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SOUND ON SOUND

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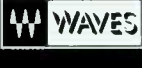
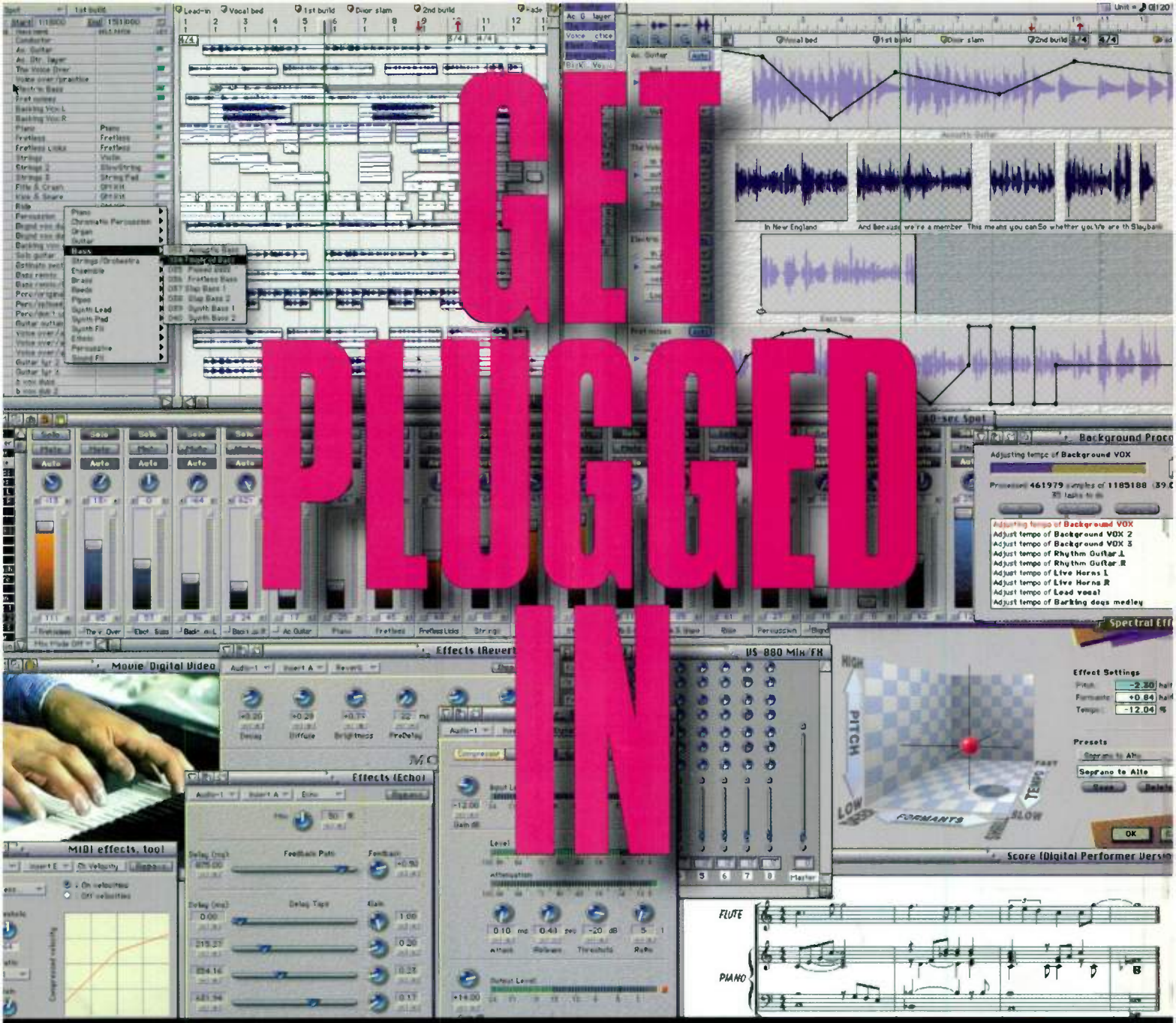
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Just as CD-R has finally become affordable, and DAT has established itself as a tolerable if not exactly ideal mastering medium, the recording industry starts talking about DVD (Digital Video Disc), 24-bit recording, and possibly 96 or even 192kHz sampling rates, which goes to show; when you think recording formats might be settling down, someone comes along with a new one, and people start to ascend to a new level in the Tower of Babel.

It's true that panels of listeners and technicians have experimented with more bits and higher sampling rates, and yes, with perfectly recorded material under ideal listening conditions, certain people believe they can perceive a difference of some kind, but is this really relevant to the real world? Indeed, could the whole thing just be a scam, instigated so that record companies can sell us their entire back catalogues again, in yet another different format, and this time mixed for 5.1 surround? If it is, it means another bleak period for new bands, and more royalties for the already fat cats!

Before making judgements as to whether higher bit depths or sample rates are a good thing, have a critical listening session with a selection of commercial CDs, and see how different they sound. Some are noisy, others sound harsh and edgy, and some actually sound very good, but these are in the minority. There are very few recordings that couldn't be improved in some way, so if only a small percentage of CDs make the best possible use of the existing medium, what is the point of coming up with a new, high-resolution system? The majority of records won't sound any different, yet studios and edit suites will have to scrap their existing digital equipment and replace it with something that conforms

to the new standard. For example, we're just entering the era of digital mixers. To make them handle 96kHz sampling rates, they'd need to be twice as fast as they are now, but most manufacturers are pushing current technology to deliver affordable products at 44.1 or 48kHz. The last thing they need is

to be told is that they have to double their processing and data handling speeds just to stand still. Then there are digital signal processors, such as high-end reverbs and effects, not to mention computer-based edit suites. The investment to make everything compatible would be huge, yet with the exception of purely acoustic

music (which is arguably a minority market anyway), the end products are unlikely to sound the slightest bit different.

The 5.1 format surround sound possibilities offered by the DVD (the precise format of which is still being argued over) are rather more exciting, as they mean music can be mixed with surround sound in mind, and with the increasing popularity of TV surround systems, the system is unlikely to meet the same market resistance as quadrasonic did many years ago. Quite clearly, surround sound is something that everyone will be able to appreciate, and some argue that we should be focusing our efforts on this, rather than on making expensive and esoteric adjustments to the mastering format that only very few people will be able to perceive. Even so, the back-catalogue re-launch, and all that implies, seems inevitable.

We are told that DVD is the delivery medium of the future, but nobody seems sure yet whether the audio will be data-compressed in some way or not. If it is, that really would make a mockery out of mastering at 24-bits, with a 192kHz sampling rate! At the end of the day, what matters most is a good tune — the rest is just window dressing!

Incidentally, I wonder if the older among you may remember that it was on an autumnal day 12 years ago that the first slender issue of SOS hit the newsstands? Yes, we're 12 years old this month! Many thanks to all the readers and advertisers who have supported us from the beginning, as well as all those who have joined us along the way. Whatever format you're recording on, here's to the next 12 years and beyond.

Paul White Editor

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Emu  
E-Synth



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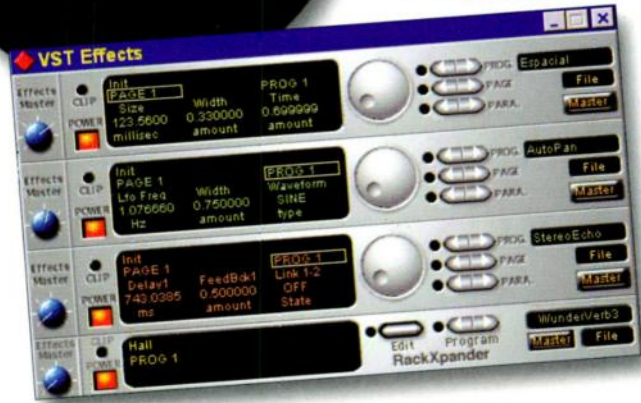
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# Crosstalk

Send your letters, queries, tips and comments to:  
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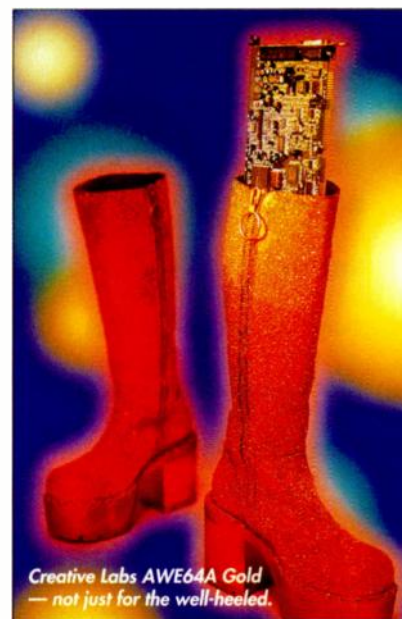
## Card Attack

Help! I'm hopelessly lost in jargon related to soundcards. I'm especially annoyed by companies (excluding Turtle Beach), who are reluctant to publish signal-to-noise ratio figures on the Internet, or anywhere else. I'm a guitar player who bought a PC for college and have decided to put it to some musical use. I've got a Roland D10 and a Yamaha SW60XG: what I need is a full duplex soundcard of a reasonable quality, without too much hiss. As this is all virgin territory for me, any other qualities you suggest I should look for would be greatly appreciated. I've looked at Turtle Beach cards but I would like to keep the price down to around £150. I'm not sure about the AWE64 Gold; if I'm going to spend £199, I may as well wait and get a Turtle Beach. All this indecision has kept me from buying a card for nearly six months. I'm tired of waiting: any help would be greatly appreciated.

Colin Cowlan  
via email

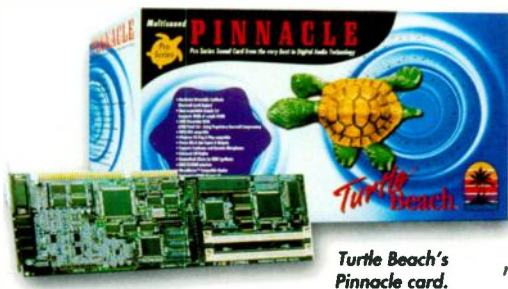
**Martin Walker replies:** *By a lucky coincidence, my PC Musician feature this month has lots more information on just this subject — soundcard audio performance (see page 118). I can understand your annoyance at signal-to-noise ratios not being published, but if you read my findings, you will see that even the companies who do publish cannot always guarantee these figures in practice, due to the noise contribution of your own PC. I do sympathise with your plight, but your suggested price of £150 does narrow the field down quite a bit. It's easy to recommend the Turtle Beach Fiji or Pinnacle cards, but these are a significant investment. As long as you avoid the anonymous clones at under £100, most cards in your price range are likely to have reasonable noise performance. Cards with line outputs only (with no speaker support) generally have lower noise, as the circuitry is not compromised.*

*The other Turtle Beach cards do have a good reputation, but the Tropez Plus and TBS2000 (about to be replaced by the Malibu), are said to be difficult to install (for full duplex use, the Tropez Plus drivers need three IRQs and two DMA settings). Midiman market the DMAN card, which although more highly priced, can be found at £189 from some suppliers, and this is claimed to have very good noise performance. Despite your reticence, the AWE64 Gold card does give a good clean sound (though the synth sounds are less clean), and although it's sold as a general consumer product, its resultant large sales do bring the price down.*



*I've spotted it being sold for as little as £135, complete with 4Mb of sample RAM (used to load SoundFonts), as standard. Finally, the Gravis Ultrasound Plug & Play Pro (around £130) is a vast improvement on its predecessors, being far easier to install — and the Gravis cards have a good reputation for sound quality.*

*One final thought — if you haven't yet got a sequencer package, check out some of the bundled hardware and software deals, as these can often save you a lot of money. □*



Turtle Beach's Pinnacle card.

## Drive For All You're Worth

I read with interest Martin Walker's article regarding PC file corruption in September's edition. There is one straightforward way of protecting your studio PC's settings. PC hard disks are so cheap now that it is possible to pick up a high performance drive (mode 4, less than 10ms access time), for around 100 quid. It therefore makes perfect sense to have a backup drive just sitting there, waiting for the inevitable to happen. What is the easiest way to do this? There is a relatively new program called *Drive Copy*, which is not only cheap (£25), but is a doddle to use. Simply attach the new drive, activate *Drive Copy* and remove your old drive — it's as simple as that. It copies all of your PC's settings as part of the data, so upon replacing the drive, there is no worrying about Adaptec SCSI cards, soundcard DMAs, or CD recorder settings.

The next time your studio comes to a halt because the PC won't even boot, let alone run *Cubase*, you just whip out your drive and replace with the backup. Problem solved — immediately.

