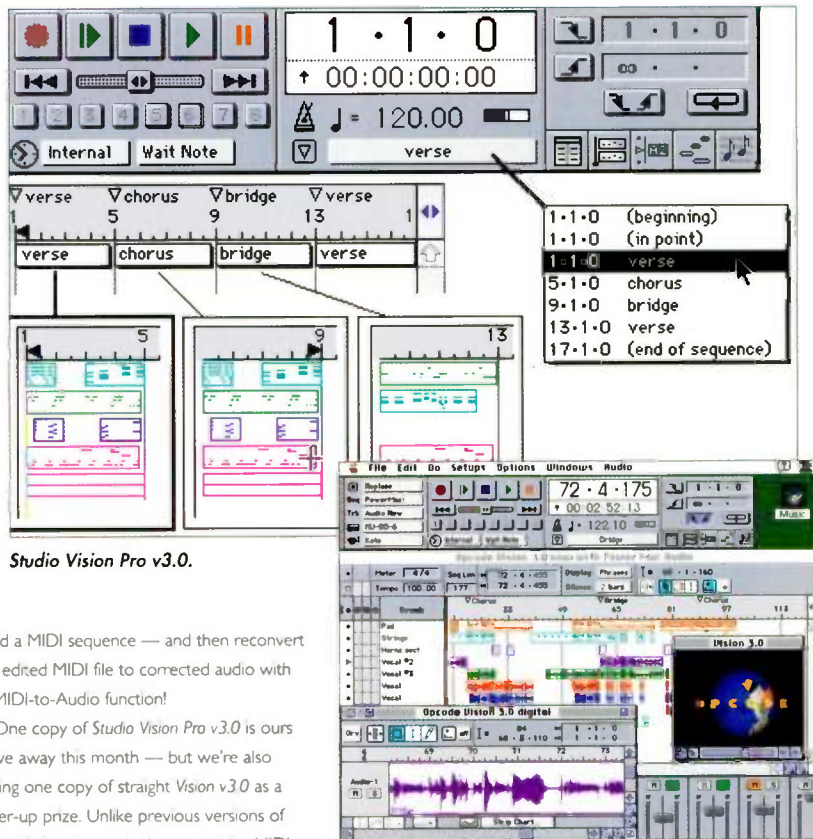
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If you agree it's time you resolved your MIDI life crisis, don't delay. Just answer the four not-exactly-taxing questions below — all the answers are to be found in Martin Russ's review on page 68. Then complete the tiebreaker like the masters of wit, erudition and repartee you all are, and send it off to the address below, to arrive no later than the closing date: **Thursday, April 4th.**

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Please note that if you have no additional digital I/O hardware, you will need an AV Mac or Power Mac if you are to record 16-bit audio with either Studio Vision Pro v3.0 or Vision v3.0.



Studio Vision Pro v3.0.

Vision v3.0.

the small print

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QUESTIONS

1. Which librarian is bundled with Studio Vision Pro v3.0?

- a. Dr T's Xor
- b. Opcode Galaxy
- c. Opcode Milky Way
- d. Opcode Mars

2. Studio Vision Pro v3.0 incorporates Opcode's OMS 2.0. What does this stand for?

- a. Office MIDI System
- b. Omithologists' Meeting Saloon
- c. Open Music System
- d. Okapi Minding Service

3. Which incredible Studio Vision Pro v3.0 function allows you to convert a monophonic

audio line into MIDI data, complete with velocity and volume information?

- a. Audio to MIDI
- b. Audio to Mini (Clubman)
- c. Audio to small hippopotamus
- d. Audio to Asparagus

4. What do you need if you are to record 16-bit audio when running either Studio Vision Pro v3.0 or Vision v3.0 on your Mac without additional digital I/O hardware (such as that from Digidesign or Yamaha's CBX recorders)?

- a. Ken Dodd's Twizzle Stick
- b. Apple's Sound Manager v3.0 or later
- c. An AV Mac or Power Mac
- d. A poultry farm in Dorset

TIE-BREAKER

Using *Studio Vision Pro v3.0* with a Pro Tools III TDM system allows you to bring many of the processing and effects options of a traditional studio into your Macintosh, in the form of software plug-ins. If you had a TDM system, and you won this competition, what software plug-in (real or imaginary) would you find most useful, and why? Please describe name and function in not more than 30 words.

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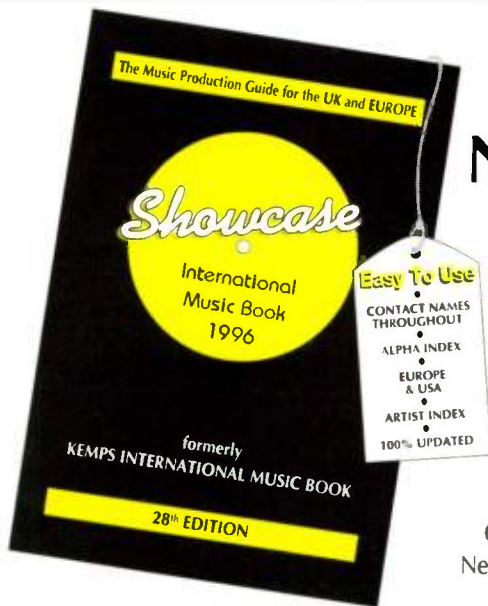
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YAMAHA GS01 analogue monophonic micro synthesizer. Mint condition. Battery or mains. Resonant filter. Gate and CV inputs. The only analogue mono with breath control interface. Built-in amp and speaker. Manual. → 01535 645233 (W Yorkshire)

YAMAHA KX88 professional master keyboard, excellent condition, home use only, boxed, manuals, accessories. £850 one, Yamaha TG33, 32-voice, 16-part polyphonic MIDI sound module with effects, excellent condition, home use only, boxed, £320 one → Sean 01245 264524
YAMAHA PFP100 digital stage piano and mother keyboard. Domestic use only. 88-note weighted action. Stereo sample and 32-note polyphonic. As new. £999 → 01822 853118
YAMAHA PSR500 keyboard, foot pedal, stand and headphones included. MIDI cables + software for Amiga. Worth £600 altogether. Sell for £225 → 01283 536379 (Barton)
YAMAHA PSR700. Still boxed and in excellent condition. Cost £1,400, offers or exchange for good synth → 0171 795 6247 (London)
YAMAHA PS5480 keyboard. MIDI In and Out, mini keys, stand (folding), 100 voices styles, built-in sequencer, amp and speakers, stereo output. Bargain, £65 → 01884 257487 (Devon)
YAMAHA QY20 Perfect condition, paid £450, bargain at £225 No offers → Paul 0181 813 7268 (Hays)
YAMAHA RY30 and RM50 FX, drums and percussion soundcards, £15 each → Aaron 01458 253401 (Somerset)
YAMAHA SY22, Kawai K4R with sound card, Evolution ES1, Yamaha DX100, Aless SR16 for sale as separates or package deal. Sensitive offers → Glen 01203 226366 (Kent)
YAMAHA SY22 keyboard. Excellent condition, boxed plus manuals, £250 → Andrew 01203 384848 (Warks)

YAMAHA SY33 Vocoder synth. Great sounding keyboard in as new condition, comes boxed with manual and PSU, £330. Roland JV30 synth, £375 → 01202 770601 or 765841 (Bournemouth)
YAMAHA SY55 8-track sequencer, 35 multi-effects £400 → Ben 01395 442138 (Devon)
YAMAHA SY77 Excellent condition, boxed £600 → 01765 603925 (Yorks)
YAMAHA SY77 £625, Roland U220, £275 → Lewis 01782 513236 (Stoke On Trent)
YAMAHA SY85 Built-in sequencer and drum machine, hundreds of sounds, RAM card included, £600 one → Craig 01202 763634

YAMAHA SY85 workstation, manuals, original box, extra sound discs, quicklock stand, semi flightcased. Unforeseen disaster forces regrettable sale. £700 → Malcolm 0378 187772
YAMAHA SY85 card cards, £685, Kawai K4R filters, reloaded, £225, Kawai KSM addition synth, £275, Roland WX50, £645, Foster Mixtab mixer, 16-channel, autoated, £280. Bargains → 01261 832898
YAMAHA TG33 3 years old, boxed with manuals, Orla DMK7 master keyboard, 5 octaves. Both with cables and MIDI leads. £300 for both → Mark Pro 0973 548529
YAMAHA TG100 tone module, 16 channel, 28-note polyphonic, General MIDI standard. Home use only, £230 → Jeff 0117 927 6229
YAMAHA TG500, Roland A30 master keyboard, £280, Soundcraft Spirit Folio 12.2 mixer, £325. All with manuals → 0385 547273 or 01692 405332 (Norfolk)
YAMAHA V50 FM workstation, 16-note polyphonic, 8-part multitimbral, 8-track sequencer with disk drive, home use only, excellent condition, £470 → John 0973 132872
YAMAHA VLT Physical modelling synth, boxed, as new, under guarantee, swap for either Waldorf Microwave, Roland MK580, Eric Urdropouts or Wavestation AD, → Tony 01473 685573 (Suffolk)

RECORDING

AKAI ADAM digital multitracks, two available, fully professional machines, original rp £15,000, 12 tracks per machine with additional time tape, full function autolocate, uses 8mm video tape, £1,850 for one machine or two for £3,500 - about the price of a new ADAT for 24-track digital audio → Justin 01767 631544 (Beds)
AKAI ASK90 8-channel audio-to-MIDI trigger module for 5900 sampler, new, still boxed, unused, cost only £150, bargain at £60 or swap → Ricky 01482 448767 (Hull)
ALESIS 1622 mixer and Fostex 16 4-track. Both boxed with manuals, excellent condition, £380 and £200, 120+100 semi-flightcase racks, £110 + £90, Oberheim Matrix 6R with manuals, £500, Cheetham M56 module with manual, £250 → 01825 724093 (East Sussex)
ALESIS 3630 compressor, boxed with receipt and guarantee, 3 months old, Stryat 44MB hard drive in own box plus 5 cards, Saw 5.1 8-track hard disk recorder for PC, plus utilities rack, brand new with manuals and receipt, Cubase 2.61 plus patch, manual, £1,500. Make me an offer on all of them → Paul 01302 238304
ALESIS DATADISK, £100 one → Alex 01223 324442 (Cambs)
ALESIS MICROVERB III AS new, boxed £110 → Neil 02146 570351 (Nr Sheffield)
ALESIS MIDIVERB 2 Formerly owned by Glen Tibbcock (Suzque), very good condition, £90 → Andy 01203 384848 (Warks)
ALESIS MIDIVERB 2, £120, ART LTX, £110. Both excellent condition → 01243 830697
ALESIS MIDIVERB 3 boxed with manuals, £150 → John 01923 490022 days, 0181 950 1876 (vevs) (Herts)
ALLEN & HEATH GS1 Pristine, £650, P&B P848 patchbay, £40, J1 Cooper PPS2, £70 → Terry 01420 84030 (Hampshire)
ANCRON 300A amplifier, 300W per channel, ideal for studio monitors, excellent condition, £250 one → Richard 01753 833221 (Windsor)
BELL BFD02 stereo fanger chorus. A classic piece of sought-after world-class top quality analogue equipment in immaculate condition, £450 → 01482 448767 (Hull)
BEYERDYNAMIC wireless microphone system. Top of the range, complete, still boxed, unused, £500, Beyerdynamic headset microphone and belt pack, mint condition, £250, Sennheiser flesh coloured headset, very special, a one off, £200 complete → Tricia 01482 341278 after 6pm (Hull)
BOSS SE70 multi-effects processor (stereo In & Out) immaculate, £320, Phonic BKX8800 8 2 mixer, £120, J1 Cooper PPS100 synchroniser, £120. All excellent condition → 01933 678608
CASIO D47 portable DAT machine, including case. £300 one → Sean 0171 221 7274
DIGIDESIGN STUDIO MEDIA II with sound designer 2.8. External 125MB hard disk and Suave2 backup system, £850 one. Can split → Steve 0171 594 7523 for details (Kent)
ERNEST TURNER BCX PPMs 4x3" with driver PCBs, balanced, £100 pair, XP1 SX2 original vitaliser, balVar, in/out, separate channels with bar meters, stainless steel case, £350 → Alan 01379 676670 (Norfolk)
FOSTEX 16:2 rackmount mixer, £250 → John 01923 490022 days, 0181 950 1876 (vevs)
FOSTEX 3805 multitrack recorder with Dolby S noise reduction including a 12-channel mixer section. In mint condition, boxed, £550 one → Paul 01903 732710 (West Sussex)

FOSTEX 4B8 MkII 8-track cassette-based multitracker, vgc, still boxed, must sell. £600 one → Mel 0181 764 8963 evenings (London)
FOSTEX R12 12-input studio mixer with MIDI muting, £450 one → Alex 01223 324442
FOSTEX B12 mixing console 12 mic/line + 12 tape + 6 aux inputs to 8 subgroups. Offers around £600. Original packaging and manual. Modular channels. Home studio use only. Faultless → 01788 571623 (Midlands)
FOSTEX B12 mixing desk. Home use only, £400 one → 01703 869792 (Hants)
FOSTEX B12 recording mixer, comes fitted with 120 MIDI mute option, mixer used only three times, boxed, as new, £650 → Keith 01823 321675 (Taunton)
FOSTEX S010 Timecode generator and timecode reader. Ideal companion for Fostex 4030 synchroniser. Excellent condition, boxed with manual, £300 → 0171 793 7376 (London)
FOSTEX B16, £1,350, Aless AD4 (A 03), £1,850, Aless RC8, £945, Korg X3, £785 → 0181 462 6261 (Kent)
FOSTEX B16 16 track, loom and tapes, well maintained, some VU meters not working hence £1,300 → 0161 292 1547 or 0385 786830
FOSTEX E16, £1,600, Studiomatic Series II 16 16 2, £800, Oberheim M1000, £300, Tascam 4-channel parametric, £180, Drawmer LX20, £160, Aless 16 2, tatty but working, £150, scmltior, £50, 48-hole patchbay, £50 → 01977 620514 (W Yorks)