Russ Hurley  
Programmer, Motiv8 □

## The Joy Of Sticks

Regarding Brendan Kirby's query about adding modulation/pitch-bend controllers to his PC-based system (September '97 issue of *SOS*), can I recommend a little PC-based program written by Hubert Winkler that allows you to use a humble joystick to send controller messages. The programme is called *Hubi's MIDI Joystick* and allows you to assign controllers to the X and Y axis as well as the two Fire buttons! The programme is freeware and is

available at [www.cs.ruu.nl/pub/MIDI/PROGRAMS/MSWINDOWS/MDJSTK10.ZIP](http://www.cs.ruu.nl/pub/MIDI/PROGRAMS/MSWINDOWS/MDJSTK10.ZIP).

I think it's well worth playing with!  
Martin Goble  
Edinburgh

**Derek Johnson replies:**  
*Thanks for the tip, Martin. Hubi's MIDI Joystick sounds like a fun way to input data — if only it was available for other platforms! I don't think we're going to find a cheaper way to solve Brendan's problem. □*



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■ **Above right:** The MS1402 Control Room section. MS1202-VLZ is similar except without Phantom LEDs, Level Set LEDs and global AFL/PFL solo switch.

Below: A few of the 400+ folks who work at Mackie Designs in Woodinville, WA, 20 miles north of Seattle.

1) On stereo channels.  
 2) This would make a great album title for the '90s.  
 3) Except possibly drummers who drink triple espressos.



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# Crosstalk

## Anything For A Quiet Life

I felt like making a few comments about your editorial last month on whether the future of desktop studios really does lie with the computer. As an enthusiastic (but sadly crap) musician, I first started sequencing on an Amiga, which was fine for me at the time. The equipment I had was probably generating as much noise as the TV set it was sitting next to!

When I upgraded my equipment and tried to integrate my PC into the setup, I was horrified to discover just how much noise it produced. Never mind the interference from the monitor, the bloody SCSI hard drives in it were unbelievably infuriating when trying to listen to quiet pieces of music. I got so sick of the situation that I ended up screaming out for a nice quiet box

that would let me write songs quickly — without first having to load in tons of software.

That was when I got rid of my PC and replaced it with an Akai MPC2000. I have to say that I am completely happy with this product — it lets me do all my songwriting from one box, it doesn't make any noise, and best of all, I can take it round to other musicians' houses and make music there too!

I've just got time to fit in a bit about how much I like your mag. I don't know how you do it at SOS, but you've managed to hold my interest in the magazine — something that your competitors certainly haven't managed to do!

Paul Wilson  
via email ☐

## Re: Volting Habit

Could someone please tell me why my Minimoog sounds fantastic when played as a stand-alone machine, but sounds much weedier when played via a Kenton Pro Solo over MIDI? Even the filter is less responsive in this mode. Is my Pro Solo faulty?

I have been reduced to playing sequences by hand and then sampling them to get a good sound. Surely it's not my ears deceiving me? please help!

By the way, your mag is fantastic — keep up the good work!

N Edwards  
Bristol

**Matt Bell replies:** *An interesting one, this; far from being a fault in your Pro Solo, it's all due to the Minimoog's slightly eccentric CV implementation. Kenton are aware of the problem, however, and can offer a solution.*

*Over to Kenton's John Price:*

*"When you play the Minimoog from its own keyboard, the filter tracking switches enable you to open the filter as you play further up the keyboard; however, the filter tracking is inoperative when the CV input (labelled OSC on the Mini) is being used to control the synth, resulting in a different sound.*

*"The CV input also has another drawback, in that it adds the input CV onto the voltage*

*produced by the Minimoog's own keyboard — so the note produced by the Mini when controlled by the Pro Solo will always depend on the last note you played on the Mini's keyboard. The Minimoog keyboard voltage is also only stored in a capacitor, which very slowly discharges over time, resulting in a synth which gradually drifts out of tune. If this drifting voltage is added to the control voltage from the Pro Solo, the result will still be a downward drift in pitch over time.*

*"To complicate things still further, a control voltage of 0 Volts produces an F note on the Minimoog, not the more usual C. The best way to minimise drift when playing a Minimoog from its CV input is to first press the Minimoog's bottom F key briefly — this way the keyboard capacitor is reset to 0 Volts, so it can't discharge any more, therefore the pitch can't drift down any further. Finally, because of the '0V = F instead of C' problem, you need to use the Transpose facility on the Pro Solo to make a MIDI C play a C on the Moog."*

*John also points out that Kenton have a permanent remedy for both of these problems; they can modify a Minimoog so that the CV input not only tracks the filter as it should, but is also made independent of the keyboard, resulting in stable tuning. Cost is £47.00 including VAT (plus carriage if required). Kenton can be reached on 0181 337 0333, or emailed on sales@kenton.co.uk. ☐*



Old faithful — the Minimoog.

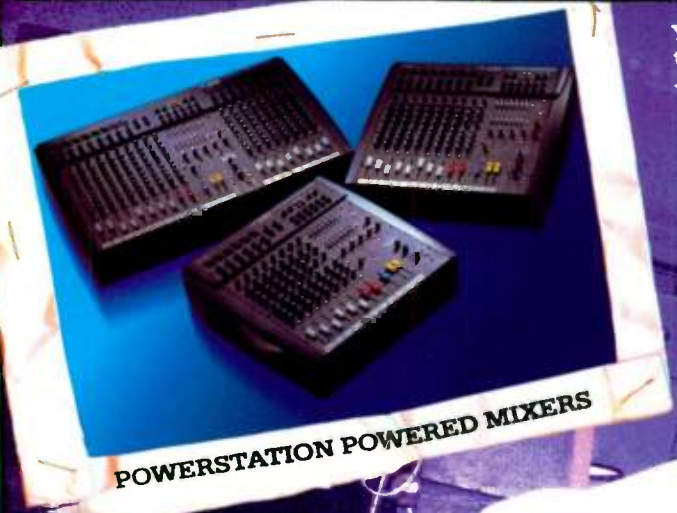
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DUBLIN	Control Techniques Ireland (CTI)	003531-4545400
DUNDEE	Sound Control	01382-225619
DUNFERMLINE	Sound Control	01383-732273
EASTBOURNE	Bonniers Ltd	01323-639335
EDINBURGH	Sound Control	0131-557 3986
EDINBURGH	The Warehouse	0131-555 6900
FAREHAM	The Audio Connection	01329-235966
GLASGOW	The Warehouse	0141-950 1757
GLASGOW	Sound Control	0141-204 0322
GRIMSBY	PSB Music	01472-343211
GUILDFORD	Andertons Music Co.	01483-38212
HEYWOOD	Wigan Acoustics Ltd	01706-368766
HIGH WYCOMBE	Percy Pianos	01494-528733
INVERNESS	The Music Station	01463-255523
KINGSTON	Earth Music	0181-546 9877
KIRKCALDY	Sound Control	01592-260293
LANCASTER	Low Fold Audio	01524-847 943
LEEDS	Carbbero	0113-2405077
LEICESTER	Carbbero	0116-2624183
LIVERPOOL	Ad Lib	0151-486 2214
LONDON	Turnkey	0171-379 5148
LONDON	London Microphone Centre (LMC)	0181-743 4680
LONDON	The Synthesizer Company (TSC)	0171-258 3454
LONDON	Gradley Theatre Services	0181-486 1300
LONDON	Raper and Wayman	0181-800 8288
LONDON	HJB Communications Ltd	0181-962 5000
LONDON	Studio Spares	0171-482 1692
LONDON	Soundvision	0171-609 3939
LONDON	Music Lab	0171-388 5392
LONDON COLNEY	DM Music	01727-821 242
MANCHESTER	AI Music Centre	0161-236 0340
MANCHESTER	Sound Control	0161-877 6262
MANCHESTER	Carbbero Academy of Sound	01623-651633
NEWCASTLE-UON-TYNE	Sound Control	0191-232 4175
NORTHAMPTON	Willow Communications	01604-21525
NORWICH	Carbbero Academy of Sound	01603-666891
NOTTINGHAM	Carbbero	0115-9581888
OXFORD	PMT	01865 248083
PETERBOROUGH	B&H Sound Services	01733 223 535
PETERBOROUGH	The Live Music Shop	01733 555505
PORTSMOUTH	Nevada Music	01705-660036
PRESTON	AI Music Centre	01772-204567
RINGWOOD	The AI Corporation (TMC)	01425-470007
RINGWOOD	AJS Theatre & Lighting Supplies	01425-480 698
ROMFORD	Music Village (Chadwell Heath)	0181-598 9506
SHEFFIELD	Carbbero Academy of Sound	0114-2640000
SHEPPERTON	Marquee Audio	01932-566777
SOUTHEND-ON-SEA	Honky Tonk	01702-619615
STEVENAGE	Music Solutions	01438-750751
STURBESS	Dawsons Music	01744-730424
ST. HELENS	East Coast Music (ECM)	01534-80575
STOCKPORT	Axis Audio Systems	0161-474 7626
STOCKPORT	Dawsons Music	0161-477 1210
STOKE-ON-TRENT	Carbbero Academy of Sound	01782-205100
STOKE-ON-TRENT	Music Control	01270-883779
SWANSEA	The Music Station	01792-775751
TUNBRIDGE WELLS	JBS Music Stores	01892 515 007
TWICKENHAM	Way Out West	0181 744 1040
		0181 744 1050
WAKEFIELD	KGA Studio Specialises	01923-371766
WARRINGTON	Vamps	01925-632591
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<small>Spirit by Soundcraft™, Harman International Industries Ltd., Cranborne House, Cranborne Industrial Estate, Cranborne Road, Potters Bar, Hertfordshire EN6 3JN, England. Tel: +44 (0)1707 665000. Fax: +44 (0)1707 665461</small>	
<b>Check out the Spirit Website: <a href="http://www.spirit-by-soundcraft.co.uk">http://www.spirit-by-soundcraft.co.uk</a></b>	

WRB



# shape of things to come

by Derek Johnson & Matt Bell

## Akai's digital dozen

As Akai themselves confessed in a recent press statement, the company's recent efforts in the area of multitrack hard disk recording have been mostly aimed at high-end studios and post-production suites. But all this is set to change in the first days of the New Year, when Akai plan to release their new DPS12 (Digital Personal Studio, apparently); a 12-track, 18-bit in, 20-bit out digital multitracker incorporating a MIDI-automatable digital mixer.

To store its recordings (which may be made at sampling rate of 32, 44.1 or 48kHz without data compression), the DPS12 comes pre-fitted with an internal omega 1Gb Jaz drive, and other hard drives may be connected via a SCSI socket on the back panel, for further recording or backup purposes. With the standard Jaz drive, Akai estimate a maximum recording time of 270 track minutes at 32kHz, or 180 track minutes at 48kHz. Recording time is dynamically allocated to tracks.

The recording, editing and mixing facilities look impressive. There's a choice of digital or analogue I/O: six analogue ins and one stereo S/PDIF in, and three master stereo outs (two analogue, one S/PDIF). In addition to its 12



physical tracks, the DPS12 also offers the use of up to 250 freely allocatable 'virtual' tracks; up to eight tracks (six analogue, two digital) may be recorded simultaneously. All the standard random-access editing functions (Cut, Copy, Delete, and Insert) are included, with 256 levels of Undo. As the mixer is digital, your settings can be saved and recalled as 'snapshots'; in addition, the DPS12's faders and pan controls generate continuous MIDI data for a degree of sequencer-based automation. The eight inputs may be routed direct to the DPS12's outputs along with the contents of the 12 channels on disk, offering a possible total of 20 channels at mixdown. To complete the 'studio in a box' feel, there's even an optional effects board. The basic DPS12 (including Jaz drive) is set to sell for £1299; prices on the effects board have yet to be announced.

Akai have also released version 1.5 operating software for their MPC2000

sampling workstation. The update adds a number of features, including MIDI Sample Dump and support for Emu and Roland CD-ROMs, and MPC60 MkI and MkII-format floppy disks. Several other improvements have been made: the SCSI transfer speed is now, according to Akai, "at least five times faster", and you can now change Program parameters while playing back a sequence.

You can obtain this far-reaching upgrade from Akai's web site (see URL below); or, if you don't have web access, simply send a blank PC- or MPC2000-formatted floppy disk to Akai UK's EMI Division with a note requesting the OS update, and it will be sent to you.