FOSTEX E16 half-inch 16-track tape recorder, home use only, with reels of tape, £1,500 → 01302 832420 (S Yorks)
FOSTEX E16 plus 4500 autolocator, £1,500 one, Fostex 4030 synchroniser, £300 one → Danny 01294 215529 or 01294 221903
FOSTEX G16S A1 condition, less than 1 hour's recording, Allen & Heath G53 mixer, also top notch. Genuine reason for sale. £5,000 plus looms and tapes → Alwyn 01222 225501
FOSTEX G245 with 8330 synth board, home use only, excellent condition, £4,000, no offers → 0181 521 4491 (London)
FOSTEX M80 20 hours use - honestly! £650, Philips DCC600 and 20 tapes, £200, XRI Systems sync unit, £130, Ram 10.4 2 mixer, £200. All new → Roger 01708 477987 (Essex)
FOSTEX RB multitrack tape recorder, good condition, complete with remote extension cable and 19-inch rack mount kit, £700 one → Philp 0181 348 9932 (London)
FOSTEX RB, £900 one, Studiomatic Proline GD mixing desk, 16 B 16 2, £900 one, Studiomatic Star 8-buss desk, £400 one (cost £1,000 new), Korg Wavestation, £600 one, Roland SP08, £300 one, Boss SE50 effects unit, £200 one, Aless Quadraverb V5, £245 one, Aless Midiverb III, £145 one, Aless 3630 compressor, £200 one, AKG C10005 microphone, £100 one → Paul 01299 822517 (Worcs)
FOSTEX RB 8-track tape recorder, good condition with looms, box and manual, £800 → 01223 234890 (Cambs)

FOSTEX RB plus Seck 12 8 2 plus jL Cooper SMPTE loom, manuals, all sparkling in condition, £1,350 → Kevin 01325 284414 (Darlington)
FOSTEX RB approx ten hours use, boxed, has been left on shelf gathering dust so might as well sell, £1,100 → Nik 01273 601648 between 12-8pm (East Sussex)
FOSTEX RB with remote extension and Studiomatic Proline GD 16 8 16 desk with loom and manuals. Home use only, good condition, professionally maintained, £1,700 one → Ernie 01702 471114 (Southend)
FOSTEX RB with MCT1 Excellent condition, boxed, £850 → 01822 852274 (Devon)
FOSTEX RB MCT1 rackmount kit, 6 x new Ampex 456, little used machine, £850 one → Terry 01424 28400 (Hampshire)
FOSTEX XR5 4-track recorder with manual, 9 months old, excellent condition, £280 → Kevin 01892 665062 (East Sussex)
FOSTEX XR7 4-track, twin speed, six inputs, EFX feeds, pitch control, Dolby C, punch in/out functions, MIDI sys, hardly used. Buyer collects, £325 → 01522 544307 (Lincoln)
J L COOPER PPS1 MIDI-MIDI synchroniser, unused, £40 → Colin 01473 225653 (Ipswich)
KLARK TEKNIK power monitors, £650 one, Broadcast 3-way speaker switching with ppm metering, £195 one → 0121 382 6121
KORG DRV1000 digital reverb, Boss RE1000 digital echo. Both with manuals, studio use only, quick sale, £50 each → Mark 01732 360593 or 362215 (Kent)

MACKIE 1202 Pristine condition. High quality, 12-channel, noiseless mixer. Comes boxed with instructions and proof of purchase. £200 → Jason 01703 095108 (Southampton)
MACKIE CR1604 16-track mixer for sale, in very good condition, 8 months old, boxed, manual, £600 one → Jim 01727 764071 evs
MACKIE CR1604 mixer, £600 one, Boss DRE60 drum machine, 808/909 sounds, £260, Novation Bass Station, as new, £250 → 0181 883 458 (London)
MARANTZ PMD740 6-channel, 4-track, multitrack, £500, Peavey dynamic system controller, offers. Both brand new, boxed, manuals → 01203 440083 (Coventry)
PEAVEY QFX 4x4, four independent programmable multi-effects units in a 1U rack, was £889, as new, £300 → Steve 0151 521 7699 (Liverpool)
PHONIC BKX8800 8-channel stereo mixer, £135, Fostex X28 multitracker, £225 → Damien 0956 126629 (London)
SAMSON MPL1502 mixing desk, high spec, 3 months old, mint, under guarantee, boxed, £195, BBE 362 Sonic Maximizer, boxed, mint, manual, £145 → Dave (eves) 0191 372 2621
SANSUI WX51 cassette-based 6-track recorder/mixer with 2-track mic down. Good condition, £500 → Roy 01353 740011 (Cambs)
SECK 12:8 2 mixer 12 mic/line tape inputs with inserts, 8 group outputs, 48V phantom power, 2 aux circuits, home use only, £450 → David 0181 995 6047 (London)
SECK IB:8 2 desk with PSU just been serviced, excellent condition, many features. Must sell, another desk on its way, £800 one → 01983 614327 or mobile 0402 101886 (Ile of Wight)
SECK IB:8 2 mixer, good condition, ideal for home studio, £550 → 0161 292 1547 or 0385 786830 (Manchester)
SIMMONS SPM 8:2 MIDI programmable mixer, £150, Aless Midiverb, £70, Aless Microlimiter stereo compressor, £70, Paul 01703 695383
SOUNDCRAFT 24-3 Spirit Live mixing desk, flightcased, EDAC into 320way multicore (50m) and 24/6 stage box, £1,450 Will split → Julian 0860 488822 day, or 0116 259 2402 evenings
SOUNDCRAFT 6000 series 32 16 2 split console, EQ+Aux on monitors making 48 inputs on mixdown. Immaculate with stand and cover £3,995 → Michael 0181 332 6421 (Surrey)
SOUNDRACKS IL3632 mixing console with patchbay and Trakmix II automation. Absolutely stunning condition. £1,450 → Stuart 0181 672 7867 (London)
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STUDIOMASTER DIAMOND 16 2 mixing desk. One week use only, as new, boxed, £320 one, Aless Microverb III, £110 one, as new, boxed → Neil 01246 570351 (Nr Sheffield)
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TASCAM 32 2-track mastering machine, as new, with tapes, £450 one → Andy 01633 613342 (Gwent)
TASCAM 22:2 reel master recording recorder, £375 one, Boss RRE10 digital reverb, Boss RBD10 digital delay, both £80 each. All items in very good condition → 01276 61746 (Surrey)
TASCAM 428 2-track, 10 hours per quarter-inch Tascam 'MIDizer' MTS1000 synth + 1/8 100 parallel I/O cables for Sony U-matic. Tascam recorders. Sony V65630 U-matic recorder. ADA guitar preamp and foot pedal. G&K guitar preamp CPL2000. Tascam 2-ch dbx noise reduction 1-inch, 2-inch, quarter-inch, half-inch tapes, with 2000 Swaps, Ken-1451 870795. 0430 301872
TASCAM 238 (42) dbx 8-track cassette decks and Tascam MIDizer remote control machine locker and SMPTE time code generator, with manuals, £1,600 one. Gives you 14-track recording and MIDI locking with low tape costs → Mick 0121 525 1832 (West Mids)
TASCAM 244 Very good condition, boxed, manuals, £250 → Mick 0181 292 4181
TASCAM 424 4-track, boxed with manual, 15 hours use, excellent condition, £350 one → Oliver 01268 554375 (Essex)
TASCAM 424 Postastudio 4 tracks, 8 inputs, Fantastic machine, mint condition, £400 → Jez 0171 738 3206 (London)
TASCAM 488 Postastudio, 8 tracks, dbx, excellent condition, Tascam sync unit, manuals, £675, Atan STFM 2 5Mb RAM chips, £85 one → Brian 0171 511 1901 (E London)
TASCAM 644 MIDI studio, £350 → Mike 01744 735567 (Merseyside)
TASCAM DAB8 digital recorder, mint, 80 hours only, boxed as new, £2,700, Tascam DA30 DAT recorder, £550 → 0116 244 8969 (Leics)
TASCAM MSR 24 1-inch 24-track recorder, boxed as new, immaculate, with tapes, £2,700 one → Andy 0121 605 6082 (Birmingham)
TASCAM MSR 16 dbx track recording with RC416 remote unit. 1 Beyer mic stand with extensions. 1 DA30 DAT machine. 1 Teac 2000R 2-track reel-to-reel auto reverse + dbx 1 Seck 18 8 2 mixer desk layout, monitor, £500. 1 Yamaha A100 monitor amp. 1 BBS100 mono speaker. 1 Aless 360 comp/limiter. 1 Peavey Univerb II reverb. 1 Beyer MIC108 TG top electret mic. 1 Beyer MPC 60/3 concision boundary mic for piano. 1 Beyer H81 headphone amp. 1 10U + 10U tape and outboard rack with all units fitted into it (rack on wheels) plus general accessories, tapes etc needed for running a studio. Viewing can be arranged for serious buyers. Installed in 1993 and price negotiable. Some items willing to split → 01706 355930

TASCAM PORTA 07 4-track, mint, £250, Sony MZ01 mini disc player recorder, leather case, power supply, £250, Yamaha DX7, flightcase, 2 ROM cards, £260, £320 → 0923 25822
TASCAM TS8R 8-track half-inch tape with dbx. Little home use, £1,000, no offers, Celestion compact monitors, SR model, 100W, 5-inch speakers, £125 → 01942 817927 (Lancs)
TASCAM TR58 Excellent condition, home use only, low mileage with manual, £1,100, no offers, Aless Quadraverb, £200, JBL speakers, Primal 125, 80 Watts, £250 → 0181 672 0073
TOTAL AUDIO CONCEPTS (AMEK) 16 2 2 mixing desk. Great sound, great EQ, great condition, £850, also Simmons SPM 8 2 mixer, autopan etc, with manuals, excellent condition, £200 → Andy 01203 384488 (Warks)
TURTLEBEACH QUAD STUDIO 4-track hard disk recording, only £275, Aless Midiverb III, £175, SCSI Quantum 1Gb hard disk drive, £75. Sale due to upgrade → Colin 01865 6054
VESTA FIRE REV1 stereo reverb and SF010 stereo fanger/chorus, rack mounting, as new, £50 each one → Andy 01633 613342 (Gwent)
YAMAHA MT8B 8-track postastudio, new Feb '95, excellent throughout, boxed, manual, £800. Reason for sale - upgrading → Graham 01423 717440 (N Yorks)

YAMAHA MT1205 4-track, high speed, dbx, mint, boxed, manuals, hardly used hence sale, £265, Hughes and Kettner 'Red Box' MkIII, £49 → Dave (eves) 0191 372 2621 (Durham)

SAMPLERS

AKAI 501 Fully expanded, £449, Yamaha TG500, £549, Cubasis Audio, £199. All mint/boxed → 01244 382815 (Chester)
AKAI 5700 with Atan editing software, 60 disks plus 1000 sounds on Atari disks, excellent condition, £350 → Paul 01233 504711 or mobile 0589 669108 (Sussex)
AKAI 5950 digital sampler, fully expanded, immaculate condition, boxed, manual, £699 → David 0171 498 9165 (London)
AKAI 5950 sampler plus 80 sound discs, Sternberg software, MIDI synchroniser for Atari and PC, Roland M2CE mixer with parametric EQ, Roland AB80 MIDI patch bay - merge. All in excellent condition, offers → Banish or Simon 0191 584 4426
AKAI 5950 sampler, pristine condition, boxed, never giggered, £875 → 01323 491683
AKAI 5950 Fully expanded, SCSI interface, 8 outputs, home use only, careful lady owner, boxed with manuals, £750 → 0181 780 9337, 0802 167786 (London)
AKAI S1000 sampler, mint condition, home use only, over 80 sample discs, £995 → Jim Wilson days 01702 466991 (Essex)
AKAI S1000 keyboard, 8Mb, SCSI, 8 outputs plus various sample editing software for Atan plus 1000 samples, £1,700 → Tim 0181 292 3408 (Middlesex)
AKAI S1000 M104 digital I/O, optical and SPDF SCSI interface, 4Mb RAM fitted, 10 outputs, superb condition, £1,400, also wanted Roland SDE330, Roland SRV300, TR909 → Mark 01274 611343
AKAI S1000 8Mb, SCSI, digital I/O, £1,500, Roland Juno 2 analogue synth, £300, Roland U220 2 synth, £300, Roland MT32, £50, Cakewalk Audio, £135, Aless graphic equaliser, £100. Many sample CDs, Time & Space → 0171 351 0075 (London)

AKAI S2800 Immaculate condition, boxed with manual and software, £950 → Gareth 01704 878698 (Liverpool)

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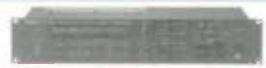
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Rhodes 660	£449	Yamaha TG800	£549	Tascam 488II	£969
Yamaha P100	£1199	Yamaha QY20	£275	Tascam 424	£449
Yamaha DX7	£299	Emu Vintage Keys	£699	Tascam 464	£499
Korg 13	£1399	Emu Ultra Proteus	£999	Studiomaster P7	£1499
Korg 01WFD	£1099	Kawai GMega	£379	Digitech Voc II	£389
Yamaha SY85	£765	Roland U 220	£279	Fostex XR5	£299
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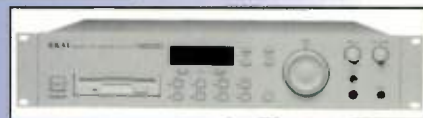
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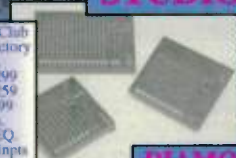
It is impossible for us to list our entire stock of mixers. Please call for details on Soundcraft, Tascam, Yamaha & Samson.

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AKAI S2800 10Mb, as new, boxed, loads of disks, £1,100 → 0116 244 8965 (Leics)

CASIO FZ1 16-bit sampler plus large library, £450 → Steve 1995 441513 evenings and weekends (Middlesex)

CASIO FZ1 1Mb, boxed with manuals and disks, £575 → Nik 01273 601648 between 12pm - 8pm, or Rod 01273 685340

CASIO FZ1 sampling keyboard Fully expanded £395, Kawai K4 synthesizer, extra sounds, £295 Both with manuals → John 01923 490022 days, 0181 950 1876 eyes (Herts)

CASIO FZ1 Digital sampler/synth keyboard, 16 bit, 8 Out, 2Mb Good condition, £450 → 0973 466336 (Nottingham)

CASIO FZ1 16-bit keyboard sampler, good condition, £375 ono → Alstair 01223 322442

EMU E64 10Mb, 4 months old, home use/boxed £2,050, or demo/2Mb £1,900 → James 0181 980 9262 (London)

EMU E5132 sampler, excellent powerful machine, boxed as new, great dance machine, £940 → Graham 01234 217964 (Bedford)

EMU E5132 2.10 software unopened, instructions, features over 17 improvements, £300 ono or swap for CD-ROM player or 4U flightcase or copy Emu library E5132 → Jason 0181 904 4782 (London)

EMAX SE with 5-octave keyboard, 44kHz, sample rate up to 52 seconds, analogue and digital processing, 50 diskette library, manuals, boxed, home use only, £425 → 01782 714480

EMAX II TURBO Stereo sampling keyboard, 8Mb RAM, 210Mb Connor hard disk, resonant filters, excellent condition → Paul 01527 550135 (Redditch)

EMAX sampling keyboard Excellent condition, 5-octave keyboard, 42kHz sample rate, 16-track sequencer, 8 outputs, 60+ disks, £700 ono → North Warwickshire College 01203 349321, Simon ext 2234

ENSONIQ ASR10 4MB RAM, library, sample tapes, boxed, stand, manuals, £1,450 ono, Forest 3805 multitracker, Dolby S, boxed, manuals, microphone, stand, £450 onvo. → Rob 01782 395624 or 0850 395187

ENSONIQ ASR10R 8 outputs, 16Mb plus 350Mb SCSI hard disk, 8 samplers, 3x 50 fs plus stereo resampling and direct-to-disk software, reads Akai and Roland disks, £1,795 ono → Steph 0116 747 8334 (Worcester)

KORG D551 sampling keyboard £650 ono or swap for M1 or 8-track Dimension D, £400 Sony TCK615, £200, Forest 350 8.4 2 mixer, £220 → Eddie 0171 263 3919 (London)

ROLAND 510 sampling keyboard, perfect condition, home use only, with manual and disks incl Roland library disks, £300 → Darryl 01724 859490 (Humberdside)

ROLAND S330 → Bruce 0181 292 0495

ROLAND S760 sampler, excellent condition, boxed with manuals, £999 → Ian 01376 344807 after 7pm (Essex)

ROLAND S760 sampler, 10Mb RAM with 100Mb Zip drive plus two disks, £1,500, Novation BassStation, £280, All with manuals → 0385 547273 or 0692 405332 (Norfolk)

ROLAND W30 sampling keyboard with large sound library, perfect condition, £700 or swap for Roland W50 → Phil after 5pm 01302 742084 (Doncaster)

SYQUEST 88BMC removable hard disk with ten cartridges containing fantastic 53000 library of sounds, immaculate condition Only £350 ono → Nikki 0181 888 6896 (London)

COMPUTERS & SOFTWARE

AMIGA 500+ 2Mb chipRAM, 2Mb fastRAM, 50Mb hard drive, sampler, external drive, Music-X, Bars & Pipes sequencers, MIDI interface, mouse, 400+ software, £320 or swap for STE + monitor → 01582 476833

ATARI 1Mb, monitor, Notator, dangle, lots of software, extra drive, £220 ono, Laney KD100, 100W keyboard combo, reverb, 3 inputs, fly loop, mic input, £220 ono, Andy 01203 594478 (Coventry)

ATARI ST 1Mb, just add SIMMs to expand to 4Mb Sorry, no monitor (works with TV), but ideal backup to machine and still the best for music, good condition £120 ono No time wasters, please → 01354 695239

ATARI ST computer, hi-res monitor, sequencing software, mouse, leads, complete Mint QS, £240, Roland TB303, MC202, DB9, MIDI/CV, Akai S1000, mint, £1,200, 8Mb SIMM, £135 and 4Mb 3072-pin SIMM, £65, as new condition, perfect for PC, Mac, samplers etc → 01252 370550 (Hants)

ATARI ST 1Mb sequencing set-up High resolution monitor, all leads, from home studio, was used with Cubase Notator, mixers and editors, £220 Excellent condition → 01884 257487 (Mid Devon)

ATARI STE 1Mb, hi-res monitor, Steinberg Cubase v2 c/w video manual, £245, Alessi HR16 drum machine, £85, Steinberg Pro24 v3, £20 → Stephen 01553 674076 (Norfolk)

ATARI S20 ST 1Mb memory upgrade, two 5F354 disk drives, SM125 monitor, Word Perfect software, £180; also Revex PR99 stereo monitor panel, offers → 01923 231866 (Herts)

ATARI S20 STE 2Mb, good condition, £100 → Andy 01203 384484 (Warks)

ATARI 1040 STE with Cubase software, hi-res monitor, mouse, leads and accessories, offers over £200 accepted for quick sale → Julien 0181 466 8986 daytimes (Kent)

ATARI 1040 STE with 4Mb RAM upgrade, high resolution monitor, loads of software, magazines, mouse etc All in excellent condition £325 ono → 01722 501201 (Wbts)

ATARI COMPLETE SYSTEM 2.5Mb SFM, SM144 14-inch mono monitor, 74Mb hard disk, Creator v1.1 second floppy drive, Citizen 1200 printer, £300 → Alan 0151 434 5332

ATARI FALCON 4Mb, Screenblaster, loads of software, A1 condition, £450, ext rackmount 170Mb hard drive, £100 or £500 the lot. Must sell - rent due! → Tim 0114 267 9868

ATARI FALCON 4Mb, 127Mb hard disk, 4Tfx hard disk recording software, manuals, leads As new, £650 → 01509 507188

ATARI FALCON 830 with 4Mb RAM, 540Mb hard disk, SVGA multi-synch monitor. Boxed with manuals and in excellent condition, £640 → Greg 01280 850450 (Northants)

BBC 'B' micro computer with loads of software in new condition £1985. A collectors item WHY?/Synths - 4 x 2U rack trays, rare 1960s hoffer 'Beaters' bass violin, immac with case, 1960s 'Les' valve practice amp - the original → Ken 01451 870795 or 0468 301872

CAKEWALK PRO version 3.0, £119, Turtle Beach Quad studio, 4-track, direct-to-disk software, only £129 → Dave on 01634 882676 office hours (Kent)

C-LAB NOTATOR SL and C-Lab PolyFrame Universal synth editor/librarian. Complete package for Atari ST. Possibly split. Offers → Ian 01703 340443 (Southampton)

C-LAB UNOTAR 2 for Atari SIMM1 synchroniser, as new, £200, J L Cooper PPS1 MIDI tape synth, £70, Yamaha YMC10 MIDI tape synth, £50, DRT KCS sequencer, £50 → 0171 722 6072 (London)

CODA FINALE (Mac) 3.2 notation software, boxed with manuals, registration number, £200 or exchange for portable DAT machine → 01803 864330 (Devon)

DIGIDESIGN SESSION 16-track hard disk recording software, unused and unregistered, £100 → Andy 0121 605 6082 (Birmingham)

EMAGIC LOGIC v2 0 sequencer for Apple Mac, £175 → 01344 779886 evenings

EMAGIC LOGIC sequencer, v3.2, mint condition, complete boxed package, dangle, MIDI ports, manuals and unused registration form. Hardly used. £200. → Matthew 0161 483 9551 (Cheshire)

EMAGIC NOTATOR Logic Audio v2.0 (Mac), free upgrade to v2.5, brand new, unused, unopened, genuine resale for sale, £500 ono or swap for Roland JX8P → Dave 0141 331 2209 (Glasgow)

MOTU PERFORMER version 2.4 MIDI software for Macintosh with version 3.61 upgrade and utilities. Full manual, demo, files etc £110 ono → 01903 530769 eyes (West Sussex)

NOTATOR SL version 3.1 for Atari. MIDI sequencer, score editor, printout system, boxed with manuals, dangle Little used. £100, but no sensible offer refused → Dave 01434 606889

PC MUSIC CLEAROUT Samplitude Studio 16-track digital audio software, £200, super fast NEC server computer with 1.3Gb AV, AWE32 soundcard, Yamaha DB50XG daughterboard, Orchid wavebooster fx daughterboard, Roland Sound Canvas SCC1 plus other sequencing and hard disk recording software; also Plasmic ADAT hard disk recorder, works on any Atari platform → Justin 01767 631544 (Bedford)

SAW PLUS 16-track digital hard disk recording software for PC, £350 ono, Cakewalk Audio, £160 ono, Roland MT32 2 analogue synth, £350 ono, Roland MT32 sound module, £75 ono → 0171 351 0075 (London)

ST GAMES Why not have some fun? Over 100 original boxed games for the ST, all sorts, just £100. Can supply list, but would rather not split. → 01354 695239

STEINBERG CUBASE AUDIO (Windows) v1.6 Supports soundcards, £325, Musiquest MPU401 MIDI interface, £40, Emu Diverzio piano module, £140 → David 01704 551624 (Merseyside)

STEINBERG MIDI INTERFACE PCI card, MPU401-compatible, MIDI adapter included, £40, BreakThru Plus v2 sequencer, unused, complete with manuals, disks, tuition videos, £60 → 01705 376700 (Portsmouth)

STEINBERG SY77/TG77 editor software for Atari, 100s of sounds included, £50; C-Lab PolyFrame universal editing software, easy object-oriented synth profiles, £130 → Ian 01703 340443 (Southampton)

TROPEZ with 8Mb upgrade, £300; Roland SCC1, £150, SB16 value, £50, Shadow MIDI guitar pickup, £150. → Steve 01734 265260.

SEQUENCERS

ALESIS MMT8 8-track sequencer, great machine, easy to use, immac, £85 → Rob 01480 352755 (Camps)

ALESIS MMT8 8-track sequencer, £95, J L Cooper PPS100 SMPTE/MIDI synchroniser, £120, Phonic BKX880 8 2 mixer, £120. All excellent condition. → 01933 678608

ANALOGUE SYSTEMS TH48 16-step, 3-channel analogue rackmounted sequencer, CV In/Out quantiser, very comprehensive spec, boxed as new, £500. → 01726 66715

BROTHER PDC100 hardware sequencer with 3.5-inch disk drive, £90. → Kevin 01202 487374

DOEPER MAQ16/3, £500, and Alessi MMT8, £110 → Greg 01203 675747 (Coventry)

EMU PROTEUS 1 £325, Alessi MMT8, £100, Yamaha MDF1, £75 Cheap drum machine wanted, pref Boss W55 MkII → Stu 0121 602 6011 W Midlands)

ROLAND MC50 with manuals and box, everything included, many features, great for live work, £380 for quick sale → Kevin 0181 372 0385 (Middx)

ROLAND MC202 Manuals, tape, good condition, £200 ono Wanted Korg OSRW driver disk for PC - swap for sounds → Steve 01986 875856 (Suffolk)

ROLAND MSQ700 8-track sequencer, MIDI, tape sync Very useable collectors item, studio use only, £150 → Steve 01691 658550 (office hours) (Shropshire)

DRUM MACHINES

ALESIS D4 drum module, very good condition, £250 → Andy 01203 384484 (Warks)

ALESIS HR16 drum computer, absolutely immaculate and as new, with manuals and boxed, superb sounding drums, £130. → 01482 448767 (Hull)

ALESIS SR16 drum machine, £95 → John 01923 490022 or 0181 950 1876 (Herts)

AUDIO DRUM TRIGGER system, 6 velocity sensitive pads, custom made, only, £45; Yamaha RX7 drums, £150, Carlsbro KB115 amp, £150. All excellent condition. May deliver London → 0181 776 9856

BOSS DR5 Swap for AKG C3000/C451 or £200 Wah Wah pedal, £25 → 01474 535546

BOSS DR550 MM1 16-bit MIDI drum machine, 96 samples including TR808 and TR909 kits, boxed, manuals, PSU etc. Mint condition, £115 → Dave (eves) 0191 372 2621 (Durham)

LINDDRM MIKI Classic all analogue beatbox from the master Roger Linn. All the sounds, 16 separate outs. Tape, CV sync. Quick sale £200 ono → Alstair 01494 726233 (Bucks)

ROLAND R8 with jazz card and power drums, USA card. Mint condition, boxed, manual, £300 → Fraser 01246 290807 (Sheffied)

ROLAND TR626 drum machine, classic, offers Will consider swap for a multitrumbal sound module → 0116 285 4547 (Leics)

SIMMONS SDS800 electronic drum kit, pads and stands, £150, Simmons SD59 brain, £100, HR1 MA100 amplifier, £100, HH tape echo unit, £85 → 01844 291546 (Bucks)

TAMA TECHSTAR 306 analogue drum brain, trigger from pads, mcs, or drum machine outs, £195 ono or swap for D110 → 0191 297 0133 (Tyne & Wear)

YAMAHA RY30 drum machine, £200 ono → 01223 322442 (Camps)

PERSONNEL

ALBUM PROJECT for sale. Consists of nine rap songs written over a period of five years. Opportunity that cannot be missed. Offers negotiable. Must go to a good home. Will sell separately → Duncan 0121 444 2681

AN ENGINEER required for Midlands-based dance music studio, must be creative, enthusiastic and willing to work with a variety of artists → 0802 786965 or 01564 792087 or 0973 484629

ARE YOU A drum 'n' bass guru? We're looking for new forms of jungle hard/soul, so send tapes to On-line Recordings, Unit 140, 10 Sulfolk house, Croydun, CR0 1PE → 0589 309579 or 0378 731586 (Surrey)

COMMERCIAL pop dance act with potential hits written/recorded are creating great interest throughout the industry. Are you the final piece of the jigsaw? → Greg 01737 241977 (Surrey)

DRUM AND BASS DJs wanted for a weekly club. Send demos FAO Ricky, The Collective Club, Cubba, 59 Northgate, Canterbury, Kent, CT6. Enclose CV or reply address.

ELECTRONIC PERCUSSIONIST required for guitar-based instrumental album. → Kevin 01202 487374

KEYBOARD PLAYER/PROGRAMMER seeks vocalist for collaborative project, Brighton Area. Influences: Curve, NIN, Depeche → Brian 01273 777989

KEYBOARD PLAYER urgently required for all styles of dance music. Currently signed with major label. Absolute commitment required → Lea on 01206 792123 (Essex)

LOOKING FOR quality house music demos, send for immediate response to 14 Millfield Court, Henley in Arden, Solihull, West Midlands, B95 5AD.

MAC OR IBM users wanted to trade PD and shareware, MIDI files → Dan 01493 331882

NEED VOCALS? or just great lyrics? PRS writer/singer/guitarist seeks to collaborate with signed artists/studios or publisher on professional writing/recording projects → Chris 01909 569002

NEW BANDS/ARTISTS wanted. Please send demos. Must have dedication → Nick 01704 537563

NEW LABEL requires Detroit influenced techno and house tracks. Send demos to Hydraulic Records, 103A Hughenden Road, High Wycombe, Bucks, HP13 5HT.