**A** Akai UK, Haslemere Heathrow Estate, The Parkway, Hounslow, Middlesex TW4 6NQ.

**T** 0181 897 6388.

**F** 0181 759 6117.

**W** [www.akai.com/akaipro](http://www.akai.com/akaipro)



## Trinity: Coming to a rack near you...

Korg's Trinity is shortly to be released in rackmount format. Boasting the same 32-note polyphony as the keyboard version, the new so-called TR-Rack contains 24Mb of waveform memory, with 512 Programs and 512 Combinations on offer to the user, as well as the original Trinity's fully-featured effects section (eight insert effects

units, each offering 100 effects, plus two master effects units each with 14 effects). Expansion options will also be available: an 8Mb PCM expansion card for the TR-Rack's waveform ROM, and an ADAT optical digital interface board, the DI-TRI. The price of the TR-Rack is not yet confirmed, but it is expected to be under £1000; watch this space!



## prices compressed!

The price of dbx's new MC6 stereo Mini-Compressor match its dimensions — at £99.95 including VAT, it's as mini as they come. Nevertheless, the MC6 is not short on features, offering full input/output/gain reduction metering, a choice of fully user-selectable or programme-dependent attack and release times, switchable hard/soft knee compression, and what looks like a user-friendly interface (ie. lots of faders!).

Arbiter, dbx's UK distributor, have also announced several price cuts on some of their DOD and Digitech products. Here's a list of the new prices, with the old ones in brackets:

- Digitech 2112 guitar effects, £799.95 (€999.95).
- DOD Tec8 guitar processor, £199.95 (€229.95).
- Digitech MIDI Vocalist harmony processor, £349.95 (€379.95).
- Digitech Studio Quad effects, £399.95 (€499.95).
- Digitech Studio Twin effects, £229.95 (€249.95).

**A** Arbiter Music Technology, Wilberforce Road, London NW9 6AX.

**T** 0181 202 1199.

**F** 0181 202 7076.

**E** arbiter@compuserve.com

**W** www.demon.co.uk/arbiter

## SOS Online generates Yellow fever

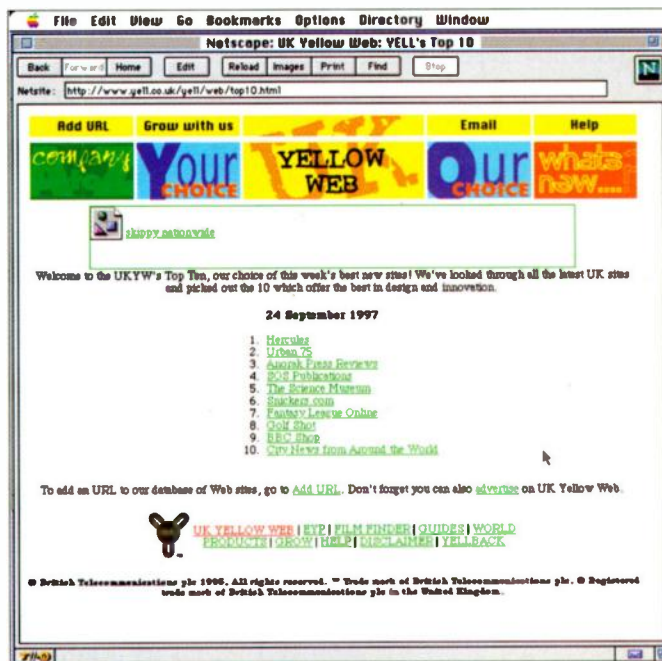
In the short time that it's been fully operational, the SOS Publications web site has been heaped with praise. Our thanks go to the many readers who have sent emails commenting on the site's wealth of useful information and easy-to-use

interface. But the finest accolade so far came during the week ending September 24th, when SOS Online was chosen by the Yellow Pages as one of the top 10 UK web sites of that week.

Since the rise of the Internet as a tool of mass communication, the Yellow Pages has established itself as an effective site directory, containing details of over 17,000 UK sites, with 300-500 being added each week. The SOS Publications site was chosen as one of the best UK sites on the grounds of its "design, innovation and functionality". This means our site is now eligible to carry the icon

shown right.

Awww, shucks, guys, you're making us blush...



Straight in at No.4... SOS Publications!

## Spirit site now plus Penguin



Spirit have redesigned their web site, apparently to incorporate improvements suggested by some of the 120,000 visitors to the site during its first year of operation — although we find it hard to believe that anyone actually asked for a site mascot like Colin the Spirit Penguin (shown right). Anyway, Colin notwithstanding, the improved site now offers all kinds of goodies, including Spirit's entire range of user guides, brochures, and block/wiring diagrams, all available to download free. There's an interactive technical 'agony column', FAQs, and mixer spec, cost and retailer search engines (so you can find a mixer that perfectly suits your technical



and price requirements, and then find out who your nearest stockist is); there are even interactive competitions every two months. The site can be reached at the URL below. Colin awaits you...

**A** Spirit by Soundcraft, Cranborne House, Cranborne Industrial Estate, Cranborne Road, Potters Bar, Herts, EN6 3JN.

**T** 01707 665000.

**F** 01707 660482.

**W** www.spirit-by-soundcraft.co.uk

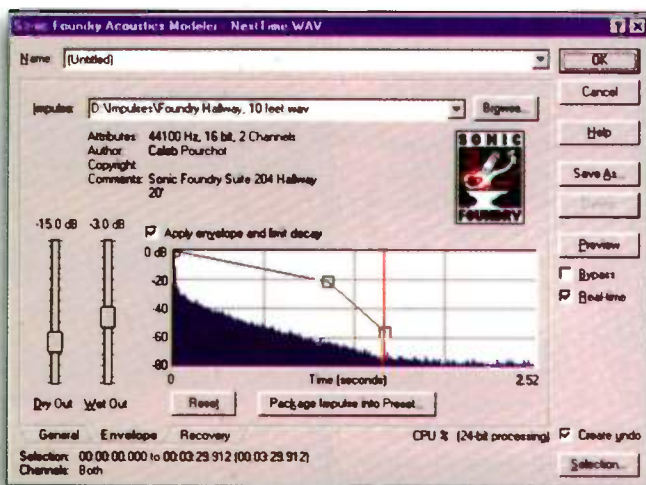


# shape of things to come

## it's a *Modeler* and it's looking good...

**S**onic Foundry, makers of the acclaimed PC audio editing software package *Sound Forge*, have announced the release of *Acoustics Modeler* [sic — *that's how Americans spell 'modeller', apparently — pedantic Assistant Ed*], a processing plug-in for *Sound Forge* and other DirectX-compatible PC audio editing applications. *Acoustics Modeler* physically models acoustic environments and processes, and allows users to impose the effect of these so-called 'acoustic signatures' on their own audio. You might think this sounds like what a reverb unit does, and indeed *Acoustics Modeler* does contain many preset signatures similar to those found in effects units — recording studios, concert halls, and tunnels, all created from hundreds of hours of precise acoustic measurements — but the software is not limited to reproducing acoustic spaces. Preset signatures are also included which model the effect certain classic microphones and amps have on sound.

There is also an option to create your own signatures, allowing you, in theory, to add the acoustic effect of an environment of your choice to your audio without having to return to that



environment to make the recording. Sonic Foundry claim the program will, at least, offer "more realistic reverb", but it sounds like the potential uses of the program go deeper than that. As usual, we'll bring you a full SOS review as soon as possible!

- £ £179 including VAT.
- A MCMXCIX, 1 Amalgamated Drive, West Cross Centre, Great West Road, Brentford, Middlesex, TW8 9EZ.
- T 0171 723 7221.
- F 0171 724 3775.
- E tsc@mcm.co.uk
- W <http://www.sfoundry.com>

## Millenium on the move

**N**ottingham-based Millenium Music Software have completed their move to their new premises (address below). The new shop is fitted with a fully working remix facility, named The Red Room, which contains various tape and hard disk recording systems, and is based

around a 56-channel Mackie mixer setup. The Red Room is designed to offer customers 'in situ' product demos of the wide variety of equipment sold by Millenium, from effects outboard, mics and monitors, to MIDI + Audio hardware and software.

Millenium have also announced a new range of IBM-compatible PCs specifically designed for audio recording. The PCs feature the new Ultra DMA IDE buss (allowing data transfer rates of up to 33Mb per second), and may be supplied with up to 128Mb of built-in RAM and hard disk drives of up to 6.4Gb capacity. The computers can also be ordered with a CD writer and an internal Zip or Jaz drive if required. Finally, Millenium offer a choice of digital I/O card and software to complete your system.

- A Millenium Music Software, 172 Derby Road, Nottingham NG7 1LR.
- T 0115 955 2200.
- F 0115 952 0876.
- E 100124.1103@compuserve.com

One of Millenium's new PCs, featuring internal Zip drive.



SOS can be reached at [sos.feedback@sospubs.co.uk](mailto:sos.feedback@sospubs.co.uk)

or visit <http://www.sospubs.co.uk>



Deltron Components' new Linx range of pro audio cables is now available. The range comes in a choice of black, blue and red, in 3-metre, 5-metre, 9-metre and 10-metre lengths, with Gotham single- or double-shielded cable used throughout. Cables include quarter-inch jack-to-jack, XLR-to-jack, XLR-to-stereo-jack, XLR mic and MIDI.

T Deltron 0181 965 4222.

VIP Events are running the fifth Wembley Rock & Pop Fair on the weekend of November 29 and 30. It's taking place inside Exhibition Hall 3, which is actually larger than Wembley Arena itself. Exhibitors from 20 countries will be selling CDs, vinyl and cassettes, along with memorabilia, books and fanzines. Admission is £3, and the fair is open between 10am and 5pm (4pm on the 30th). There are 6000 parking spaces, and the nearest tube is Wembley Park.

T VIP Events 0116 271 7089.

Deltron's Brighteye MIDI connector features an LED array which flashes red when a MIDI signal is present, and is available in both male and female versions. The male version is ideal as a quick tester for MIDI data at the MIDI Out or MIDI Thru of a synth (for example), while the female version can be used to test MIDI leads.

T 0181 965 4222.

F 0181 965 6130.





# Our customers' comments

*"Ghost is Killer! Classic fat British EQ like you've always dreamed of. And the faders are awesome...the taper on them is as smooth as anything I've ever used. Incredible. Ghost has just about everything I look for in a quality console; great tone....great feel...looks...even the name! I'd swear you custom made this for me. I could not have picked a better console for sound, features and feel."*

*Geno Porfido, Boulevard Recording Co. New Milford, NJ*

*"Other consoles I've worked with in the past just couldn't deliver the levels of punch and clarity I felt the music deserved. I never have this problem with my Soundcraft Ghost. The Ghost gives me the flexibility I need over a wide range of frequencies and has the body and warmth to really bring my music to life."*

*Johnathan Moffett, Drummer with Michael Jackson and Madonna*

*"After the first mix I did, I realised I was in a whole new league. This thing sounds beautiful. Very silky in the high end and full in the lows. The EQ is totally cool and the board has a quality feel to it. I know of nothing that touches it in its price range and I have been recommending Ghost for months to anybody who's looking for a console."*

*Garth Webber, Red Rooster Studio, Berkeley CA*

*"I've worked on many competing 8 bus consoles and none can compare to the Ghost in features, ergonomics and, most importantly, sound. The Ghost, simply put, sounds warm and musical - you don't have to work hard to get great sounding mixes on this board. The EQ is very flexible and we compared the mic preamps (using a Neumann U-47) to the Neve 1066s in our studio. We were very surprised at how favourably they compared to these megabuck classics."*

*Peter Thorn, What If? Productions.*



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Let us know what you think about the Soundcraft Ghost by visiting our web site at <http://www.soundcraft.com> or via e-mail to [info@soundcraft.co.uk](mailto:info@soundcraft.co.uk)

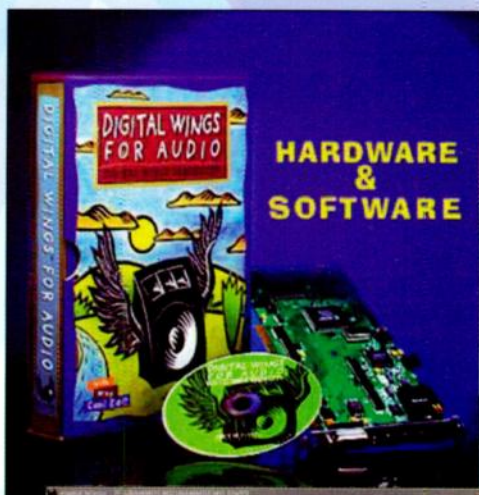
**Ghost**  
Soundcraft

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SOUNDCRAFT US, HARMAN PRO NORTH AMERICA, INC., AIR PARK BUSINESS CENTER 12, 1449 DONELSON PIKE, NASHVILLE, TN 37217, USA. TEL: 1-615-399-2199 FAX: 1-615-367-9046

All trademarks acknowledged





## Digital Audio takes wing

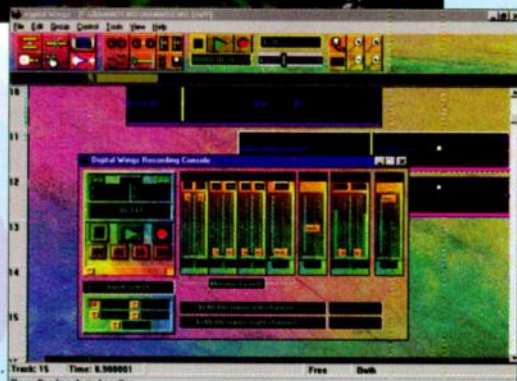
The SOS team saw an early version of Metalithic Systems' Digital Wings For Audio (DWA) PC-based hard disk recording system at this year's Frankfurt Musik Messe, but at the time, there were no firm plans to bring it to these shores. Now a new PC-orientated UK company, Serious Audio, has stepped into the breach, and taken on UK distribution of the system.