ROCK COVERS Band forming. Must be influenced by ACDC, Z.T. Top, Cult and early U2. Need bass, lead vocals, drums and guitar with lead vocals, age range 25 to 35 years, dedication only → Bob 01268 288286

SAMMY HAGAR-type vocalist wanted urgently for rock project → Duncan 0121 444 2681 (Birmingham)

SOUL SWINGBEAT SINGER male or fem ie wanted for group based in Doncaster, Sheffield - id to join group for release of record on PolyGram Records → Paul 01302 538304 6pm any night

SYNTHESIST/KEYBOARDIST, drummer, singer/guitarist/synthiest wanted to form an Ultra-vibe-type band (I'dge Use period). Dedication essential. Males. 20-25 years in/around Sheffield → 0114 269 1016

TRINIRB RECORDINGS are currently looking for hi-energy/techno/trance and hardfloor style tracks for release. Only top quality tracks will apply. Send to: Trinrib Recordings, 17 Lowry Lane, 599 Harrow Road, Wembley, HA9 2DEA → 0181 900 1715

WE WANT a top female vocalist as we are top dance producers. Many previous hits. Don't bother nging if you're crap → 01422 241628

WANTED: THE RIGHT PERSON/COMPANY to turn dynamic dance duo into the biggest thing ever. Believe in us and watch this space → Roger 01737 243761 (Surrey)

MISCELLANEOUS

ALESIS MIDIVERB 2 £110, ART LTX, £100, Patch commander, £60. All excellent condition. → 01243 830697 (W Sussex)

ALESIS QUADRAVERB GT rackmount effects unit. Complete with Rolls MP80 MIDI pedal and 10 metre lead. Boxed £350 → Keith 01823 321675 (Taunton)

ANATEK micro sequencer, £20, Roland M64C RAM, £35; Juno 60 service notes, unopened, £10, synth acoustic pop booklet, £7; new top case for PG800, £10 → 0181 692 129

ANATEK PODCKET PEDAL Allows you to control MIDI events with a pedal. Complete with manual, £30 → 01392 51552 (Exeter)

ART MULTIVERB TRX1 Boxed, excellent condition, £225, Accessat gate, £30, two pedal flangers, Boss, Carlsbro, £35 each, 100 msc mixers, £70 → Enrico 01702 341755 (Essex)

AUDIO DRUM TRIGGER system. Six velocity-sensitive pads, custom made, only £45; Yamaha RX7 drums, £150, Carlsbro KB115 amp, £150. All excellent condition. May deliver London → 0181 776 9856

BELDON 40 and 50 core multirec cable, used, various lengths, £5 per foot, ART Proverb 200, home use only, boxed, £120 ono or swap for TXB12, £100. 01483 301223

BOSS X8000 mixer. Excellent condition, £120, Alessi MMT8, £95. Buy both and get 1989-92 back issues of Music Technology free. Will deliver reasonable distance from Bristol ie 20-25 miles → 01454 772237

CELESTION SR1/SP2 speakers and controller, 4XC audio amps, Quadraverb, limiter, aural exciter, AKG C1000, U20, PROE QY10, Notator, song and MIDI files, stands, leads, extras. Cost over £10,000. Very good condition, NTW racks included. → 01827 270698 (Warrwicks)

CLEAROUT SALE Yamaha QY10, Forest X15, Boss DR55, Akai MC20A, ME100, Steinberg Pro24, Twelve, Roland TR606, A220. All manuals, cases, supplied, reasonable offers accepted, delivery possible. → 0421 337657

CONSIGNMENT OF DAT Tape sought to clear. All guaranteed → Brian 01934 645102

EMU PROTEUS 2, £300, Boss SE70 effects, £320, Digitech Vocalist 2, £390, XR400 Midimate, £100, mixer stand with attached 16U rack, swivel speaker stands → Alan 0151 399 1167 (Cheshire)

FREE original electronic Moosik. Send 60 min cassette (chrome), jiffy bag and 2 x 1.1 Class stamps to Anibi-Chill In-Tranceasy Listening Soundscapes by Squash, 34 Millwrights, Tiptree, Essex, CO5 0LQ

HOME STUDIO CLEAROUT Mics, monitors, patchbay, guitars, bass, leads, synths, sequencers, synthesizers, headphones, Midiverb, DR550, compressor, vawe amp, bass cab, spring reverb, gasts, mandolin → Stuart 0116 273 3035 (Leicester)

KORG 01/W combination disks. Specialty. new age and cosmic. All disks 9.99 → Ken 01268 541449 (Essex)

KORG M1 2000 original and excellent programme and comb voices for Atari or Alessi data disk. £30 ono → Daniel 0113 294 1407

KORG M1 SOUNDS 200 brand new programmes, fat basses, analogue synths, kits, organs. A must for dance techno music. Supplied on Atari disk, £35 → 0121 443 1922

MANUAL for Cubase Score and Windows, mint condition, offers? Korg MC803 RAM card (for M1), £40, Korg 01/W programme disks, originals with documentation, £8 each → 01308 456945

MIDI GUITAR Casio MG510. Strat-type guitar plus MIDI pickup and electronics. Good action £325 → 0161 292 1547 or 0385 786830

MOBILE OR STATIC recording/rehearsal studio. Fully insulated (9 inches), wired for electric and audio, 20 ft long, 3 rooms, offers around £1,750. For further details → Geoff 01244 814309 (Clwyd)

MPC SYNC TRACK syncs pre-MIDI. Roland gear to tape. If you don't need MIDI, then you need this. Only £20 → 01354 695239

RECORDING STUDIO with rehearsal facilities for sale. Basement and large floor, MW1 area, 1,400 sq feet, very large live room, excellent location → Dee 0171 267 1928

ROLAND D50 data disks containing 64 patches. Specialty cosmic and new age. All disks 9.99, any format. → Ken 01268 541449

ROLAND GR1/GK2 guitar synthesizer, Aki S950 expanded, Roland D110, HH122 stereo mixer. All at bargain prices to clear. → Graham 0973 500507 (Birmingham)

ROLAND RA90 real-time arranger, full MIDI accompaniment, excellent sounds, £325 → Tony 01938 570432 (Povys)

ROLAND S550 SCSI upgrade, and S550 CD ROMs. Call and quote price → 01354 695239

ROLAND U2801/10 sound cards, £20 each → Ian 01746 783670 (Shrops)

ROLAND VEG51 16-part, 28-voice GM expansion board for JV1000. Unused, £75 → Colin 01473 225653 (Ipswich)

SEMI-FLIGHTCASE Nearly new, top quality. Ideal for an SX85 or XPSO, £49 incl delivery. Also one original copy of the Yamaha ambient/techno disk, £14 → 0161 766 3651

SFX 3000 soundcard, excellent GM and Soundblaster sounds £75, Yamaha CBXT3, £85, Mitsum D/S CD-ROM, £40, Cubase Lite, £20, Cakewalk, £20 → Ged 01925 291805 anaphone office hrs

STEINBERG large-bodied guitar, black finish, with case and trem arm etc, £499 or swap for Gibson of similar sh value. → 01477 534680 (Cheshire)

SWAP my Vintage Keys Plus for your Korg 01/W rack or GEM 52 rack → Andrew 0454 772227 (Bristol)

SYQUEST 48Mb removable cartridge disk drive with SCSI fitted, includes 3 cartridges and SCSI cable. As new. £250. → Simon 0161 445 2474 (Manchester)

TRACE ELLIOT 4x10 bass cab + AH250 head with 11 band graphic + ultra vibrator/100 Watt Seymour-Duncan 'convertible' combo with interchangeable valves. New condition, never gigged/Vigier 90/10 bass in Vigier f/bag, as new - fastest bass around, excellent parametrics. Consider studio swaps equipment → Michael 01451 870795 or 0468 301872

YAMAHA TG33 tone module plus 1 RAM, 1 ROM card, £275 ono, Roland RA50 aranger/trigger module plus one ROM card, £250 ono → Chris 01724 764050

ZOOM 4040 As new, £250 → Terry 01420 84030 (Hampshire)

WANTED

AKAI ADAM digital 12 track → Danny 01294 221903 or 01294 215529 (Scotland)

APPLE MAC WANTED for cheapstate. £200 paid for a serviceable SE30/ClassicAC with monitor. Can collect. E. Anglia/London → Magnus 01480 461244 day, 01223 565910 eyes

ATARI 1040 ST or STE computer wanted → Pierre 0181 870 1683 (London)

BOSS SE70 effects unit wanted for cash, or swap 16.2 desk → Mark 01484 513158 evenings (Huddersfield)

BOSS SE70 multi-effects unit wanted, flightcase for JDB80 synthesizer, Drawmer nose gate, DS201 and Cubase v3 with manual. → Roland 01243 830697 (West Sussex)

BOSS VIBRATO foot pedal, cash waiting → Stu 01785 215203

CASIO CZ5000 RAM & ROM cartridges wanted, will pay your price, please contact Keith Salmon, Flat 1, 26 Nightingale Road, Southsea, Hants, PO5 3JL

C-LAB EXPORT Clip-on additional MIDI ports for the Atari → John 0151 427 5623

CUBASE version 3 original music programme disks plus manuals wanted urgently in good condition. Also interested in songwriter to correspond song ideas → Stephen, 48 Endeavour Close, Hartlepool 278995

CUBASE Cubase Audio, Resample, Sampitude wanted urgently for PC. Also Roland TB303, MC202, 101, JDB80, dance module, S2800, J106, JY1080, Korg keyboard or similar. Cash waiting → 01276 31010 (Hampshire)

CURTIS CEM3310 AD5R chips (x2), desperately sought to complete project. Breaking any old analogues? I'll pay a good price for your 3310s → Roger 01633 861914 (Gwent)

DA400 digital to analogue converter box for Roland S760. Orchestral and contemporary ROM plus daughterboard and sampling option for K2000. Drawmer spectral compressor with enhancer built in. Sampitude or Cubase Audio for PC. also Musix Quest MOX32 or Steinberg PC Midirex MIDI interfaces for PC → Paul 01302 538304

DOES ANYONE HAVE a dance ROM card for my DT0 or write to Janfrancs, Boorsgreen Farm, Harps Oak Lane, Mertham, RH1 3AN

DR T's XOR v2 wanted for the Macintosh. Complete version with manual or just programme disk. Cash waiting or will exchange with vast synth library for Mac, PC or Atari → Mark 01689 815511 (Kent)

DTI POWERTRAN VOCODER → Bernard 01780 65592

FOSTEX X26 for salvage, Yamaha SY85, Gem 52, MT530, Roland W30, DCC170, other workstations considered, cash waiting → Mali 01359 271019 leave message (Suffolk)

KAWAI K4 RAM card wanted. Will pay good honest money or will swap for replay 16-bit sampler for Atari, as new → Jason 01703 905108 (Southampton)

KENTON PRO 2 MIDI to CV converter wanted, also synths and drum machines wanted. Please contact Keith Salmon, Flat 1, 26 Nightingale Road, Southsea, Hants, PO5 3JL

KORG M1 wanted, can pay £500, JDB00, £750, TR909, £500, XPS0, £750, JD990, £600, JV1080, £750, Korg Trinity, £1,500 → John 0956 193244

KORG OSR driver disk for PC MIDI interface, swap for pro sounds, also Phillip Rees TS1 SMPTE → Steve 01986 875856 (Suffolk)

KORG WAVESTATION SR sound cards → Adam 0113 239 0812 (Leeds)

MANUALS WANTED for ART SGE and Kawai Prim, any condition, photocopies or originals. PC editor for ART SGE or SysEx dump of original patches → Tim 0114 267 9868

MASOS boot-up disk for Ensoniq Mirage, £10. Also manual for same, £10, and 50kHz expansion card, £25. Any other knowledge would be helpful → Daniel 08819 583347

MEMORYMOOG or Memorymoog full version → 01535 645233 (W Yorks)

MONITOR for Atari ST computer → Ollie 0113 274 6597 (Leeds)

OBBERHEIM EXPANDER, Yamaha CS80 wanted. Also Minimoog (non MIDI) and Waldorf Microwave → 01535 645233

ROLAND D550 wanted. Cash waiting → 01475 630181

ROLAND JDB00 Poss p/xx, immac, Korg M1 and EPS plus extensive library. Also have Elka X50, brilliant full d/bar spec, £275 ono. → Tim 01473 225503 (Suffolk)

ROLAND JUNO 106 £350 ono, SH101 Limited Edition, red! £200 ono, RR ROM cards, especially Dance 10, Electronic 04, Ethnic 06, Percussion 01, price depending on card, Korg Triton sample CD → Gary 01560 484787 after 6.30pm

ROLAND JVB80 £350 cash, Oberheim Matrix 1000, £200 cash. Both must include manuals and be in good condition. Unable to collect → Wayne 01752 768359 late afternoons

ROLAND M256E data card, Yamaha RAM 4 cart for TX802, and C-Lab Combiner. Cash waiting for best offer → Andy 01633 613342

ROLAND M16 triggering drum machine wanted → Mark 0191 212 0274 (Newcastle)

ROLAND SH101 plus TB303 wanted. Will collect. Fair top price paid → Mike 01322 225673 (Kent)

ROLAND TB303 wanted. Will pay £400 cash. TR808, £300, TR909, £600, OSC, £450. Also any other analogue synths → 0114 248 2760 evenings or leave message on answer phone

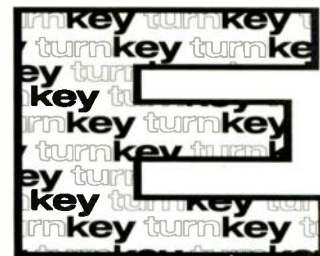
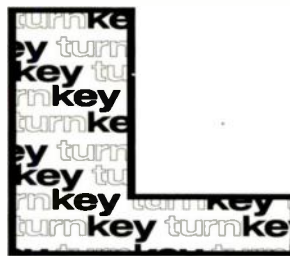
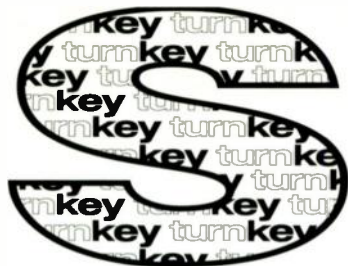
ROLAND TR909 in good condition, £1,000, cash waiting → Francis 0151 652 4765

SHURE SM57, Sennheiser 421 or 521, AKG C1000 or C3000 mics, also Beyer DT100 headphones. Cash waiting for best offer → Andy 01633 613342 (Gwent)

SOUNDRACFT SPIRIT STUDIO 16 wanted. Will pay up to £1,000 depending on age and condition, may collect → Kesh 0116 254 5591

SWAP Roland TR626 100w stereo amplifier and two 100w speakers in cabs for MIDI sound module. Anything considered → Javen 0116 285 4547 (Leics)

TOUCH SENSITIVE pitch modulation wheels, 128-keypad keyboard, ie Kawai K1 or dedicated keyboard. Swap for Yamaha YS100 or £240 plus extras. 4-track wanted, especially Tascam 464, anything considered. Swap for SPM B.2, ART multiverb plus £50, or £200, £100 respectively. Midiman sync box also wanted and cheapish MIDI reverb. Write to Mr B Clark, 23 Millgate, Richmond, North Yorkshire, YO10 4JL



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SPECIAL READER

ANATEK POCKET PRODUCTS TO SOLVE YOUR MIDI HEADACHES

At SOS, we have regularly found ourselves referring readers to one or other of the Anatek Pocket range of MIDI accessories to solve their all too common MIDI interconnection and transmission problems. Trouble was, Pocket Products were previously hard to find... until now!