DWA is a £499, hardware-based system with a PC-driven software front end. This integrated approach, claim Metalithic, helps to avoid the problems that often arise when software and hardware from different manufacturers is used together for digital audio recording.

What's new at this price is that DWA offers an amazing 128 tracks of audio recording. According to Metalithic, the system achieves this feat by storing no more than two tracks on hard disk and using advanced computing techniques

to 'render' the rest of the stored information, much as advanced graphics programs can render a 3D object from 2D images. The system comes supplied with a software-upgradable soundcard, the front-end control software (two windows from which, the Recording window and the Fader window, are shown in the screen dump, below left), and Syntrillium's fully-featured *Way Cool Edit* audio editing software, which allows comprehensive manipulation of your recorded audio. *Way Cool Edit* contains 32 powerful DSP-based processing plug-ins, including filtering, parametric EQ, pitch-shifting and time-stretching, reverb, compression, limiting, and gating, and de-noising. At present, the processing takes place off-line (with a real-time preview option), but plans are already afoot to upgrade the system to incorporate real-time processing. A series of I/O breakout boxes is also already in development to expand on the soundcard's current basic complement of two analogue stereo inputs and one analogue stereo output

**A** Serious Audio Ltd, 96B Queens Road, Watford, Hertfordshire WD1 2NX.  
**T** 01923 442121.  
**F** 01923 442441.  
**E** serious@nildram.co.uk

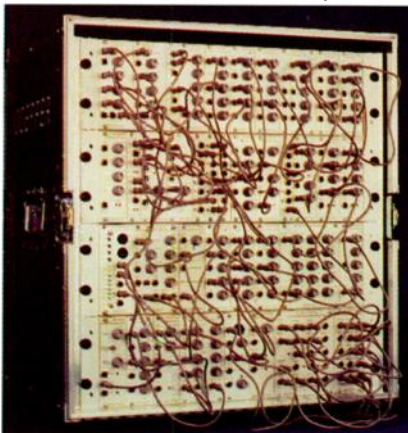


DWA's software front end — the Recording window (seen in the background) and the Fader window (in the foreground, on top of the Recording window).

## Doepfer, Doepfer, über EMIS



Doepfer's A100 (below) and MS404 (top).



You may remember Doepfer, the German analogue specialist — they produced the MAQ16/3 hardware MIDI sequencer with the analogue sequencer-style control interface, which was reviewed way back in *SOS* July '93. Bristol-based retailers EMIS have recently been appointed official Doepfer distributors for the UK, and have completely revamped the pricing structure. Doepfer's A100 analogue modular system (for which a total of 49 different modules are now available, with 15 more due by the end of the year) now costs £999 including VAT for a basic 23-module system. A mini 10-module system is also available for £699.

Doepfer have been busy

producing several other products since 1993: for example the MS404, a rackmount, entirely analogue synth with MIDI and a CV/Gate interface (now only £299), the version 3 MAQ16/3 sequencer, and the forthcoming Regelwerk MIDI hardware controller. They are also in the process of developing an enormous matrix sequencer, the Schaltwerk. For a complete list of everything in the range, contact EMIS, and they'll send you a catalogue.

**A** EMIS, The Old School House, Cossham Street, Mangotsfield, Bristol BS17 3EN.  
**T** 0117 956 1855.  
**F** 0117 956 1855.  
**E** emis@dial.pipex.com  
**W** dspace.dial.pipex.com /emis/index.htm

## Andertons talk technology

Surrey-based retailer Andertons Music are hosting what they call a "Music Technology conference" on 12th November, in conjunction with Roland, Steinberg, Tascam and the Academy of Contemporary Music. The evening conference, which is free, will be held at the Hugh Christie Technology College, in Tonbridge, Kent, and aims to provide "an opportunity for advisers, teachers, lecturers and students to experience the latest developments in music technology and A-level applications". The evening will consist of talks by the manufacturers and guest speakers, followed by a hands-on session. Teachers can book places by calling or faxing Kevin or Ian on the numbers below before October 31st.

**T** 01483 456888.  
**F** 01483 456722.



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**YAMAHA**

Yamaha Music (UK) Ltd. Pro Music Division



## Meek but not mild

The world's going greener with the release of three more products in the eye-catching Joemeek range, unveiled at the New York Audio Engineering Society (AES) show in September. The SC3 is a high-quality stereo compressor (designed by Joemeek founder Ted Fletcher in collaboration with a leading US digital design engineer) which refines the sound of the flagship SC2 and adds several new features, including top-flight 20-bit digital inputs and outputs.

The VC6 Meekbox (as briefly reported in last month's news pages and reviewed on page 36 of this issue) is a combined preamp, compressor and enhancer offering a compact, high-quality signal path for mic, line and instrument sources. Joemeek say the new unit is designed to appeal to those who love the sound of their best-selling VC3 Pro

Channel but who want extra flexibility. The compressor section has been improved for the Meekbox, and now has fully variable control of compression depth, ratio, attack and release.

The VC5 Meequalizer has been made, according to Joemeek, as a direct response to customer requests for a classic pedigree equaliser. It's a stereo device with three bands per channel, and is based around a discrete transistor circuit for an especially warm sound.

Back to the established range for a moment, and we hear that Joemeek have donated a VC4 Enhancer to the Prince's Trust; the Trust aims to establish a recording studio in Northamptonshire which will be solely for the use of young, unemployed musicians. Initially offering mastering and demo facilities, it is hoped that the studio will become residential in the future.

**A** Joemeek Ltd, Swillett House, Heronsgate Road, Chorleywood, Herts WD3 5BB.  
**T** 01923 284545.  
**F** 01923 285168.  
**W** www.joemeek.co.uk



## you could do with a 'D'



Joining their three established D-series instrument mics, Audix's new D4 drum mic has been designed specifically for use with high-SPL instruments with extended frequencies below 100Hz — ie. kick drum. The mic's frequency response is claimed to be flat down to 63Hz, with a slight bump at 80Hz, and a gentle rolloff below 40Hz; from 80Hz to 1kHz, the D4 is linear. While optimised for kick drums, the mic is suitable for any other instrument where low-frequency reproduction is critical: timpani, toms, piano and so on. The D4 retails for £149.

**A** SCV London, 6-24 Southgate Road, London N1 3JJ.  
**T** 0171 923 1892.  
**F** 0171 241 3644.  
**E** info@scvlondon.co.uk  
**W** www.scvlondon.co.uk

## Roehampton Institute: Educated follower of fashion

London's Roehampton Institute is running a series of music technology evening courses, starting this month with *Introduction to MIDI*. This course will run for five weeks on Tuesdays or Thursdays, starting on November 11 or 13. In the new year, starting on January 6 or February 17, the Institute will be running an *Introduction to Songwriting and Recording* course, and April 21 sees the start of *Introduction to Hard Disk Recording*. All courses run from 6pm to 9pm, and cost £40 each. There are no pre-requisites

for taking the courses, although the sequencing skills learned during *Introduction to MIDI* would be useful for the hard disk recording course.

**A** David Benke, Division of Music, Roehampton Institute, Wimbledon Parkside, London SW19 5NN.  
**T** 0181 392 3392.  
**F** 0181 392 3435.  
**E** d.benke@roehampton.ac.uk.  
**W** 194.80.242.205/music/short.htm



# Philips: Burning brightly

**W**e at SOS have been tracking the falling prices of CD recorders over the last year or two, but now we have a real breakthrough.

How about a stand-alone CD recorder for about the price of a DAT machine? At £499.99, Philips' CDR780 is just that machine. Interestingly, the CDR780 is the first stand-alone machine to let users re-record over previously recorded material; using special CD-Rewritable discs, you can erase the last track recorded, or even the complete disc. Both analogue and digital inputs are provided, so you can mix direct from the

digital outs of your mixer or soundcard (if they're so equipped) straight onto a CD. The digital input automatically detects sample rates of between 32kHz and 48kHz, and incoming audio at 32kHz or 48kHz is automatically converted to 44.1kHz. In addition, the recorder offers automatic track numbering from DAT, DCC or MiniDisc digital sources.

**A** SRTL Ltd, Record House, Emsworth, Hants PO10 7NS.  
**T** 01243 379834.  
**F** 01243 430639.  
**E** info@srtl.co.uk  
**W** www.srtl.co.uk



Philips CDR780.

## Cowabunga!

**M**idiman have released three new digital audio products.

- The curiously named Flying Cow is a 20-bit external digital audio converter, priced at £349, which offers conversion between analogue audio and AES/EBU and S/PDIF digital signals. The 20-bit converters have a dynamic range of 100dB, and sample rates of 48kHz, 44.1kHz and 32kHz are supported; an EXT mode allows wordclock operation, so that the sample rate is locked to the data received at either of the digital inputs.

- The D-man 2044 is an ISA format, 20-bit, 4-in, 4-out digital audio card with MIDI, DSP and an on-board synth for PCs, and costs £299. All D-Man 2044 channels are full duplex, allowing simultaneous record and playback.

- DiO is a 1-in/1-out digital-only audio card that offers AES/EBU and S/PDIF formats, and supports up to 24-bit digital transfers. It also costs £299.

**A** Midiman UK, Hubberts Bridge House, Hubberts Bridge, Boston, Lincs PE20 3QU.  
**T** 01205 290680.  
**F** 01205 290671.  
**E** 75300.3434@compuserve.com  
**W** www.midifarm.com/midiman

## a whiter shade of pale

**S**eptember's AES Show in New York saw the launch of TL Audio's new Ivory range of signal processors. The Ivory range will join the successful Indigo range, which regular SOS readers will be familiar with from reviews, and each of the new units will offer a number of extra facilities over its Indigo predecessor. The Ivory range will initially consist of four models, each 2U 19-inch rackmounts.

- The 2002 4-channel mic preamp.
- The 2013 stereo parametric EQ.
- The 2022 stereo compressor.
- The 2052 mono voice processor.

Also on show at AES was a 32-channel pre-production version of TL Audio's unique VTC valve console. Shipping for this exotic item is scheduled for later this year.

**A** TL Audio, Letchworth, Herts SG6 1AN.  
**T** 01462 490600.  
**F** 01462 490700.  
**W** www.tludio.co.uk

Pickup manufacturer Barcus-Berry can now be picked up on the internet, with the launch of their new web site. The site features product news and technical data, plus information on artists and engineers who use Barcus-Berry products.  
**W** www.barcusberry.com.

Scottish engineer Calum Malcolm, who has worked with The Blue Nile, has recently finished recording the latest Prefab Sprout album; among the equipment used on the sessions were two TL Audio EQ1 equalisers and a C1 valve compressor. Malcolm is quoted as saying that the EQ1 is: "the best equaliser I have found for sweetening acoustic guitars. You can do quite a lot with them and the music still sounds completely natural."

**T** Larking Audio 01462 490600.

HHB claim that their new CDR74 Gold CD-R is the first to developed specifically for pro audio use. Previous CD-R discs have been designed primarily for use with computer data CD-writers, but the new 74-minute disc is optimised for professional audio recorders. Accelerated UV exposure tests have led HHB to predict a secure archival life of 100 years.

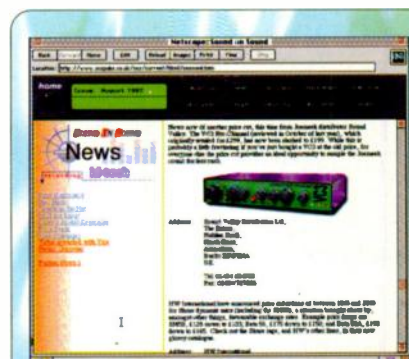
**T** HHB 0181 962 5000.

MIDI and CV/Gate retrofit specialists Kenton Electronics have announced a new kit which gives CV, Gate and Filter input sockets to Yamaha CS01 synths. The price is £49.94 for the self-install kit, or £89.89 if Kenton carry out the mod for you (prices include VAT). Contact Kenton for further details.

**T** 0181 337 0333  
**W** www.kenton.co.uk/

MIDI File specialists Heavenly Music have a new postcode, although the rest of their postal address remains the same. The new full details are therefore as follows:

**A** Heavenly Music Productions, PO Box 3175, Clacton, Essex CO16 8GX.  
**T** 01255 821039.



SOS can be reached at [sos.feedback@sospubs.co.uk](mailto:sos.feedback@sospubs.co.uk)

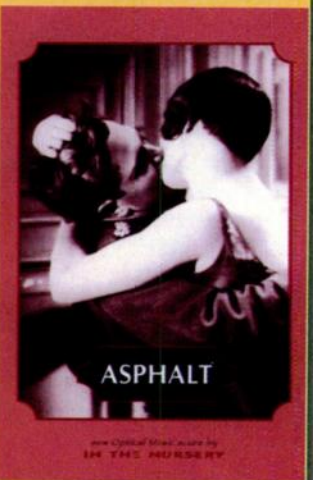
The SOS web site is located at <http://www.sospubs.co.uk>





As you may know, this year's APRS show has been combined with the UK broadcast exhibition Vision to form the joint Vision&Audio97 show, which is now confirmed to take place from 4-6 November, in Earl's Court 2, London. To pre-book tickets, call the Vision&Audio97 ticket hotline on the number below.

**T** 01923 801050.



In The Nursery, brainchild of SOS contributor Nigel Humberstone and his brother Klive, have composed a new soundtrack to accompany the newly-restored print of the silent 1929 German Expressionist film *Asphalt*. ITN are currently undertaking a 12-date tour of regional film theatres (venues include the Leeds International Film Festival and The Purcell Rooms in London), during which they will provide live musical accompaniment while the film is shown. The new score is also being released on CD on October 28th.

**T** ITN Corporation 0114 272 8726.  
**E** lesjumeaux@itncorp.demon.co.uk

SOS can be reached at  
sos.feedback@sospubs.co.uk

Our web site address is  
http://www.sospubs.co.uk

## Digidesign: Plug-in away

**D**igidesign have announced a new range of TDM and AudioSuite plug-ins for their Pro Tools digital audio systems. First up is the Drawmer Dynamics TDM plug-in bundle, priced at £540 including VAT. The bundle includes software based on Drawmer's DS202 noise gate and DL241 compressor/limiter. Features include programme-adaptive variable-ratio expander, frequency-conscious noise gate with envelope control and key input, manual or fully automatic compressor attack, release and gain, zero overshoot limiter and a comprehensive library of patch settings.

Two other suites of plug-ins are

the *D-fx* time domain and *D-fi* retro effects collections. *D-fx* (£234 inc VAT) is an AudioSuite package, and offers a version of Digidesign's *D-Verb* reverb plug-in, plus chorus, flanger, multi-tap delay and ping-pong delay.

*D-fi* (£351 including VAT) is available for both TDM and AudioSuite systems, and consists of four plug-ins designed to downgrade your pristine digital audio!

\* *Lo-Fi* intentionally degrades audio in a creative way, using bit rate and sample size reduction, distortion noise addition and saturation.

\* *Sci-Fi* provides ring modulation, frequency modulation and variable frequency resonator effects,

complete with various adjustable modulation options; used to emulate analogue synth type effects.

\* *Recti-Fi* generates harmonics or sub-harmonics through waveform rectification; a built-in low-pass filter can be used to smooth out the resulting harmonically rich waveform.

\* *Vari-Fi* is exclusively an AudioSuite plug-in and allows you to process audio files to disk to create the effect of audio on tape — or turntable — changing its pitch over a wide range.

**A** Digidesign, Westside Complex, Pinewood Studios, Iver Heath, Bucks SLO 0NH.

**T** 01753 653322.

**F** 01753 654999.

## perfect harmony from HNB

**I**f you're a regular user of the Eventide 4000-series Ultra-Harmonizer you'll be pleased to hear that Eventide have added two new preset libraries to their selection. The GTR II library contains 166 presets designed for instrument applications, including electric and acoustic guitar, keyboards and bass guitar. Also featured are studio-quality emulations of popular 'stomp-box'-style effects. The Broadcast Extension Library is designed for the DSP4000B (optimised, as you might guess, for broadcast use) and features all the presets found in the DSP4000 and the GTR4000 Ultra-Harmonizers.

**A** HB Communications, 73-75 Scrubs Lane, London NW10 6QU.

**T** 0181 962 5000.

**F** 0181 962 5050.

**E** sales@hnb.co.uk

**W** www.hnb.co.uk

## Sounds OK for Roland owners

**I**f you're a Roland JD- or JV-series synth owner, read on for some special offers on third-party sounds from Sounds OK. The sounds are all available as PCM card sets. For the JD800/990, the following sets are priced at £49 each, or £75 for any two:

- SLJD8003 Rock Drums
- SLJD8004 String Ensemble
- SLJD8005 Brass
- SLJD8008 Accordion

For the JD990 only, Sounds OK have the following patch cards:

- JD9D1 Modern Masters
- JD9D2 Modern Sonics
- JD9D3 Oz Perspective

These cards are on offer at £49 for the set of three.

Sounds OK also have a quantity of SOPCM101 piano wave cards for the JV80/880/90/1000 and JD800/990 at just £24.99.

Sticking with the JD800/990 for a moment, Sounds OK tell us they've had so many calls from owners seeking sounds for these popular synths that they now have three special Sounds OK-designed sets (64 sounds

per card) covering Pure Synthesis (influenced by the Wavestation and vector-control keyboards, and "ideally suited to chill-out music and New Age"); Textures ("bold classic and vintage analogue timbres suited to dance and techno styles"); and Dance ("destined to be used in a variety of dance cuts, from ambient to more aggressive styles"). Each ROM card costs £55.

Note that you'll need to add £2 p&p to every order.

**A** Sounds OK, 10 Frimley Grove Gardens, Frimley, Camberley, Surrey GU16 5JX.

**T** 01276 682313.

**F** 01276 682717.





# Dare to be different...

*For the first time you get advanced additive power on a synthesiser. With additive synthesis you can create any sound in your imagination.....*

*.....sounds never heard by anyone before.*



The heart of Kawai's **Advanced Additive** technology is the additive wave set. A wave set consists of 64 harmonics. Each harmonic is controlled by its own 5 stage, looping amplitude envelope. The 128 band Formant Filter can simulate natural tonal characteristics, and 123 PCM samples such as classic analogue synth waveforms add extra spice. Up to 6 elements can be combined to create amazing complex timbres.

**NEW  
LOW  
PRICES**

Integrated in the K5000S, and available as an option for the Workstation and Rack, is Realtime Macro Control. 16 knobs for direct control (and MIDI control changes) over the most **Advanced Additive** parameters. Harmonic Waves, Formant Filter, Arpeggiator, Portamento, Filter Cutoff and Resonance and 4 user assignable knobs.



K5000 Workstation adds General MIDI Synthesis with 341 waveforms and 225 drum waves to the additive section giving 64 note Polyphony. Also includes a powerful 50,000 note, 40 track sequencer with 32 MIDI channel support.



All the features and power of Advanced Additive Synthesis in a 2U Rack Module: The Kawai K5000R.

## **K5000 SPECIFICATIONS:**

- 40 pattern/11 mode arpeggiator with chord gates and triggers
- 32 note polyphony
- Disk drive for data storage and software upgrades
- 37 effects, 4 simultaneous
- 4 outputs
- 108 db S/N ratio
- E-Magic K5000 Sound diver Editing software for Mac and PC included
- 5 Octave keyboard with Velocity and Channel Aftertouch (5000S and 5000W only)

# KAWAI



shape of things  
to come

## Quantegy's multi media

**D**emo Doctor 'Top Tape' sponsors Quantegy have introduced two new ranges of analogue cassettes. AVX cassettes are normal-bias tapes utilising a "superior" binder formation (increasing tape durability and long-term storage stability) in a high-strength moulded shell, and come in a range of play lengths between 10 and 120 minutes. The IRC — Instant Record Cassette — range offers the same features, but adds a magnetic leader that allows instant recording regardless of initial tape position.

Quantegy have also launched a range of MiniDisc blanks aimed

specifically at the market opened up by the digital multitracks introduced by Sony, Tascam and Yamaha. Other new products from Quantegy include the TapeCare packaging system (scored in the company's acquisition of 3M's professional media assets), which provides safe, secure and air-tight packaging for open-reel tape, plus a range of magneto-optical disks in 1.3Gb and 2.5Gb capacities, with high transfer rates.

**A** Quantegy, Unit 3,  
Commerce Park, Brunel Road,  
Theal, Berks RG7 4AB.  
**T** 01734 302240.  
**F** 01734 302235.

## M Corporation and Digidesign tied up in Notts

**T**he M Corporation will be holding an evening seminar focusing on Digidesign products in their Nottingham offices on November 20th. Led by Digidesign staff, the seminar will provide an opportunity to see Digidesign's new product range. Taking centre stage is the new Mac-based Pro Tools 24 hard disk recording system launched at the AES in September, which Digidesign claim to be "a significant upgrade from Pro Tools 4".

The evening seminar

will also feature demos and a question-and-answer session with M Corporation and Digidesign staff. Attendance is free, and food and drink will be provided: all The M Corporation request is that you book in advance if you wish to attend, by ringing either of the two numbers below.

**A** The M Corporation,  
Square Centre, Alfred  
Street North, Nottingham  
NG3 1AA.  
**T** 0115 947 4070.  
**T** 01425 470007.  
**F** 01425 480569.

# turnkey

dynaudio

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If you want  
to **look** at  
equipment  
we'll send  
you some  
brochures...



If you'd prefer to **listen** and evaluate a wide range of products by strict A/B comparison there is currently only one option.

Turnkey's revamped and enlarged demo facilities feature what we believe to be the world's largest digital comparator systems for pro audio\* and the only one of its type in the U.K.

Over 70 effects processors are available for instantaneous A/B via relay switching, eliminating the repatching time which makes good comparisons so difficult. 16 pairs of studio monitors, 10 power amps, 16 mixing consoles and around 30 sources and recorders from DATs, CDs, HDRs and Multitracks are on the same matrix so you can instantly configure complete systems.

Take 8 bus consoles - hundreds are bought each year on recommendation. Bearing in mind the sums involved it's hard to believe that the opportunity to properly compare the various brands for EQ and noise has not previously been offered.

We've taken the same innovative approach to demonstrating all our products from CD Rom samples to analog synthesisers.

Most dealers will tell you which products best suit your needs. Only one can show you.



One side of the switcher-equipped recording room.



Compare 6 mics by recording simultaneously to ADAT.



Waldorf/Wave, Pro-Tools IV and Big by Langley in Studio 1.



Huge range across Mac, PC and Acorn platforms.

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**13** Mics, PA/DJ, Mixers & Monitors

\*The leading manufacturer of this equipment tells us that the Turnkey systems are the largest ever supplied worldwide.

**turnkey 0171 379 5148**

Fax: 0171 379 0093 114 Charing Cross Road London WC2H 0DT



# IMPROVE YOUR PERSONAL SPACE!



Ask just about any recording engineer for their opinion on who makes the finest reverb and effects processors, and you will get just one answer - Lexicon. Their 224 was the first digital reverb made, and even now twenty years on, is still much sought after. The current mid-priced range of the MPX1, PCM80 and 90, make the famous Lexicon sound more affordable than ever, and represent some of the best value for money signal processing around.

- Unrivalled Reverb Quality from the First Name in Digital Effects
- Excellent Realtime Control via MIDI & other Modulators
- True Stereo Processing with Dual Mono Possibilities
- Wide Range of Extra Program Cards for PCM80 & 90

## MPX1 MULTI EFFECTS PROCESSOR



## PCM80 MULTI EFFECTS PROCESSOR



## PCM90 REVERB PROCESSOR



For those of us who need top quality reverb & multi FX but cannot stretch to the expense of the PCM80 & PCM90, Lexicon have released the MPX-1. Featuring the famous 'Lex' chip for reverb and separate DSP processor for multi FX, the MPX-1 brings you all that is good in signal processing for under £1200 inc VAT! Up to 5 simultaneous effects are available including pristine quality stereo pitch shifting, and effects can be "morphed" from one algorithm to another, as pioneered in the Vortex. All new operating system includes on-line help and database for sorting presets. Achieving quality results is as stress free as possible.