POCKET SYNC

- 'Smart' FSK Tape-to-MIDI synchroniser • Starts anywhere in song • MIDI In to Out merging • Automatic read/write switching • 'Jam Sync' protects against tape dropouts
- Records tempo changes • MIDI and FSK status LEDs

POCKET SYNC is the way to expand the capabilities of any multitrack studio. No longer is it necessary to allocate more than one tape track for sequenced parts. Now, shuttling to different points in the song is quick and effortless. POCKET SYNC writes a special FSK sync tone on one track of tape that is converted to MIDI Clock and Song Position Pointer on playback. Merging of data from the MIDI input to the output allows new sequencer tracks to be added while remaining synchronised to tape.

Automatic switching between write (recording FSK) and read (playback FSK) cuts down on confusing switches and buttons. Tape oxide dropouts are no longer a problem with POCKET SYNC's variable dropout protection. The sequencer can continue playing over a dropout for a short time, even if FSK code is completely lost!

Price: £69 inc VAT.
Order Code: PP003
Postage: UK £2.50 Europe £4.95 ROW £8.95

POCKET MAC

- Economical Macintosh MIDI interface • No external power supply required • 1 MIDI In, 2 MIDI Outs • LEDs indicate MIDI In/Out data • Uses serial or modem port • High speed CMOS design
- Improves signal to minimise data errors.

POCKET MAC opens up a whole new world of MIDI programs for the Macintosh computer user. With many Macintosh programs simultaneously supporting both the serial port and the modem port, one POCKET MAC could be connected to each allowing access to twice as many MIDI devices.

Price: £39 inc VAT.
Order Code: PP004
Postage: UK £2.50 Europe £4.95 ROW £8.95



POCKET CURVE

- Modifies MIDI velocity response • Controls keyboard sensitivity • 6 tapered curves • 6 velocity increase curves • 6 velocity decrease curves
- 6 constant levels • Special DX7 velocity curve

POCKET CURVE is a necessity for master keyboards that require velocity scaling control. With it, a keyboard's response to harder or softer playing styles can be modified to suit the player and their MIDI setup. DX7 owners can especially benefit from POCKET CURVE! A special curve is available to boost the DX7's low velocity output, so that missing dynamic potential can be recovered. Use POCKET CURVE to allow a lighter touch during performance on a heavily weighted keyboard controller. For ease of programming, a quick reference to the many curve possibilities is permanently printed on the sides of the unit.

Price: £69 inc VAT.
Order Code: PP005
Postage: UK £2.50 Europe £4.95 ROW £8.95

POCKET MAPPER

- Remaps MIDI controllers • Maps Pitch Bend to Aftertouch • 'Set and forget' programming
- Supports 15 controllers • Allows unconventional routings • Updates older keyboards.

POCKET MAPPER allows modulation routings to be customised to suit a particular need. Controller data such as Pitch Bend, Aftertouch, Breath Control and others is received and can be retransmitted as a different controller. For instance, DX7 Breath Control modulation can be rerouted to MIDI Volume to modulate synths that do not accept Breath Control. POCKET MAPPER is the most convenient and cost effective way of rerouting MIDI modulation. Now, MIDI wind instruments can remap mouthpiece Breath Control to Aftertouch quickly and easily.

Price: £69 inc VAT.
Order Code: PP006
Postage: UK £2.50 Europe £4.95 ROW £8.95

POCKET MERGE

- Merges 2 MIDI signals into 1 • Handles System Exclusive • Merges on all 16 MIDI channels
- Merges Clock and MIDI Time Code • Merges all controllers • Handles large volumes of data
- Stackable for 3 or more inputs

POCKET MERGE is an essential tool for sequencing or live use. Operating as a 2-In, 1-Out MIDI Merger, several Pocket Merges can be stacked to merge more than 2 inputs. Now any controller can be a 'master'. In live setups, POCKET MERGE allows any two controllers (keyboard, drum pads, guitar synth, etc) to share a sampler or sound module. Use one keyboard as a master, while using a favourite pitch bender from another, or combine two keyboards for a multi-tiered, organ-style controller. In the studio, POCKET MERGE is a must for sample dump editors, allowing a keyboard and a computer to be connected to the sampler at the same time. POCKET MERGE handles data very quickly, making buffer overflows a thing of the past.

Price: £59 inc VAT.
Order Code: PP007
Postage: UK £2.50 Europe £4.95 ROW £8.95

POCKET FILTER

- Filter on all MIDI channels • Filter controllers, System Exclusive and real-time data • Combine data types/channels • DIP switch selectable filtering
- Select channel from any keyboard • Filter all data on selected channels

POCKET FILTER is a vital tool for problematic setups. With MIDI data becoming increasingly complex, POCKET FILTER can unclog the MIDI data stream, sending only the most useful info. Use it to remove unwanted clock messages or System Exclusive data or memory-intensive aftertouch and controller information. POCKET FILTER frees-up unused MIDI Channels from multitimbral synths, making them available for other modules. In addition, it can be used

USE YOUR BREATH CONTROLLER WITH NEARLY ANY MIDI SYNTH!

Anatek's WIND MACHINE and your Yamaha BCI or BC2 Breath Controller (not provided) will add woodwind-like expression to keyboard performances. Brass patches can punctuate or pad according to your whim, not to some pre-programmed attack setting. Sax solos will turn heads with their authenticity. And layered string sounds can fade in precisely where they're needed, while your hands and feet are free to control wheels and pedals.

Compatible with everything, WIND MACHINE interfaces to Korg, Roland, Yamaha, Ensoniq and the rest! No longer are you forced to use your breath controller with only one brand of MIDI synth. Any MIDI keyboard that will respond to MIDI Volume, Aftertouch, Modulation, Breath Control, Pitch Bend, Expression, Foot Controller, or Pan can be controlled via your breath controller and WIND MACHINE.

Blowing into a mouthpiece is the most natural way to enhance keyboard performance. Wind instruments have been designed around this principle for centuries. Alone, keyboard Aftertouch isn't as effective because when you release the keys, the effect goes away. Modulation and Pitch wheels alone aren't as effective because they don't allow you to play chords. But when combined with WIND MACHINE, all of these can be used to create vastly improved expression capability.

A flexible input/output configuration means that WIND MACHINE can fit seamlessly into any setup. The simplest way is to use it to send control signals to the MIDI In of a keyboard synthesizer. If the MIDI setup involves a master keyboard and external modules,



WIND MACHINE can combine incoming signals from the master with its control signals and then pass them on to a sequencer or sound modules. WIND MACHINE can transmit the most popular control parameters to keep it simple. Most MIDI keyboards respond to Modulation, Aftertouch or Volume so you won't have any problem finding one compatible with your synth. Any one of the 16 MIDI channels can be selected as well. All control parameters are set by switches on the lid that retain settings even when power is disconnected.

Price: £85 inc VAT.
Order Code: PP002
Postage: UK £2.50 Europe £4.95 ROW £8.95

OFFER!

to channelise older synths that only receive in Omni mode.

Price: £69 inc VAT.

Order Code: PP008

Postage: UK £2.50 Europe £4.95 ROW £8.95

POCKET PEDAL

- Sends on multiple MIDI channels • Supports 1 continuous controller • Supports 1 momentary footswitch • Sends pitch-bend, modulation, portamento time, and MIDI Volume • Sends sustain, portamento on/off, sus tenuto, and start/stop • Auto pedal/footswitch calibration • Forward/Reverse pedal operation • 3 mode pitch-bend operation • Combine data types

POCKET PEDAL is an indispensable controller for the performing musician. Use it with an ordinary volume pedal and footswitch to send MIDI volume, modulation, and sustain controls on all 16 MIDI channels simultaneously. For owners of multi-effects processors, POCKET PEDAL provides a convenient cost-effective way of providing dynamic control over effects parameters. It is also a handy controller for automated mixdowns, converting any resistive input into MIDI Controller messages for VCAs. Connect a photocell to POCKET PEDAL and control MIDI parameters with a light source!

Price: £69 inc VAT.

Order Code: PP009

Postage: UK £2.50 Europe £4.95 ROW £8.95

POCKET THRU

- 1-In, 3-Out MIDI Thru box • High-speed CMOS design • Very low power requirements • Buffered outputs clean up data • Handles all MIDI data • Stackable for more outputs

POCKET THRU is an essential building block for any MIDI setup and an excellent companion product for all Pocket Products. POCKET THRU provides 3 buffered outputs from a single MIDI input. Use POCKET THRU to minimise MIDI delays, or expand the outputs of a POCKET MERGE unit. POCKET THRU also allows POCKET FILTER to be placed anywhere in the MIDI chain, when using it to channelise older synths. Up to 4 POCKET THRU's can be combined to provide a total of 9 outputs.

Price: £35 inc VAT.

Order Code: PP010

Postage: UK £2.50 Europe £4.95 ROW £8.95

POCKET TRANSPOSE

- In-line 16 Channel transposer • +/- 5 Octave transpose range • Switch between normal and transposed modes • Separate intervals for each channel • Transpose key signature and octave simultaneously • All non-transposed MIDI data is passed • Harmonisation mode • Footswitch controllable.

POCKET TRANSPOSE is a performance-oriented transposer that supports separate transpose intervals for each MIDI channel. Although many keyboards have a transpose function, it's usually too cumbersome for live use. POCKET TRANSPOSE makes transposing easy. Intervals can be set while playing, and the user can select the normal or the transposed setting from a footswitch. Guitar synth players can use the POCKET TRANSPOSE to set intervals on 6 separate MIDI channels, or use it to transpose all strings by a certain amount. POCKET TRANSPOSE provides an easy way to try different arrangements without altering sequencer data. You can even set it so that the drum machine channel remains intact.

Price: £69 inc VAT.

Order Code: PP011

Postage: UK £2.50 Europe £4.95 ROW £8.95

POWER PACK

- 'Phantom' powers all Pocket Products • Functions in-line with MIDI signal • Powered by most AC adaptors • Automatic polarity switching • Fully regulated supply • Passes all MIDI data • Alleviates hook-up problems • Boosts MIDI signal

POWER PACK provides power to Pocket Products in instances where upstream devices from other manufacturers have neglected to meet MIDI specifications, or in any instance where power is

LONG DISTANCE MIDI

- Enables extra-long MIDI cable runs • Easy to connect to existing 3 conductor wiring • 4,000 feet capability • Balanced XLR connectors • Dual transceivers allow 2-way MIDI communication • Handy data input and output LEDs confirm presence of MIDI signal

The problem with MIDI is that you are likely to encounter data errors when running more than 50 feet of MIDI cable. These can be embarrassing errors such as hung notes, mysterious program changes or worse in the middle of a performance.

The cost-effective solution is MIDIMATCH by Anatek. Two identical units convert MIDI data to balanced signals that can be transmitted through up to

4,000 feet of cable. The balanced MIDI signal is virtually immune to the problems that have previously plagued studio owners and sound contractors over long MIDI runs.

MIDIMATCH works through ordinary balanced microphone cable so you can connect keyboard controllers to MIDI sequencers or lighting controllers to dimmer packs through your existing snake! Studios already wired for audio can connect MIDI through the cabling already in place. MIDI signals could even be run through a balanced patchbay!

Price: (includes transmitter, receiver, AC adaptors) £115 inc VAT.
Order Code: PP001

Postage: UK £2.50 Europe £4.95 ROW £8.95



unavailable. POWER PACK can be placed anywhere in the MIDI chain and accepts power from a standard AC adaptor (not included). It provides additional power when more than 4 Pocket Products are used in a row or allows POCKET PEDAL and POCKET FILTER to retain their channel settings when the master device is turned off. What's more, POWER PACK can be used to boost the MIDI signal and extend the maximum distance between two devices.

Price: £29 inc VAT.

Order Code: PP012

Postage: UK £2.50 Europe £4.95 ROW £8.95

POCKET SPLIT

- 8-Zone Keyboard Splitter • Range from 1 to 127 notes • Fixed boundaries • MIDI Channel/Zone assignment • Footswitch controllable • Floating split point

POCKET SPLIT is an 8-zone keyboard splitter. Each zone has its own MIDI Channel, and has a range of 1 to 127 keys wide. Zone boundaries can be set for hard or soft (overlap or splits). Use POCKET SPLIT to maximise the performance of your master keyboard, or create interesting performance possibilities with your guitar controller. An added feature is an 'intelligent' 2-way floating split that automatically tracks the keyboard player's left and right hands. Now any MIDI device can have the features of a sophisticated MIDI controller at a fraction of the cost!

Price: £69 inc VAT.

Order Code: PP013

Postage: UK £2.50 Europe £4.95 ROW £8.95

POCKET CHANNEL

- Remaps Receive channel • Remaps Transmit channel • Sends multiple MIDI channels • Velocity-switch mode • Footswitch controllable

POCKET CHANNEL takes data from any MIDI channel and remaps it on to one, several, or all 16 MIDI channels. Up to 16 different channel assignments are possible. A unique velocity-switch feature allows automatic switching between two different sound modules depending on the key velocity. Use POCKET CHANNEL to organise channel assignments for a multitimbral sound module, or send a controller's output to two or more MIDI channels. With POCKET CHANNEL, for example, two drum machines or two samplers can share the same note assignments and be set to two separate MIDI channels.

Price: £69 inc VAT.

Order Code: PP014

Postage: UK £2.50 Europe £4.95 ROW £8.95

ABOUT POCKET PRODUCTS

Pocket Products are handy MIDI accessories requiring no batteries or power supply to operate. They have been designed to solve the problems arising from incompatibilities between MIDI products from different manufacturers. Compact and sturdy, Pocket Products can be placed anywhere in the MIDI signal chain.

HOW TO ORDER

Join the group of satisfied customers worldwide who have found the solution to their MIDI problems with Pocket Products from Anatek, now available direct from SOS.