RRP £1199  
**£999**

The PCM80 effects processor has state of the art audio quality with true stereo processing, amazingly detailed editing including MIDI clock control and a card slot. Cards include: Dual FX, Pitch FX and the Martin Gershwin card.

RRP £2189  
**£1899**

The PCM90 is dedicated to reverb and features two of the famous proprietary Lex2 chips (the PCM80 has one Lex2 chip and one Motorola DSP). The dual layer programming architecture makes it a breeze for day to day use, but allows ultra detailed editing for those who want to get right 'under the hood'. Optional cards mean obsolescence is built out!

RRP £2589  
**£2099**



## ProTools v4.0 Package

- 7300/166 32/1.0CD & keyboard
- Apple 1705 17" MS Display
- ProTools Core & 882 Interface
- 2 Gbyte Approved HD
- Microsoft Office

NEW MAC  
**£7649**  
INCLUDING INSTALLATION  
£8980 INC VAT

## ProTools Project Package

- 7300/166 32/1.2/CD & Keyboard
- Apple 1705 17" MS Display
- 2 Gbyte Approved HD
- ProTools Project Core
- 882 I/O Interface
- Microsoft Office

NEW MAC  
**£4225**  
INCLUDING INSTALLATION  
£4954 INC VAT

## AudioMedia III Package

- Performa 6400/200 32/1.6/CD 28.8 modem & Keyboard
- Apple 15" AV MS Display
- AudioMedia III card
- ProTools PowerMix Software

NEW MAC  
**£1799**  
INCLUDING INSTALLATION  
£2114 INC VAT



## ProTools Plug-ins

**t.c. tools £775**  
Arguably the best reverb plug-in available, TC Tools uses algorithms developed from the M580 mainframe reverb. Great user interface allows you to visualise the effects via the graphics, making it intuitive and easy to use.

## Dolby Surround Tools

Produce Dolby Surround mixes entirely within the ProTools environment. Both Encoder & Decoder Plug-ins are available as a bundle providing digital implementation of analog encoding process.  
**£1339**

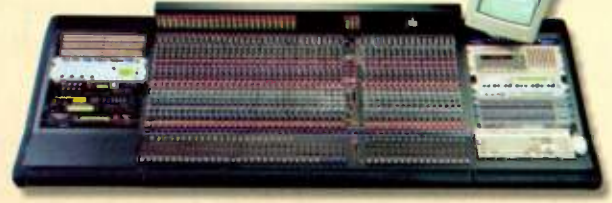
## Focusrite D2

Based on the famed Focusrite Mid 2 Dual EQ designed by Rupert Neve, the D2 plug-in matches the high-quality expected from the company, even down to the brushed aluminium front panel.  
**£880**

## Antares Auto-Tune

The plug-in that many professionals have but none will admit to it! AutoTune identifies the pitch of a signal and corrects it to a defined scale, retaining original quality, making intonation problems a thing of the past. Available as a TDM or VST plug-in.  
**£580**

## BIG by Langley



- 4 band EQ, 8 Auxiliaries
- SuperTrue V3.1 VCA Automation
- Virtual Dynamics on-screen editing
- Unique Rupert Neve Voice Recall
- 12 bus, 24 output
- Frame sizes from 28 to 44 inputs

As Amek dealers we have on demonstration a forty-four input Big by Langley console. The Big's SuperTrue Version 3.1 VCA automation compatible with all other Amek desks up to the flagship Neve 9098 series console. With the Virtual Dynamics on-screen processing plus Rupert Neve voice recall.

this is a console that is packed with facilities, over and above what it offers as a fully featured inline console: 4 band EQ, 8 auxiliaries, 12 bus, 24 outputs available in frame sizes from 28 to 44 with or without bantam patchbay. **Call for an appointment.**

GREAT VALUE  
**£POA**

## 9098 SERIES

**EQ £1349**  
EQ 4-band equaliser and small High and Low Pass filters. Outputs are attenuated/boosted in class-A mode. In addition to standard controls, the mid-range includes three notch filters. The Stereo and Dual functions restrict the amount of boost and have overdrive.

**NEW DUAL COMPRESSOR £1869**  
Dual channel compressor limiter based on Rupert Neve's multi sought after 2234 used at the 1970s. Digital control of the spring circuit allows parameters to be set accurately and quickly. Output limiter control suppresses distortion in unlimitered signals.

**DUAL MICROPHONE AMPLIFIER £1169**  
2 separate channels each with 100 ohm and 20 ohm. Maximum gain range is 70dB with switch and the gain controls. High Pass Filter, Auto-Off, 7 segment LED meters. Phase switch and Phantom Power are standard. Stereo operation is possible with A/B and 100 ohm and side) decoupling circuits with both controls are included.

CALL TURNKEY PROFESSIONAL ON 0171 240 4036 FOR DETAILS

CALL TURNKEY PROFESSIONAL ON 0171 240 4036 FOR DETAILS

\*We will treat any genuine quote from a UK or European dealer at the time of order. We must be able to substantiate the quote and the goods must be available and in stock. Prices include 17.5% VAT except Digidesign bundles. UK mainland carriage £9.99. Please allow 10 working days for cheque clearance. Errors & omissions excepted.



# EUROPE'S LOWEST

## KORG

### SOUNDLINK 168RC



**DIGITAL RECORDING PRICE CRASH!**

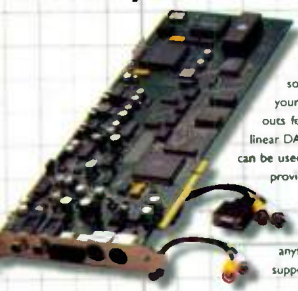
Over the last few years, Korg's SoundLink digital recording and editing system has gained wide respect in the post production and broadcast areas, with its combination of flexibility and excellent sound quality. Using the experience they have gained with this product, they have now produced the SoundLink 168RC digital mixing console, which offers unprecedented facilities in an amazingly compact format.

- 24 Input 8 Buss Digital Mixer
- Snapshot & Full Dynamic Automation
- 2 Built In Effects Processors
- 16 Channels of Digital Ins & Outs
- Optional Outboard A/D & D/A Convertors

There are 16 digital inputs and outputs in the ADAT optical format, allowing connection not only to ADAT's themselves, but also to the vast range of other equipment now supporting the format, as well as eight analogue mic / line inputs, two of which have phantom power. The master outputs are also available as coaxial SPDIF. For those of you who would prefer more analogue connections, Korg are also producing high quality external 8 channel A/D and D/A converters, again using the ADAT format. And if all this isn't enough, you can cascade multiple 168RC's together for as many channels as you like, also leaving plenty of room for future expansion.

Internally, the 168RC has 8 subgroups, 3 band EQ, each of which is sweepable, and with 'Q' on the mid band, two external and two internal auxiliary sends. The internal aux sends are routed to two high quality effects processors with some of the finest algorithms around. Including reverb, delay, distortion, pitch shift, dynamics processing and even speaker simulation. For automation, up to 100 'scenes' can be stored internally, taking a snapshot of every single parameter of the desk, which can then be recalled at the touch of the button, and in addition to this all parameters can be dynamically controlled in real time via MIDI. All in all, a tour de force product with far too many features to detail here. Call now for a demo!

### 1212 I/O CARD



The card that everyone's been waiting for! Now you can use Cubase VST (amongst others), and have multiple inputs and outputs, without spending a fortune!

- 12 Ins, 12 Outs and Digital Sync on 1 Card
- ADAT Format Ins & Outs
- Compatible With Cubase VST
- Optional Deck II Software bundled for £249

But the PCI 1212I/O is far more than just a soundcard - it can become the very heart of your studio. There are stereo analogue ins and outs featuring 20 bit delta-sigma ADC's and 18 bit linear DAC's, SPDIF In and out, and 8 more digital ins and outs in standard ADAT format. The best part is that all these connections can be used independently giving you a total of 12 inputs and outputs! What's more, word clock and ADAT 9 pin connectors are provided, allowing simple accurate synchronisation with ADAT's and many other digital devices.

If you're not a MIDI user, the highly capable Deck II is an ideal choice. Fully featured with multitrack recording and extensive cut and paste editing facilities, Deck can sync to almost anything, including Quick Time movies and standard MIDI files, does file format conversion and supports plug ins.

RRP £1899  
**£1175**

Call for more details or to arrange a demo - this card could change your whole way of working!

**1212 I/O + Cubase VST**

RRP £926  
**£799**

**168RC + 1212 I/O**

RRP £2498  
**£1499**

**168RC + D90 + 1.3Gb HD**

RRP £3647  
**£2199**

**168RC + ADAT XT**

RRP £4508  
**£2599**

**THE UK 4 TRACK CENTRE**

Our famous 4 track pack includes everything you need to start making music: Maxell headphones, a dynamic microphone, a chrome tape, cables, head cleaning kit and the best book you've yet seen on multitrack recording, taking you through basic track laying, midroom etc... with sessions on everything from mic placement to automation and MIDI. We've obtained some great 4 track pricing and for a limited period, we will give you the 4 track pack (normal price £39.95) absolutely free when you purchase any of these multitrack recorders.

**ALL MULTITRACKS INC '4 TRACK PACK' ADD £10 FOR X-14**

**FOSTEX X-14** The newest introduction to multitrack recording ever! Built in mic for instant recording and straightforward operation means almost anyone can make a track without reference to the manual. Buy with our complete four track pack for only £10 extra!

**XR SERIES MULTITRACKS**

**XR3** High speed machine at £249! New auto-bounce facility and built in mic - ideal for 4 track recording on the move.

**XR5** Stunning new double speed Fostex machine with individual EQ, up to 3 aux sends and 2 stereo returns, 2 inserts & 4 separate tape outs allowing using with an external mixer.

**XR7** The XR7 breaks new ground in price and performance - 6 inputs (2 mics), 2 separate aux sends, low/high plus sweep mid EQ. Records up to 4 tracks at once - double speed transport, Dolby C.

RRP £149  
**£149**

NEW PRODUCT

RRP £249  
**£249**

RRP £420  
**£335**

RRP £499  
**£449**

RRP £1299  
**£769**

**PORTASTUDIOS TASCAM**

**PORTA 03 MkII**

New version of a classic portastudio. Improved styling and mastering.

RRP £229  
**£145**

**414** All new Portastudio from Tascam! Records to all 4 tracks at once using DBX noise reduction. Double speed recording for better bandwidth. 2 band EQ, 4 mic inputs and full LED metering make it great value for money. Includes free four track pack!

RRP £499  
**£469**

**424 MkII** A brand new version of the best selling 424 from Tascam inventors of the portastudio. Features include 3 band EQ with a mid sweep, records to all 4 tracks at once, 2 independent auxiliary sends (1 switchable pre/post fade). Logic controlled 2 speed transport with built-in memory location points. DBX noise reduction, initial supplies limited.

RRP £499  
**£469**

ALL MULTITRACKS INC '4 TRACK PACK' ADD £10 FOR PORTA 03 MKII

**D5 DAT RECORDER**

Exclusive scoop purchase on a genuine professional machine brings quality within reach of the rest of us. Now that Sony's domestic machines are discontinued, this is one of the last chances to get the cheapest DAT's around, but you look at the spec: 19" rackmount, 44.1 kHz analog recording, SCMS-free operation, error detection indicators, balanced ins and outs on XLRs, AES/EBU professional digital connections as well as all the usual DAT features from the makers of the industry standard D208 timecode machine. Huge reduction!

RRP £1299  
**£769**

**TASCAM DA20 DAT MACHINE**

If you need a 19" rack mount DAT machine, they don't come any cheaper than this! But that's not at the expense of a quality machine: reliable tray-loading mechanism, SCMS is switchable in or out, both analog and digital recording at all 3 sample rates and coaxial SPDIF in and out. High sound quality is guaranteed by 1-bit DAC playback, and there is a special Table-of-Contents feature.

RRP £799  
**£639**

**DA30 MkII DAT RECORDER**

Professional machines start here! Tascam's DA30 and it's current Mark II equivalent are probably the most commonly found machines in professional studios, and with good reason: they combine a range of pro features such as 44.1kHz recording, AES/EBU digital I/O, balanced analogue connections, and now a jog / shuttle wheel, with sturdy build quality and excellent reliability. Incredible new low price makes pro quality affordable!

RRP £1289  
**£975**

**102MkII & 202MkIII TAPE DECKS**

Fantastic deals on Tascam's superb professional quality mastering cassette decks. Both are full 19" rackmount units. The 102 MkII is a single deck unit, the 202 MkIII is a double deck, which records on both decks. Limited stocks only at these prices. Ideal for mastering and duplication.