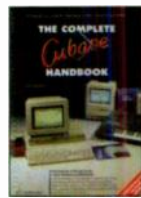
To order, just fill out the Order Coupon on page 213 (remember to add postage for each product) or simply call our Mail Order hotline on 01480 461244.

Please allow up to 28 days delivery on Pocket Products.

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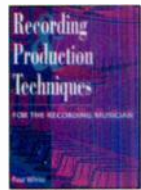
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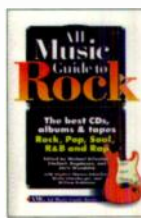
by Paul White.
This highly informative book by SOS's own Editor demystifies the techniques used by professionals in the recording of contemporary music. It reveals how to make full creative use of all manner of studio effects and signal processors. These

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Easy to use and fun to explore, the All Music Guide to Rock also gives you major artist bios and discographies, essays exploring dozens of rock styles and influences, music maps, and more.

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(2ND EDITION)
written & compiled by Annie Cunning

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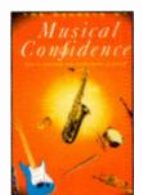
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by Gabriel Jacobs & Panicos Georghades
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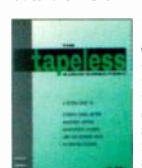
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By Andrew Evans
Written by a musician and psychologist, this is claimed to be a first for musicians: a book aimed at maximising performance potential and increasing confidence. A series of questionnaires and exercises allow you to analyse your abilities and needs and allow you to deal with stress, creativity and career management,

amongst other topics.
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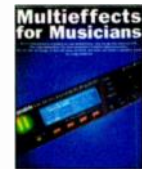


(4th Edition) By Yasmin Hashmi
Completely updated, this 4th edition is the only international buyers guide to over 200 professional digital audio workstations and systems aimed at cart replacement and broadcast automation.

The comprehensive listings include target markets, hardware and software specifications, operational features, networking and file translation, future development plans, training and customer support, costs and suppliers details for USA, Europe and Far East. The Directory not only covers all existing systems, but those soon to be launched and those on which development has been halted. It also provides a comprehensive explanation of the terminology, with useful tips for potential purchasers.

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by Craig Anderson
Occasional SOS contributor Craig Anderson adds to his long list of music technology-based books with this comprehensive look at multi-effects units. The book helps you with what to look for when buying a new unit, how to use it when you've got it home, and provides a collection of tips to help you get the most out of your device. 137 Pages.

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TECH TERMS - A Practical Dictionary for Audio and Music Production



by George Petersen and Steve Oppenheimer
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by Richard Maddox
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by David Miles Huber
More of a digital recording overview, this book looks at digital audio in all its forms. Huber discusses the equipment, the techniques and processes of digital audio. Computer-based sound editing, digital audio

workstations, digital signal processing techniques, sampling and real-world applications in music, film, video and broadcast environments are covered plus multimedia. The text is designed to be understood by newcomers, while delivering information of value to professionals. 182 pages.

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Edited by Jeff Fortenza and Terri Stone
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by FA Wilson
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By Jeffrey
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by Peter Melan & Larry Wichman (Revised and Updated)
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by Tom Misner
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by David Mellor
This well written, user-friendly book is designed to offer accessible and helpful tips on how to get the most out of the equipment in your studio. Chapters cover: mic techniques; musical arranging for recording; 4-track recording; the mixer; preparing for an running a session; recording drums; recording vocals; integrating MIDI; using effects and signal processing; location recording, and digital recording. The book is rounded off with an "any questions" section, a glossary and a list of recording studios in the UK. As you would expect from a book based on a SOS series, this is a *must have!*
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MUSIC BUSINESS

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THE WHITE BOOK INTERNATIONAL PRODUCTION DIRECTORY 1995

NETWORKING IN THE MUSIC BUSINESS
by Dan Kimpel
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by Fred Koller
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From the Editors of *Songwriter's Market*
If you've got the songs and you've got the contacts, this book will help you to choose a format that will get your demo heard as well as overall packaging and presentation and dealing professionally with publishers, A&R reps and other industry people. Plenty of example documents (lyric sheets and letters) are given, and the book is nicely rounded off with a glossary and index. Hardback.
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Written by a practising music business solicitor, "Music Business Agreements" can be seen as a legal textbook for the UK music industry. Don't let the formal tone put you off; this book is a mine of information with reference to real-life problems and examples, and a helpful question and answer appendix. Expensive, but invaluable. 522 Pages.
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88 SONGWRITING WRONGS & HOW TO RIGHT THEM

by Pat & Pete Luboff
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by Bobby Maestas
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MUSIC TECHNOLOGY REFERENCE BOOK

by Peter Buick & Vic Lennard
Written by Peter Buick and Vic Lennard (author of SOS's Atari Notes column), this book offers information at your fingertips and is an indispensable reference source for the musician or sound professional in the recording, broadcast, live, video, computer, multimedia, post production and theatre industries. It includes comprehensive MIDI spec, General MIDI, MTC, MSC, and SysEx information. It also includes charts, check lists, useful hints, tips, and ideas, plus a glossary, list of contacts and a comprehensive indexed, it is also organised into convenient sections. 150 Pages.

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by Jeffrey Rona
A breezy run through MIDI that would suit the absolute beginner, this book is well-illustrated, clearly expressed and explains the technical bits in as close to non-technical language as the subject matter allows.

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ADVANCED MIDI USER'S GUIDE (2nd Edition)



by R A Penfold
Most MIDI users do no more than scratch the surface of MIDI's potentialities. But dare to dig a bit deeper and you'll find a whole new world of creative possibilities.

With the Advanced MIDI User's Guide, you'll learn how to optimise your MIDI

system to get the best results from your particular setup, and you'll find out how to use gadgets like switchers and mergers to enhance your system. If you want to incorporate a multitrack tape recorder into your MIDI system there's a section on synchronisers, SMPTE and MIDI time code, and retro freaks will learn how to hook up that dusty old analogue synth to their MIDI systems.

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MIDI SYSTEMS AND CONTROL

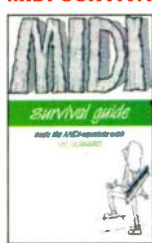


By Francis Rumsey.
This revised edition has been expanded in an number of topic areas, to provide even more comprehensive coverage of every area of MIDI. Contents include: an introduction to principles and terminology; MIDI timecode; librarians and editors; different

approaches to sequencer software design; practical systems design.

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MIDI SURVIVAL GUIDE



by Vic Lennard
Whether you're a beginner or a seasoned pro, the 'MIDI Survival Guide' shows you the way. No maths, no MIDI theory - just practical advice on starting up, setting up and ending up with a working MIDI system. Contains over 40 cabling diagrams, and how to: connect synths, sound modules,

sequencers, drum machines and multitracks; how to budget and buy secondhand; using switch, thru and merger boxes; transfer songs between different sequencers, get the best out of general MIDI, and understand MIDI implementation charts.

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PRACTICAL MIDI HANDBOOK (3rd Edition)

by R A Penfold
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by R A Penfold
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MIDI FOR THE PROFESSIONAL

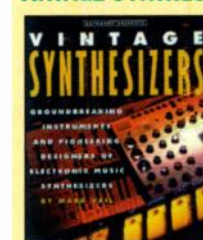


by Paul D Lehrman and Tim Tully
Co-written by SOS contributor Paul D Lehrman, this substantial, exhaustive work covers pretty well any aspect of MIDI that you could think of. As an overview of what MIDI is and does in 1994, this

239 page book couldn't be better.
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Postage: UK £3.95, Europe £7.50, R.O.W. £14.50

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VINTAGE SYNTHESIZERS



By Mark Vail
This well-illustrated, 300 page book covers synth history, interviews with designers and overviews of important instruments. Mark Vail's book could be the most

entertaining and useful synth book yet - check out the definitive history of the Minimoog, complete with pre-production designers' sketches. While not strictly a buyers' guide, there is a comprehensive section on sourcing, valuing, upgrading and servicing classic instruments.

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KEYFAX 2

by Julian Colbeck
1989 version of Keyfax provides individual summaries and specifications of the last of the great mono synths, digital pianos, and classic polysynths like the Roland JX10 and Prophet VS - forerunner of the SY22 and Wave Station. Early Keyboard and rack-mount samplers are covered in this indispensable guide. Still a great buy.

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KEYFAX 4

by Julian Colbeck
The new Keyfax book (1993) is the most comprehensive guide to professional keyboards yet compiled. Keyfax 4 spotlights synthesizers and expander, and MIDI keyboard controllers. From classic analogue machines right up to the latest synth/sampler hybrids. Reviews include technical tour on a practical, need-to-know basis. Everything you need to decide which instrument is best for you.

CODE B201 £12.95
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THE MUSEUM OF SYNTHESIZER TECHNOLOGY



by Martin J Newcomb
If you liked our feature on the opening of the Museum of Synthesizer Technology in October, but haven't got the time or the cash to visit in person, then the next best thing has to be the museum's guide book. This 118 book is printed on glossy paper and

contains full-colour pictures of a large selection of exhibits from the museum, together with some descriptive text and company backgrounders. The text reads a little like a fanzine, but the hardcore synth fanatic will want this book for the pictures. In these pages you will glimpse instruments that you are unlikely ever to experience in the flesh: an exceedingly large Roland System 100 modular set-up, an EMS Synthi 100, an ARP 2500, a large Emu modular and what must be the comprehensive collection of Moog equipment anywhere. The Museum of Synthesizer Technology book is yours for £24.95, plus postage.

CODE B291 £12.95
Postage: UK £2.50, Europe £6.95, R.O.W. £9.50

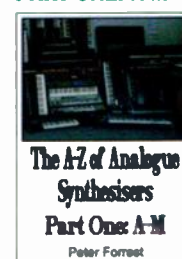
KEYFAX 5



by Julian Colbeck
The latest instalment in the intrepid Keyfax series offers potted specifications and concise mini-overviews of digital pianos, home keyboards, General MIDI modules, stage organs and computer sound cards. Look out for company

backgrounders, contact details and cross-references to earlier Keyfaxes.
CODE B231 £12.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

THE A-Z OF ANALOGUE SYNTHS PART ONE: A-M



by Peter Forrest
The author has aimed to make his book a complete rundown of all the major analogue synths and keyboards ever made, and on the evidence of this first volume, he seems to have succeeded. The book is useful and detailed, and shows evidence of

the massive amount of research and effort put in by Peter. He gives pocket company histories and detailed data on the instruments produced - but note that a few entries for a few particularly obscure instruments and companies are limited due to lack of data. The book also provides a comprehensive overview of the qualities of various instruments; charts and tables assess second hand values and maintenance levels necessary to keep a given instrument playable as well as such intangibles as sound quality, collectability and user interface. The A-Z of Analogue Part One, which is limited to 8000 copies worldwide, also features 96 colour pictures of classic instruments.

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Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

DRUM MACHINES

DRUM PROGRAMMING — A Complete Guide to Program and Think Like a Drummer



By Ray F Badness
Coming from a publisher that has a good range of real drum texts, we'd expect this book to be a little different. And it is: it gives plenty of insight into how real drummers approach their job, and there are plenty of example patterns to help translate these

ideas to a drum machine.
CODE B235 £6.95
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DRUM MACHINE RHYTHM DICTIONARY

By Sandy Feldstein
For use with Roland drum machines or any grid-based pattern system. First 75 pages on programming huge range of rhythms in rock, latin, jazz and funk styles. Remainder analyses styles and patterns of world's top drummers - Phil Collins, Billy Cobham, Steve Gadd, Stewart Copeland, etc. Highly recommended.

CODE B110 £16.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

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By Siegfried Hoffman
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By *Dieter Petereri & Herb Quick*
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COMPUTERS & MUSIC

THE COMPLETE SOUND BLASTER

by *Howard Massey*
Explains in simple, non-technical terms: how to install the Sound Blaster hardware and software for use in both the DOS and Windows environments, the two sound processes used by the card, MIDI, the Sound Blaster's MIDI capabilities, and the many different applications for the Sound Blaster, including the various software utilities provided with the card, and many of the third party support products that enhance its operation.
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MULTIMEDIA ON THE PC

By *Ian R Sinclair*
If you want to know what multimedia is and what it can offer you, then this is the book for you. Much of the information is general enough for everybody, but as the title suggests, the book is aimed at PC users. The book explains the installation and use of a CD ROM drive and a sound card and covers all key concepts behind multimedia. As an added incentive, if you buy this book, you can send away for a free copy of *Picturebook*, a multimedia authoring package.
CODE B272 £11.95
Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

MULTIMEDIA ON YOUR PC

by *Francis Botto*
A practical guide to multimedia specifically on the PC. Botto's book is once aimed at users, educators and developers, and comprehensively discusses the hardware required to take advantage of multimedia in a PC environment as well as the hardware and software necessary in a multimedia authoring situation. The book is provided with comprehensive appendices covering a glossary and comprehensive product and manufacturer lists.
CODE B296 £10.95
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SEQUENCER SECRETS

by *Ian Waugh*
Ian's book aims to "go beyond the manual" in telling you how to get the best from your sequencer. The book features 29 hands-on sequencing projects and is suitable for use with all software sequencers. The book hopes to help you optimise your MIDI system and use your sequencer to create all sorts of useful effects. A troubleshooting section helps you track down stuck notes, double notes and so on.
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COMPUTERS AND MUSIC

By *RA Penfold*
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MULTIMEDIA, CD ROM & COMPACT DISK - a guide for users and developers (2nd Edition)

by *Francis Botto*
Practical guide to CD ROM and interactive multimedia aimed at both users and developers. Virtually all platforms and technologies are covered in this book - CD-I, CD ROM, CDTV, Macs, PC clones etc - and a comprehensive range of appendices include a glossary, and lists of development tools, manufacturers, and existing CD ROM titles. All aspects of system development - from image capture to sound - are covered.
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MUSICAL APPLICATIONS OF THE ATARI ST'S

By *RA Penfold*
Includes a general introduction to MIDI, a handful of MIDI add-on circuits (Thru box, MIDI switcher and so on), plus a collection of programs, in Fast BASIC, that allows you to use the ST's internal sound generator and create little MIDI applications.
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LIVE SOUND

SOUND REINFORCEMENT HANDBOOK

by *Gary Davis and Ralph Jones*
From recording to broadcast, fixed installations to touring, this 400 page reference covers live sound setups, equipment, techniques and jargon.
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CONCERT SOUND AND LIGHTING SYSTEMS

Written by *John Vasey*.
How to set up and operate sound / lighting equipment for the performance of amplified music or any kind of touring production.
CODE B247 £14.95
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THE FOCAL GUIDE TO SAFETY IN LIVE PERFORMANCE

Edited by *George Thompson*
This book provides an authoritative look at safety matters for workers in the live entertainment industry. It is edited by the Standards Officer of PLASA (Professional Lighting and Sound Association), and provides good solid information in an easily digestible, well-illustrated form. Topics covered include audience and crowd control, fire safety precautions and engineering, electrical safety, laser safety, sound levels and noise control and much more.
CODE B271 £19.95
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INTRO TO LOUDSPEAKER & ENCLOSURE DESIGN

by *V Capel*
The book provides both useful background to speakers and enclosures in general, plus practical information on crossovers and full details on constructing the so-called 'kapellmeister' design of speakers.
CODE B281 £2.95
Postage: UK £1.50, Europe £6.95, R.O.W. £9.50

LIVE SOUND MIXING

by *Duncan R Fry*
This is a hands on, friendly introduction to all aspects of mixing live. It hails from Australia, and is an SOS Bookshop exclusive. The author is an experienced live sound engineer and has packed his book with loads of information, diagrams and hints to take you from basic principles through to trouble shooting when things go wrong.
CODE B256 £19.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

PUBLIC ADDRESS LOUDSPEAKER SYSTEMS

by *V Capel*
All aspects of PA speaker systems are covered in this book, including low-impedance matching, 100V systems, transmission lines and how to install inductive hearing aid loops. At the heart of the book is the Line-Source Ceiling Array, a system that is claimed to improve clarity, even coverage and reduce feedback. Full step-by-step construction and installation details are given.
CODE B283 £3.95
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ELECTRONIC PROJECTS

ELECTRONIC PROJECTS FOR MUSICIANS

CODE B068 £10.95
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MIDI PROJECTS

by *RA Penfold*
A comprehensive collection of simple MIDI projects, including CV and gate converters and a MIDI Thru box. A lot of the book is taken up with interface various obsolete computers to MIDI (Spectrum, CPC464, Commodore 64, BBC B, ZX81 and so on), but the general information is basically sound. Could prove a boon to musicians who are *really* broke!
CODE B278 £2.95
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PRACTICAL ELECTRONIC MUSIC PROJECTS

CODE B289 £4.95
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CODE B286 £4.95
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HIGH POWER AUDIO AMPLIFIER CONSTRUCTION

By *RA Penfold*
Much useful background to amplifier design, speaker matching and more is included in the first couple of chapters, while the last section contains a selection of high power amp circuits plus suitable PSU circuits. Copper track patterns are also provided to allow you to make your own PCBs. While the circuits aren't too difficult as such, those with limited constructional experience should note that due to the high supply currents and voltages involved, even minor mistakes could be extremely dangerous.
CODE B282 £3.95
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

ELECTRONIC MUSIC AND MIDI PROJECTS

By *RA Penfold*
Want a MIDI THRU box, patchbay or switcher? Well they're all here. And you don't need a degree in electronics either. All the projects are explained in detail, with full instructions on assembly. So if you into MIDI and you want to expand your system without taking out a second mortgage, fear not. Here's the book to help you build up your MIDI system without laying out thousands on hardware.
CODE B203 £9.95
Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

DIGITAL AUDIO PROJECTS

by *RA Penfold*
A two part book, with the first section looking at the basic principles involved including converting an audio signal into digital form and then converting it back to an analogue signal. The second part contains some circuits - for the moderately experienced only.
CODE B279 £2.95
Postage: UK £1.50, Europe £3.95, R.O.W. £4.50

PRACTICAL ELECTRONIC MUSIC EFFECTS UNITS

by *RA Penfold*
Another selection of musical effects, with more of a guitar angle. Projects include distortion, sustain, parametric EQ, graphic EQ, treble and bass booster, envelope modifier, wah wah effects and more.
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ELECTRONIC PROJECTS FOR VIDEO ENTHUSIASTS

by *RA Penfold*
Projects for the video and camcorder user, including dynamic noise limiter, automatic audio fader, video faders, video wipe and video crispener.
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Postage: UK £1.50, Europe £6.95, R.O.W. £9.50

SOS Videos

KORG PROPHECY VIDEO MANUAL



Written by Phil MacDonald
Korg's new Prophecy Synthesizer now has its own video manual!
The video covers all the major features over 6 sections, with lots of examples that are available using the 'log' and 'mod' wheels. The video's visual interest is maintained by the extensive use of Chroma Key and multi-camera effects. This is a video that is ideal for new owners, and those who want to know more about the Prophecy before they make a purchase.

CODE V049 £14.99
Running time: 36 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND G800

Presented by Roland UK's product demonstrator Sara Revbould, this video covers every essential feature and function of the Roland G800. Sara provides the user with a wealth of knowledge on this sophisticated instrument, with recourse to many practical examples and close-up shots of the LCD screen. The video was produced in association with Roland USA and Roland UK to ensure that the content is accurate and informative.

CODE V060 £19.99
Running Time 92 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND GR09

Presented by Roland UK product demonstrator Nick Cooper, this application-based tutorial video for the Roland GR09, produced in association with Roland USA, covers every function completely. Covered topics include; the GK2A Synthesizer Driver, pickup sensitivity, use of the tuner, what a patch consists of, use of the pedals, patch edit 1 & 2 (including layering and detune, chromatic function, reverb & chorus, edit target, pitch shift), the use of external midi devices, saving to an external sequencer & more.

CODE V061 £19.99
Running Time 57 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND GP100

Presented once again by Nick Cooper, this video manual for the Roland GP100 covers every aspect in detail with many practical demonstrations. Everything you need to know is covered; topics include: an explanation of COSM, layout, typical setups, initialisation, global settings, use of the tuner, selection and editing of patches, and use of the FX loop and harmonist.

CODE V062 £19.99
Running Time 45 Minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND JV-1080



VIDEO MANUAL
Roland's amazing JV-1080 synthesizer module is covered in detail in this informative video. Presented by Tim Walter the video guides you through the basics, and leads you painlessly onto the advanced features.

The video even shows you how to fit the expansion boards & gives demonstrations of some of the wonderful sounds they contain. Once again this video has been produced in association with Roland UK & USA to ensure that everything it contains is accurate, and relevant to the new and more experienced users alike.

CODE V046 £19.99
Running time: 80 minutes Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND MS-1 VIDEO



MANUAL
This video manual has been produced by Roland Corporation US, and has been designed to provide the user with tuition, and examples of how to apply your new found knowledge in various applications. There is also a comprehensive "Tips & Tricks" section to give you that extra edge!

CODE V047 £24.99
Running time: 50 minutes (approx)
Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

EVERYTHING YOU WANTED TO KNOW ABOUT PCs BUT WERE AFRAID TO ASK!



Written by Ian Waugh
This video has been produced in response to the number of potential PC buyers and existing new users who do not fully understand the jargon and basic operating procedures associated with PCs.

It covers everything from 'What is a PC' to the 'Internet'. There is even a Windows tutorial, and a DOS basics section. (Over 120 different sections.)

It includes a booklet listing all the main and sub sections along with their respective TimeCode number for easy access when used as a reference tool.

CODE V048 £19.99
Running time 91 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

BOSS DR-5 DRUM MACHINE

Presented by Nick Cooper (Roland UK Product Specialist) this video covers all the functions of the DR-5 in a clear and concise manner. Produced in association with Roland UK & USA. By using the information gathered from Roland 'helplines', particular attention has been paid to the areas that many users find most difficulty in. This makes it of interest to beginners and experienced users alike. Nick imparts the information with ease and a professional manner, making it enjoyable and entertaining.

CODE V043 £19.99
Running time 57 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

BAND IN A BOX 6.0 BASICS FOR WINDOWS

Designed to get the new user, and those less familiar with Band In A Box, up and running quickly and easily. Experienced users can also benefit from the in-depth tutorials which cover Basic MIDI, MIDI Connections, Custom Patch Maps, Screen Layout, Juke Box, Printing, Recording & Editing Melodies, Importing & Editing Styles, Drum Editor, Masks, Assigning Instruments.

CODE V031 £34.99
Running time: 88 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

THE ART OF SEQUENCING

Composer Don Muro presents six lessons that demonstrate how to create a multitrack sequence, how to correct wrong notes, how to correct rhythmic errors, how to correct dynamics, how to change synth programs, and how to change tempos. *The tape is not dedicated to any one sequencing package - the information is valid no matter which sequencer you use.*

CODE V030 £30.95
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

HOW TO GET A RECORD DEAL



DEAL
The facts you need from the people who know. How To Get A Record Deal contains vital information and insight that you will not find anywhere else, from artists and executives who have made it and know what it takes. On this video music industry pros give you the straight facts on how to break into this extremely competitive business. Because

sometimes the difference between success and failure is information.
Presented by the National Academy Of Songwriters

CODE V003 £14.95
Running time: 1 hour 7 minutes
Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

KORG AX30G TONEWORKS VIDEO MANUAL



The Toneworks series of guitar processors from Korg gets a real work out on this 55 minute tape. Korg's guitar demonstrator Steve Fairclough whizzes through the G1, G2, G3 and the flagship AX30G and provides clear explanations of how each unit works. And to put the units into context, there's lots of footage of Steve showing off the sonic capabilities of each processor (not to mention his prowess as a guitarist).

ORDER CODE V028 £19.99
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ORDER NOW!
01480 461244

YAMAHA PSR6000 ELECTRONIC KEYBOARD VIDEO MANUAL



Yamaha's PSR6000 is a home keyboard with a difference, and offers many professional features plus excellent sound quality. Tim Walter starts at the beginning and makes the instrument look easy and fun. His enthusiasm is catching, and, yes, the PSR6000 is a very capable instrument. The

tape runs to 75 minutes, which makes for the excellent value.

ORDER CODE V029 £19.99
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND GR-1 GUITAR SYNTH

These two video manuals have been produced to help the user get the most out of Roland's sophisticated GR-1 guitar synth, the first covering all the basics from mounting the pickup and getting tuned up to selecting sounds and using the on-board sequencer. Each step is patiently explained and demonstrated by Roland's guitar synth specialist, Jay Stapley.

The Advanced tape takes the mystery out of sound editing, custom tuning, advanced sequencer applications, external sequencer hookups, using other MIDI sound modules, indeed virtually everything the GR-1 is capable of doing. If you own a GR-1 or are thinking of buying one, do yourself a favour and order these indispensable videos.

CODE V014 ONLY £29.99 FOR 2 VIDEOS
Total Running time: 4 hours. Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

STEINBERG CUBASE



This manual is presented by Chris West, Steinberg expert. It's very much a practical, 'get up and running' video, showing the novice user exactly how to install and begin using Cubase, whether they're running the program on an ST, Mac or PC computer — there's even a basic background on how the computers themselves! All of

Cubase's controls are shown, explained and demonstrated in depth. Once you're familiar with the basic controls, Chris takes you slowly through recording your first session, followed by overviews of the various edit screens. It's rather like having an expert tutorial that you can run again and again in the comfort of your home, until you can use Cubase like a true pro. Topics covered include: the main screen, customising names and outputs, copying and pasting between arrangements, MIDI filter, cycle mode recording, the tool box, all edit screens.

CODE V011 £29.99
Run time: 1 hour 30 minutes Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND TDE-7K DRUM SYSTEM



Roland's TDE-7K Compact Drum System Comprises the TD-7 Percussion Sound Module, MDY-7 Cymbal Pad Holder, FD-7 Hi-Hat Control Pedal, MDS-7 Drum System Stand, PD-7 Drum Pads & KD-7 Kick trigger. You may have a different configuration to what is shown in the video, but no

matter!, Roland Product Specialist Gary O'Toole shows you how the complete kit is put together. Gary concentrates on the TD-7 in detail, showing how the parameters are set up, and giving demonstrations of how the sounds are derived and altered. Good use is made of the visual side in this video with multi-camera shots, a 'birds eye' view of the entire Kit shows Gary's playing abilities to the full. As you would expect from a production aided by Roland UK & USA, this video shows you everything you need to know.

CODE V045 £19.99
Running time 65 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

3 CAKEWALK 3.0 VIDEO MANUALS

CAKEWALK 3.0

For Windows
A collection of three videos on the Cakewalk Professional system for Windows, covering just about everything you would need to know to become totally proficient with Cakewalk. If you own Cakewalk Home Studio — no problem! The videos cover everything Cakewalk Home Studio is capable of and more...

BASICS

Basic MIDI, Step & Realtime Recording, Playback Features (on the fly), Editing Features, Graphic Views, The Inspector Menu, Menu Overview, The Control Bar.

CODE V032 £34.99
Running time: 120 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

BEYOND BASICS

This video explains Customising Cakewalk, Extract Merge, more graphic Views, Advanced editing, the Settings Menu, Synchronisation, Embedding Wav Files and more...

CODE V033 £34.99
Running time: 113 mins
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

CAL

Programming Fundamentals, Creating a Program, Creating a CAL Program, How to use CAL Programs, CAL Examples, Automating Tasks, Tips on working with CAL, Creating Computer Music, Troubleshooting.

CODE V034 £34.99
Running time 90 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

OVERNIGHT DELIVERY OPTION: ONLY £5.00! See Order Form for details

EMAGIC NOTATOR VIDEO TRAINING MANUAL



This video manual is detailed and helpful, and is presented in a most friendly and approachable manner by session musician Tim Walter, whose tone throughout the video encourages and inspires confidence. If you are new to Notator and are still in awe of its power, you down to earth. An introduction and 28 tutorials take the user from the absolute basics - including plugging in the dongle - to working with Untor and SMPTE, and synchronising to video. As well as actual recording of MIDI data and sequencing, comprehensive coverage is given to using the score layout and printing facilities that are so much a part of Notator. Topics covered include: sequencing page, score editing, lyrics and text, graphic arranger mode, hyper edit, the printer page, using the part box.

CODE V012 **ONLY £19.99**
 Running time: 2 hours 20 minutes Format: VHS (PAL)
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ENCORE 3.0 FOR WINDOWS

The basics of Encore for Windows is covered, with in-depth tuition over 83 minutes. Everything you need to get up & running is here. Basic MIDI, Score Layout, Accidentals, Key Signatures, Note Editing, Step Time Entry, Adding Staves, Click Setup, Record Setup, Linear View, Quantisation, Editing, Printing, Staff Position & Spacing, and much more...