RRP £249  
**£199**

RRP £349  
**£269**

**SONY DTC-A6 DAT RECORDER**

Turnkey have done it again! A pro, full spec DAT machine at a bargain price! Just look at the list of features: SPDIF coaxial and optical ins and outs, digital and analog recording at all three sampling rates (32 kHz, 44.1 kHz, 48 kHz), full 19" rackmount, as well as all the usual I/O functions and a full function infra red remote control. Sony's exclusive Super Bit Mapping process can also be switched in, cramming the sound of 20 bits into 16! Stocks at this incredible price are limited - get your order in now!

RRP £799  
**£499**

**MDS-JE510 MINIDISC RECORDER**

Although DCC looks to have died as a format now, Minidisc is thriving, and rapidly becoming a standard in radio stations and other institutions around the world. With sound quality almost as good as DAT, and a range of editing features like Combine, Move, and Auto Cut, it makes an ideal choice for mastering on a budget. If Minidisc is for you, there's no better value on the market than the MDS-JE510, with digital input, jog dial and full function remote control as standard.

RRP £299  
**£199**

**MZ-R30 PORTABLE MINIDISC RECORDER**

Now available is this compact portable version of the MDS-JE510 as featured above. This must be the neatest walkman you've ever seen!

RRP £399  
**£199**

**Panasonic SV3800 INDUSTRY STANDARD DAT RECORDER**

The Panasonic SV3700 has been the industry standard mastering DAT recorder, and is now superseded by the SV3800. Using 1 bit, 16x oversampled (equivalent to 20 bit), you can be sure of the highest possible sound quality. Records and plays back at all 3 sample rates via analog and digital inputs. Highly usable jog/shuttle wheel, AES/EBU and SPDIF digital connections, error counting and many other software features. In stock now!

RRP £1281  
**£90A**

**FOSTEX DMT-8 VL INC '4 TRACK' PACK & SM58 DIGITAL MULTITRACKER**

The personal digital multi-track is here at last, and at a price you won't believe! 8 separate tracks of CD quality audio recorded to half-gig hard-disk (up to 12 minutes). Record 2 tracks simultaneously, jog/shuttle audio and sync to MIDI without losing a track. The 8 channel mixer has up to 2 mics, with 2 band EQ and 2 aux sends. Separate outputs and SPDIF optical output. Why buy 4 tracks when you can have 8! INCLUDES FREE SM58 mic. ONLY AT TURNKEY.

RRP £1208  
**£799**

**YAMAHA MT50 MULTI-TRACKER**

Both inc '4 TRACK PACK'

The MT50 can record on all four tracks simultaneously, and works at double the normal speed for improved frequency response and reduced wow and flutter. Each channel has its own two band EQ, an auxiliary send for use with effects units and DBX noise reduction is incorporated to keep background noise to a minimum. A special 'sync' output bypasses this so as not to interfere with timecode.

RRP £399  
**£279**

**YAMAHA MT4X MULTI-TRACKER**

The MT4X is Yamaha's top of the line machine and has a specification to go with it! It's logic controlled transport means that as well as two auto-cue points and 'return to zero' function, you also get a special 'rehearsal' mode, so that you can practice dropping in and out as many times as you like, without raising any of your precious recording! Other great features include three band EQ on each channel, two auxiliary sends, LCD metering, double or single speed operation, and individual track outputs for use with an external mixer.

RRP £599  
**£379**



# PRICES GUARANTEED\*



## VS880 DIGITAL WORKSTATION



## VIRTUAL STUDIO? VIRTUAL GIVEAWAY!

Roland's VS880 has become the de-facto standard for compact digital eight track recording, hardly surprising with its combination of great sound quality, compact size, and excellent feature set.

Each of the 8 tracks has 8 virtual tracks, allowing you to record several different takes, and then compare them afterwards, even if you've

already recorded on the other 7 tracks. The built in digital mixer can handle up to 14 channels, features 2 band parametric EQ, 1 external and 2 internal aux sends (to the optional FX board), and is fully automatable over MIDI. The SCSI port allows the connection of external SCSI devices for recording or backup, which can also be made to DAT via the digi i/o. There's not even any need for a separate synchroniser, as it puts out MTC as standard to sync up your sequencer.

New version 2 software not only allows automation data to be recorded directly to the hard drive for total integration, but also brings numerous new effects to the optional board, including COSM based mic emulation - make your SM58 sound like a U87! Existing owners can upgrade to version 2 for only £49.

To offer a completely integrated solution, we are bundling the VS880 with a 1.4 gig hard drive and mounting kit, and the FX board together. These would normally have a combined retail price of £2238, but for a limited period only all this can be yours for only £1849!

- Digital Mixer with Full Automation
- Totally Integrated Solution
- Built in MIDI Sync
- 64 Virtual Tracks
- Built in Effects

RRP £2309  
**£1699**

**INCLUDES 2.1Gb HD, MOUNTING KIT & FX BOARD**

## 03D Digital Console

Like the 02R, the 03D is a fully-automated digital mixing console set to have a large impact on the mixing market. With 26-inputs & 18-outputs the console features fast 32-bit internal digital audio processing, versatile analog and digital I/O configuration, new 32-bit onboard multi-effects processors with freeze (sampling) and guitar amp simulation effects, motorised faders, fader and mute grouping, surround sound mixing, onboard automation, MIDI remote capabilities and much more. Call now for a Turnkey Professional brochure and a free trial!



RRP £2999  
**£POA**

## 02R Digital Console

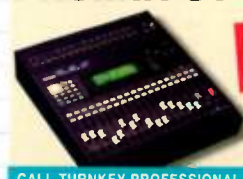
The fully digital 40 input 8 bus console with total automation and moving faders, 4 band parametric eq and dynamics for every input and 2 comprehensive on-board fx processors with a range of reverbs, delays and other standard fx. Optional interface cards allow full digital connection of ADAT, T-DIF and AES/EBU formats for integration of MTR and hard disk systems.



RRP £6999  
**£POA**

## PROMIX 01 Digital Mixer

**STOP PRESS! NEW LOW PRICE ONLY AT TURNKEY**



RRP £1999  
**£1499**

CALL TURNKEY PROFESSIONAL ON 0171 240 4036 FOR DETAILS

## MDMX4 DIGITAL MULTITRACKER

The MDMX4 offers 37 minutes of high quality four track digital recording on an MD data disk. It also features the exclusive Track Edit system and a host of other functions that will revolutionise your concept of personal recording, and Sony's second generation data compression algorithms give it a significant sound advantage over similar machines. The 10 Input mixer (2 XLR's) has 4 busses, individual track outputs, 2 aux sends and 3 band EQ. Random access transport includes 11 point locator, jog-shuttle wheel as well as rehearsal and auto-punch modes. There's no need to leave a track spare for bouncing, and whole songs can be digitally copied forward for a 'safety' version. MMC and MTC compatibility for use with MIDI sequencers - you can even control it from your sequencer! MIDI Clocks are also supported for use with keyboard workstations and drum machines. Stocks are very limited on this exclusive deal - order now!



RRP £999  
**£599**

## HD-S200 PORTABLE DAT RECORDER

**OVER ONE THIRD OFF!**

Turnkey's incredible buying team bring you the DAT exclusive of the year! This beautifully manufactured machine from AIWA, records at 32kHz (long play), 44.1kHz or 48kHz through either the analog or digital inputs. Digital input and output via optional optical cables (£29 each), backlit LCD display, full complement of ID buttons. Comes with lithium ion rechargeable battery (no memory effect), additional dry cell battery case for extra battery life, mains adaptor, phono cables and headphones included in the price. Very limited stocks - grab your once in a lifetime bargain now!



RRP £599  
**£399**

## PDR-04 CD RECORDER

Why master to DAT when you can master to CD for the price of a budget DAT machine, we bring you this incredible deal on the Pioneer PDR-04.

Record via either the analogue inputs, or the optical or co-axial digital inputs, and get yourself a bonafide finished CD! DAT, CD or Mini Disc ID codes are automatically translated onto the disc, and recording can be stopped and started on the same disc. CD's are more durable and have a longer shelf life than DAT, and you get all the advantages of instant access, and impressing your mates with your very own CD! Full function infra red remote control included. 74 minute media £9.99 each, or £79 for 10.

These will sell out quickly - order now!



RRP £699  
**£499**

PDR-05 ALSO AVAILABLE with sample rate conversion

## MULTITRACKS NEW, USED & EX DEMO

Alkat DR4VR ..... £899	Fostex XR3 ..... £189	Tascam DAP1 ..... £1227
Alkat DR8 ..... £2599	Fostex XR5 ..... £289	Tascam 564 ..... £1099
Alkat DR16 ..... £3995	Fostex MR7 ..... £369	Tascam Portastudio MK2 £159
Alesis ADATK ..... £1650	Panasonic SV3800 ..... £895	Yamaha MT4X ..... £349
Fostex D5 ..... £679	Sony MZR3 ..... £279	Yamaha MT50 ..... £249
Fostex D90 ..... £899	Tascam DA20 ..... £639	Yamaha MT8X ..... £599
Fostex D90 ..... £1295	Tascam DA30MKII ..... £965	
Fostex DMT8VL ..... £899	Tascam DA88 ..... £1899	

## DD8 HD MULTI-TRACK RECORDER

Akat's new DD8 Records and/or plays back 8 tracks at a time directly onto hard drive, or crucially, 2.8 gig magneto-optical carts. There is finally no lengthy backup at the end of a session, or reload at the beginning (of course you can still make a safety copy if you wish to). Sync multiple machines together, use it with the DL1500 remote for DD1500 style SuperView operation and analog, choose from a myriad of expansion options: TDM, ADAT, AES/EBU and analog I/O, digital EQ, Ethernet, SMPTE, MIDI, 9 PIN and DigiSync synchronization - the list is endless. Call for a Turnkey Professional Brochure and a free trial.



PRICES FROM  
**£3199**

## DR-16 HD MULTI-TRACK RECORDER

First there was the DR4, then the DR8, and now Akai bring you 16 tracks of no-remorse hard disk recording in a single box! 8 inputs and 16 individual outputs are provided making it perfectly suited for full blown multitrack recording. Amongst the options available is a video output board to give a full colour display of all the tracks, which makes editing a breeze. Buy now from Turnkey and we will include a free 2 gig hard drive!



RRP £4199  
**£3599**

CALL TURNKEY PROFESSIONAL ON 0171 240 4036 FOR DETAILS

\*We will beat any genuine quote from a UK or European dealer at the time of order. We must be able to substantiate the quote and the goods must be available and in stock. Prices include 17.5% VAT. UK mainland carriage £9.99. Please allow 10 working days for cheque clearance. Errors & omissions excepted.



# EUROPE'S LOWEST



## A JOURNEY TO THE MOON!

Zoom is a Japanese company that was set up a few years ago by disgruntled staff from some of the major Japanese manufacturers. Their sole aim was to produce innovative new effects processors, that represent the best value for money on the market. Have they achieved that aim? We certainly think so!



### 1201 TRUE STEREO FX PROCESSOR

The 1201 is a full 19" rack unit, featuring true stereo 16 bit processing at 44.1kHz, with 64x oversampling convertors. The quality of the reverb alone would make it worth the price, but there's lots more: two simultaneous effects are offered, from a choice of 33 including delay, chorus, flanging, tremolo and pitch shifting, 'vocoder', karaoke, 'lo-fi' and vocal distortion effects as well as various reverb types including reverse. If one of the 363 presets doesn't suit exactly then using the two parameter knobs will allow you to tweak the program until it does, and the addition of 2 band EQ will further tailor the sound to your mix.

**NEW PRODUCT**  
**£99**

- 16 Bit 44.1kHz True Stereo FX Units
- Great Quality Reverb & Multi FX
- Vocoder and Mic Input on 1204
- Up to 512 Different Presets



### 1204 TRUE STEREO FX PROCESSOR

The 1204 builds on the success of the 1202 by adding MIDI control, 100 extra user presets for storing your own edits, and a two digit LED display. On top of this, there is also a rotary speaker effect, and a vocoder - a front panel mic input is even provided for quick and easy setup.

**RRP**  
**£199**

Nothing else touches these units at the price - check one out today!

**INC FREE 10u DESKTOP RACK & 4x 3m JACK LEADS**

**XR300 SYNCHRONISER** **TURNKEY EXCLUSIVE**

Long the synchroniser of choice in professional studios, we now exclusively bring you this industry standard unit at an unheard-of price. Features include true SMPTE at all standard rates, MIDI clocks, Song Pointers or MTC for compatibility with all MIDI sequences. Large LED time-code display. Merged MIDI input. Scratch-forward operating system. Full 19" rack unit.