CODE V036 **£34.99**
 Running time: 83 minutes
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

KORG X3

This video offers an easy way in to this powerful workstation. It starts from absolute basics, including audio connections and volume levels, and the clear and helpful script covers all basic facilities of the X3. The video features a sophisticated use of picture in picture, with the X3's display cut into the main image to show you clearly what Phil is actually doing, and main points are reinforced with on screen text and graphics. The main section headings are:

- X3 Audio Connections • Getting Around the X3 • Factory Disk • Disk Drive Modes • Selecting Sounds • Global Modes • Sequencer Mode • Quick Sound Editing • Playing MIDI Files on the X3 • Using the X3 with an external sequencer

Note that these are loose headings, with each section also containing information on connected subjects in varying amounts of detail. A lot of ground is covered, and we can recommend the tape to any X3 owner.

CODE V018 **£19.99**
 Running time: 55 minutes Format: VHS (PAL)
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

YAMAHA QY20 MUSIC SEQUENCER VIDEO MANUAL



by Tom Robinson
 Yamaha's popular QY20 portable sequencer/sound source is a deceptively simple device to use; if you think you might like some insight into getting that little bit extra out of the device, then look no further. Produced in co-operation with Yamaha, the video

features mobile musician Tom Robinson showing you how to get the best from this portable marvel. Tom, who has used the QY20 extensively as a writing tool on the road, says: "I never leave home without it".

CODE V016 **£19.99**
 Running time: 90 minutes Format: VHS (PAL)
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

PERFORMER 5.0 BASICS FOR MACINTOSH

Expert tuition covering the basics and more for Performer 5.0. This video will provide you with all that you need to know, covering all the major topics: Basic MIDI, Tracks Window, Multitimbral Operation, Patch Changes, Time Signature & Meter, Real & Step Time Recording, Event List/Graphic & Notation Views, Regional Editing, Quantisation, Transposing, Copy/Cut/Paste/Merge & Erase, Loop Recording, Track Palette, Device Groups, Counter Window, and much more.

CODE V042 **£34.99**
 Running time: 87 minutes
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND JV-90 SYNTH



Roland's JV-90 synthesizer gets the treatment in this informative Labyrinth production. Virtually every facet of the JV-90 is covered, from the basic functions to more advanced programming. Chris Allen guides you through the powerful features this instrument has to offer. Produced in association with Roland UK & USA to ensure that everything it contains is accurate, and relevant to new and more experienced users alike.

CODE V044 **£19.99**
 Running time: 70 minutes
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

THE EMAGIC LOGIC TUTORIAL VIDEO



VOLUME 1
 Produced by Emagic themselves, this video once again sees Tim Walter (featured on the excellent Notator video) in the tutor's chair. There are plans for a series of videos which become ever more detailed and informative, but for now Volume 1 takes you through the first steps of getting the software up and running, and covers virtually all the controls you'll need. This video is valid for all versions of Logic, whether being run on an ST, Mac or PC. Presentation is rather intriguing, with a mobile camera that helps to hold the interest more than the average training video and some interesting graphics that aid comprehension and help to quickly find specific tutorials and bits inside tutorials. Contents as follows:

- Tutorial 1: The Arrange window and basic sequencing
- Tutorial 2: Playback parameters & Toolbox
- Tutorial 3: Controlling MIDI data flow
- Tutorial 4: Manipulating sequence data
- Tutorial 5: Moving around in Logic
- Tutorial 6: Windows and key commands
- Tutorial 7: More sequencing
- Tutorial 8: Score
- Tutorial 9: Looking at the Event List
- Tutorial 10: Editing the Event List
- Tutorial 11: Using the Environment
- Tutorial 12: The best of the rest (HyperEdit, Matrix Editor, Cycle Mode and more)

CODE V023 **£29.99**
 Total running time: 70 minutes Format: VHS (PAL)
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

KORG X5 SYNTH



Korg's new X5 synthesizer, reviewed in SOS' January 1995 issue, now has its own video manual. Presented by Tim Walter in an entertaining and lighthearted manner, and explains all basic aspects of Korg's highly affordable instrument in very clear terms. If you're in any way daunted by your new purchase, or want to get a feel for the instrument before laying out your cash, this is the video for you.

CODE V027 **£19.99**
 Running time: 55 minutes
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ANALOGUE HEAVEN



Remember our feature on the opening day of the Museum of Synthesizer Technology which we ran back in October 1994? Wish you'd actually been able to attend? Well, now you can have the next best thing: the museum has released a fascinating 50 minute promo video that features footage shot on the day as

well as a lightning tour of the facility. The program is hosted by SOS contributor Julian Colbeck. The tape opens with synth pioneer Bob Moog making the inaugural speech and officially opening the museum, followed by a nostalgic run through one of his old modular systems. Analogue Heaven makes diverting viewing for anyone interested in vintage synths, represents good value, and offers the perfect companion to the Museum's guide book, also available from SOS Bookshop.

CODE V026 **£12.95**
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Practical guide to Cubase for Windows covers all the basic functions, ideal for the new user and those who need added insight into this complex system. Contents: Basic MIDI, Value Selection, Arrangements, Arrange Window, Transport Functions, The Inspector, The Toolbox, Quantisation, Grid Editor, Step Recording, and much more.

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GETTING THE MOST OUT OF THE KORG M1



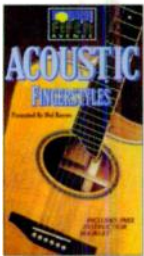
Written and presented by Julian Colbeck
 The Korg M1 is a classic instrument. The range and quality of its sounds has made it one of the most successful synthesizers of all time. But because the M1 is so immediate, it's too easy just to scratch the surface, leaving many of its exciting capabilities undiscovered. This highly informative video enables M1 owners to unleash the full creative potential of this enormously powerful workstation. With plenty of musical examples, tips and inside information, the video offers clear, concise explanations of the instruments features and operating procedures, helping you to greatly expand your dexterity and creativity across the whole range of this world-beating instrument.

Comes with a FREE exclusive custom library of fabulous new M1 sounds on Atari format floppy disk (100 Programs, 100 Combinations) created by ABWH/Yes programmer Chris Macleod.

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SOS Videos

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Presented by Mel Reeves
In this video there are 5 major instrumental studies to work through including country, classical and blues. Each style is broken down into small sections allowing you to learn more quickly and efficiently. Each piece is demanding, but great fun to play. The final section looks at styles and techniques used by players such as R.E.M., The Eagles, Sheryl Crow and Paul Simon, and provides an insight into creating new and interesting fingerstyles of your own.

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Presented by Mel Reeves
Whether you can already play fingerstyle guitar, or are simply familiar with basic chords, this programme will show you all of the necessary techniques to play great blues guitar. All of the technical aspects are explained in the clearest possible way before getting down to the real business of learning 5 real blues that are great to listen to and terrific to play.

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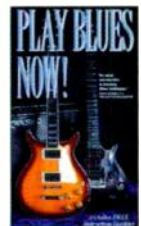


Presented by Mel Reeves
An up-to-date video/booklet that gets to the heart of modern keyboard playing with no need to read music! All you need to be able to create pop, rock and even jazz chord accompaniments using major, minor, seventh, sus 4th and added 9th chords. Learn arpeggios, random arpeggios, chord 'splitting', crushed tones, boogie blues, inversions and much more.

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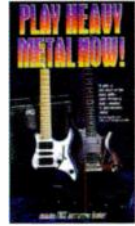
Learn the blues style of Eric Clapton, Stevie Ray Vaughan, Peter Green, etc. The programme not only covers the usual blues shuffles and scales but using 4 complete songs, gives you the resources

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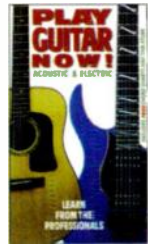


This is the ideal volume one guide to the use of home recording equipment.

From the set up of basic 4-track cassette machines to sub-mixing Mel Reeves uses straight-forward language to talk to fellow musicians about the methods used to get the sounds in their heads onto tape. Includes free instruction booklet.

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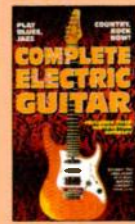
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3 TOP CLASS VIDEOS

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LEVEL ONE



This well presented video explains how to set up and operate a simple cassette-based multitrack home studio. It clarifies all the basic terminology and demonstrates the recording of a song from beginning to end, covering how to record

guitars, keyboards, vocals and drum machines; which microphones to choose; how to patch in effects units and use them well; what makes a good arrangement; what makes a good mix; plus what to master on to and why.

Full of professional tips and clear examples, this superb video offers the musician with no recording experience a fast route to successful operation of a simple home studio.

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LEVEL TWO



This is, in our opinion, the best ever guide to the equipment and skills needed to produce high quality results from a home studio.

Full of clear examples and graphic information, the video majors on effects and how to use them well. It also covers the do's and don'ts of track bouncing;

microphones and mic techniques for different applications; getting the most out of multi effects units; plus an analysis of guitar effects with top session guitarist Milton MacDonald and an enlightening interview with ace producer Alan Parsons. Writer/presenter Julian Colbeck packs the programme with professional tips, allowing musicians of all kinds to get the most out of their home studio.

CODE V006 **£24.95**

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LEVEL THREE



This video is packed with information and professional tips on advanced MIDI applications in the home studio, including interfacing with sequencers, which sync code is best for which application and why. Hit producer Martyn Phillips (Erasure,

London Beat) discusses modern recording techniques, and top programmer Paul Wiffen examines the opportunities and benefits offered by hard disk recording. It offers practical advice on sampling - how to save time and tracks; plus professional tips on advanced arranging and mixing techniques, including spectrum mixing.

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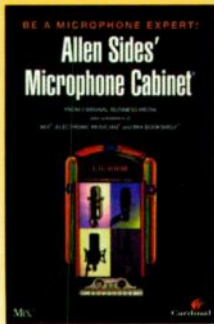
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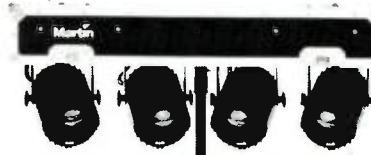
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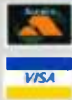
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For some people, music is an art; but for others, it's a business. Mouths don't get fed, mortgages don't get paid, and no petrol goes in the family automobile if gear doesn't sell. This is a particular concern for manufacturers of MIDI software and synthesizers, who have seen the boom times of the '80s fade, as more musicians hop aboard the 'unplugged' bandwagon, and the market for MIDI gear becomes saturated (how many sequencers does one musician *really* need?). It's only natural that at times like these, corporate minds become focused on how to 'grow'

will find it a lot easier to pop into their local CD shop and buy a CD, than sit down at the computer and mess with MIDI, no matter how easy it is to use. Even if an *instrument* is easy to play, *music* will always be difficult to play.

Does this mean I'm down on the computer tools that allow me to make the music I want to make? No, not at all. I've really become accustomed to digital audio, sequencers, and all that good stuff. It's given me powers I never would have had otherwise. It has taught me much about arranging and harmony, and even enabled me to swap files with people on the other side of the country. I wouldn't want to give up these techno toys.

And I'm not down on software like *Band In A Box* or *Music Mouse* either. The former expands on the time-honoured tradition of 'music minus one' practicing, while the latter has more of the personality of an instrument than a compositional algorithm. The problem comes when you think something can create music for you. If you don't have something you want to say musically, no tool will say it for you. Technology can serve only as an amplifier or processor of what you create. When you practice music, you're not just practicing technique; you're shaping your soul. Music software that tries to fit everyone into prescribed limits will never allow the equivalent of a Jimi Hendrix, who was brilliant because he broke so many rules, and did it so well.

Jimi Hendrix was not signed because of a focus group saying they wanted that kind of music. He didn't write his songs on a Power Mac. Hey, he had six pieces of metal on a plank of wood with five program changes, a distortion box, and a wah-wah. But his passion for music took control of those tools. To trivialise music to the point where one thinks it can be neatly coded into a bunch of algorithms is unfortunate, and furthermore, betrays a fundamental inability to understand the differences that exist between art and technology.

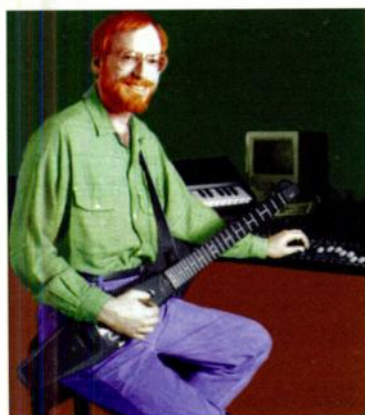
In today's de-personalised, market-researched, over-merged, corporate world, we need original statements. If companies really want to get the masses into making music, the best way to do that is not to create musical toys, but to push for an educational system that regards all arts, not just music, as a crucial part of the learning process.

SOS

Craig Anderton is a monophonic synthesizer with a three-octave range, pitch bend, vibrato, and several gigabytes of on-board memory. He responds to both pressure and velocity, but wishes that life had a quantization option for taking out the rough edges, looping capabilities (so you could do things you liked over and over), and of course, an undo command. He has developed sounds for Alesis, Deltalab, DigiTech, Emu, Ensoniq, Northstar, Oberheim, Optical Media, Peavey, Prosonus, Rane, Symetrix, Yamaha and others. He is eternally grateful that he wore ear protection when he played concerts back in the 60s.

sounding OFF

SOS writer
CRAIG ANDERTON is all
for musical literacy, but
sees no benefit in
instant gratification.



the market, and get the MIDI industry back on a healthier footing.

I had dinner recently with some music industry-types. Like a lot of salesmen, they seemed to be under the illusion that there is a huge, untapped market of people who want to play music — and the only reason why they can't, the reasoning goes, is because technology hasn't made it simple enough for them.

I have a real problem with this. My complaint concerns the attitude that music lies in the tools we use, not in our souls — that we can come up with technology that will allow 'wannabe' musicians to translate concepts into action, and not have to worry about messy details like practice, original thought, or passion. Because, of course, the software will supply everything that's needed to make music.

And I suppose nuclear power will be too cheap to meter, we'll all be zooming around with personal jet packs instead of cars by the year 2000, and so many labour-saving devices will be in place by 1997 that we'll all be working 20-hour weeks. Add: 'and technology will enable non-musicians to

express themselves musically.'

I believe that music is something beautiful and important; it's a means of communication and self-expression that creates a soundtrack for our lives. As Aldous Huxley said, "After silence, that which comes nearest to expressing the inexpressible is music."

Don't misunderstand me. I'd love to see more people able to express themselves musically. I like the idea that in places like Brazil, friends often stop by with instruments, and jam instead of engaging in the passive art of watching TV. But the idea that technology can make it possible to create music — forget it.

Sure, it's nice for manufacturers to think that somehow, they will be able to tap into the millions of people who would love to make music but lack either the time or dexterity to commit themselves to the process. But the fact of the matter is music does not come from algorithms, and making music will always be a discipline. Many people who want to hear music

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