**RRP £299**  
**£169**

**COMPOSER WORKHORSE COMPRESSOR** **BEHRINGER**

A natural sounding and fully featured compressor at a give away price! Built-in gate removes any unwanted noise, soft-knee action makes compression much less obtrusive, "auto" mode makes quick setup a doddle and side-chain access means it can also be used for de-essing etc.

**RRP £349**  
**£149**

**MIDIVERB 4 PRO QUALITY FX UNIT** **ALESIS**

The MidVerb 4's excellent Aliesis effects algorithms produce dense, natural reverbation, rich Chorus and Flange. Delay and Pitch effects that are designed for professional use. There are thirty-two effects algorithms, and 128 Preset and 128 User Programs to choose from. Large backlit LCD, online help, MIDI controller routing and programmable footswitch give you complete creative control. Choose £50 worth of cables absolutely free - only at Turnkey!

**RRP £329**  
**£289**

**INC £50 WORTH OF CABLES FREE**

**G4 ROTARY SPEAKER SIMULATOR** **KORG**

EVER wondered why you can't quite get your organ sounds to sound like a real Hammond? That's because half the secret of the sound lay in the special rotating Leslie speakers used to give the characteristic vibrato effect. The G4 allows you to control acceleration, speed, rotor / horn balance, and even mic placement, giving a superb reproduction, complete with overdrive. Loads of creative uses including loop processing, guitars etc, as well as organs.

**This incredible end of line clearance deal with a 65% reduction means they will sell out fast. Buy now to avoid disappointment!**

**RRP £395**  
**£129**

**G5 SYNTH BASS PROCESSOR**

The amazing G5 gives you instant access to all those classic analogue synth sounds also giving you the ability to create your own sounds from K's large tonal palette. Using special waveform characteristics it will also become a distortion/fuzz, octave divider or auto wah - making the G5 the most useable bass processor ever! This incredible end of line clearance deal with over 78% reduction means they will sell out fast. Buy now to avoid disappointment!

**RRP £349**  
**£89**

**STUDIO QUAD 4 CH. STUDIO FX PROCESSOR** **Digitech**

At last - Multi effects as they should be! The new Digitech Studio Quad features not only their custom designed and ultra-powerful "S-DISC" chip, but also 4 independent inputs and outputs, which using the built-in sub-mixer, can be configured as 4 mono in feeding 4 effects processors, feeding 4 stereo outputs. Huge screen, and new intuitive operating system make editing a breeze. 20 bit converters give greater than 90 dB signal to noise ratio. Effects include reverbs, delays, detuning, chorus, flanging etc. - Hundreds of other features too numerous to mention.

**RRP £529**  
**£399**

## THC-00 RESINATOR

Freeform Analog Technologies FreeBass is already one of the most successful sound modules of the year, and now following hot on the heels of the Freebass and PCP330 ProCoder is the new THC-00 Resinator.



Not one, not two, but **three** band pass filters with resonance! And we mean resonance! Feed any mono signal into this unit and get out some of the most wacky and groovy sounds you've ever heard in glorious auto panning stereo. Each of the filters has it's own cutoff point which is modulated in a selection of ways, by a combination of the built in LFO, the polarity reversible envelope follower and even an external control voltage. Ideal for processing loops, vocals or indeed any other signal, for results ranging from the sublime to the extreme! Must be heard! More fresh thinking from F.A.T.

**NEW PRODUCT**  
**£169**

## PCP330 VOCODER

One of the most asked questions in the industry must be "Why doesn't anyone make a vocoder anymore?" - well here it is, with a fantastic feature list, great sound quality and a down to earth price. The carrier can be either an internal VCO or external line input, whilst both line and mic inputs are given for the modulator signal. Eleven filter bands each have their own level knob on the front panel giving true hands on control of your sound, and the sibilance (unvoiced) control also has an external input if required. The final output can contain any mix of modulator, carrier, vocoded signal and a special filtered version of the signal. Remember, this doesn't only create robot voices, there are thousands of creative uses, and it's also ideal for processing drum loops.

**NEW PRODUCT**  
**£299**

Order now and own an instant classic!

## DIGITAL PROBLEM SOLVERS

In today's increasingly digital world, many people are still using their equipment's analogue ins and outs, because of the difficulty of inter-connection and synchronisation. Friend Chip's new specially priced digital patchbays and "black box" problem solvers end the misery and make the digital studio a reality! The DigiMax digital patchbay (£299) has 8 inputs and outputs (2 each on optical), can accept both AES/EBU and SPDIF signals, and is MIDI controllable. An XLR version (£499) is also available for greater AES/EBU reliability. The Audio Time Base (£499) is a 1u 19" rack which acts as a master clock source for your studio, outputting word clock, Digidesign Super Clock and SPDIF. The master clock can be internally generated, or a reference taken from mains, SPDIF word clock, Super Clock, video or LTC (SMPTE). Lockup from timecode is in around 1 second!

**Also in the range:**

DP-COM: optical to co-axial and vice versa	£69
PRO-COM: SPDIF to AES/EBU and vice versa with SCMS stripping	£129
D 4 2 COPY COM: switcher with 1 optical & 3 co-ax ins, 2 co-ax outs and SCMS stripping	£99
SM4-1: converters almost any incoming sample rate to 44.1kHz (ideal for ProTools) and non 44.1 DATS	£149
SRC/W: sample rate conversion to 32, 44.1, 48kHz, with lock to external word clock	£249
Super Clock Driver: converts Digidesign superclock to word clock and vice versa, 3 outputs	£129
Silent Audio Clock: converts Super Clock to word clock and vice versa with synchronous SPDIF signal	£129
ADAT Audio Clock: ADAT 9 Pin to word clock, Super Clock and SPDIF clock converter	£129
ADAT Word Clock Synchroniser: ADAT 9 Pin to word clock and Super Clock converter, also sends MTC (synchronise your sequencer) with MIDI merg	£199
ADAT SPDIF Synchroniser: as above but with converts only to SPDIF	£199
ADAT MIDI Machine Control: MIDI to ADAT 9 Pin converter with MIDI thru (add to either of the above for full remote ADAT control from your sequencer)	£499
Rack RH: holds up to three 'black boxes'	£69

**VTP-1 DIGITAL MIC PRE** **Digitech**

The all new 2 channel VTP1 tube mic amp / EQ looks set to take the market by storm. It comes with four bands of semi parameters, EQ with a high definition mic amp based around a proprietary valve design. Phase reverse, high pass filter, 20dB pad (line inputs also available) and 40v phantom power are provided, together with high quality balanced analog outputs, and AES/EBU and SPDIF outputs at 44.1 or 48 kHz, ideal for use with any digital system.

**NEW BOXED**  
**£999**

**VCS1 COMPRESSOR**

The VCS1 is brimming with innovation and quality, and brings you a seriously priced dual channel valve dynamics processor with plenty of useful features. The compressor has the usual envelope, threshold and ratio controls, but it also switches between hard and soft knee compression, and has an auto mode for ease of use. There are also separate gain and level sections, to give highly detailed signal control. Valve gain is variable to give a range of sound from subtle colouring through to controlled distortion. Call for more info!

**NEW PRODUCT**  
**£799**

CALL TURNKEY PROFESSIONAL ON 0171 240 4036 FOR DETAILS

\*We will best any genuine quote, from a UK or European dealer at the time of order. We must be able to substantiate the quote and the goods must be available and in stock. Prices include 17.5% VAT. UK mainland carriage £9.99



# PRICES GUARANTEED\*



## PREMIUM QUALITY VALVE OUTBOARD EQUIPMENT

If you've previously used valve equipment, you'll be well aware of the magical quality that tube circuitry produces, and if you haven't used it - try it now! Many manufacturers use the word valve as an excuse to charge exorbitant prices for their product, but not Bellari, and our factory direct exclusive makes the range unbelievable value for money!



### The RP583 Studio Tube Compressor / Limiter

has become an instant hit, offering as it does two channels (stereo linkable) of some of the finest sounding compression money can buy, with a smooth and natural compression characteristic. Ratio is continuously variable from 2:1 to infinity, and there are separate controls for attack, release, threshold and make-up gain. Dual VU metering is provided, as well as jack and balanced XLR ins and outs, and sidechain access is fully catered for. Ideal for a variety of instruments, vocals and complete mixes.

NEW PRODUCT  
**£499**  
FACTORY DIRECT



### RP533 Studio Tube Multi-Processor

Whilst mixers these days are of a better quality than they used to be, to get the best possible signal to tape or disk, you can't beat a dedicated unit - and for value for money, you can't beat the Bellari RP533 Studio Tube Multi-Processor. The all tube 2u box, features a premium quality transformer balanced mic pre amp with switchable 30dB pad, phase reverse and true 48V phantom power. The compressor has all the features of the RP583, and the exciter section adds a wonderful sheen to virtually any sound, as well as beefing up the bottom end. Each stage has its own bypass switch, sidechain access is provided, and the large VU meter can monitor input, output, or gain reduction. No serious recordist should be without one!

NEW PRODUCT  
**£499**  
FACTORY DIRECT



### RP520 Studio Mic Pre Amp

A true dual tube mic pre amp at a bargain price, with tubes used at all the crucial gain stages, not just strapped across the outputs. Features include phase reverse, input and output pads, separate gain and output level controls, true 48V phantom power, jack and XLR outputs and dual VU meters. Bypass your desks mic amps and feel the quality!

NEW PRODUCT  
**£399**  
FACTORY DIRECT



### RP562 Stereo Exciter

Traditional exciters usually do a good job of brightening up the extreme top end, but can often leave you with a rather harsh signal lower down. The incredible warmth of the Bellari Sonic Exciter ends all that, providing a sparkling top end with no harshness, and a huge bottom end to boot. The stereo unit has both Jack and XLR connectors, dual VU meters, and even a separate subwoofer output with its own cutoff and level controls. Superb sound quality at a fraction of the price of similar devices.

NEW PRODUCT  
**£299**  
FACTORY DIRECT

### ADB3 Stereo Direct Box



Stand alone 2 channel tube DI box.

NEW PRODUCT  
**£129**

### MP110 Direct Drive Mic Pre Amp



Stand alone single channel tube mic pre amp.

NEW PRODUCT  
**£169**

### PME4 PARAMETRIC EQ

Hot on the heels of last month's hugely successful PME2 deal, we're here to obtain the single channel version of the same, for a fraction of its original price. The PME4 is a 1U rack featuring a single channel of fully parametric (cut / boost, frequency and 'Q') 4 band EQ, clearly laid out, and each control with its own knob. A second output is also provided with a 40Hz high pass filter for removing unwanted rumble etc. Very limited stocks - first come, first served!



RRP £189  
**£79**

### 362 SONIC MAXIMIZER

The 362 series delivers the sound-improving benefits of "Sonic Maximizer" technology with the convenience of ganged-stereo operation.

362NR SONIC MAXIMIZER & NOISE REDUCTION only £179  
362SW SONIC MAXIMIZER & SUB WOOFER CONTROL only £169

RRP £199  
**£149**

### 4 POLE FILTER

The 4 Pole is the legendary Microware / Wave 24 dB lowpass filter. You are free to apply this filter to any audio signal that you patch into the Filter. So if your favourite sampler or sample player lacks that special quality, you can give it a sonic boost via the 4 Pole Filter. It is the most powerful (and quite possibly the only) analog filter available today!



NEW BOXED  
**£269**

### X POLE FILTER

What do you get if you take two of Waldorf's 4 pole filters, put them in a rack and splice 'em up? The all new X-Pole! Maintaining all of the 4 Pole's great sound, MIDI and tactile controllability, the X Pole allows you to filter two mono signals independently, or the two channels can be linked together for a stereo signal. 2u rack design makes for easy integration into your rig. Fatten up your sound today - your loops need never be the same again!



NEW PRODUCT  
**£439**

### MODEL 316 SEMI-PARAMETRIC EQ

Speak Electronics are perhaps better known for their ultra high quality broadcast mixers. The Model 316 is a 3U rack offering 16 channels of 3 band semi-parametric EQ and was originally designed for their high end sub mixer the Xtramax CX. Each band features up to 15dB of boost or cut and frequencies of 50Hz-500Hz (low), 500Hz-5kHz (mid), and 5kHz-15kHz (high). This is a unique opportunity to upgrade the EQ on your mixer to a standard that is not found on many professional consoles, or 3rd EQ to monitor sections of in-line desks.



RRP £769  
**£349**

### SRV-330 REVERB UNIT

This incredible unit from Roland uses the technology developed for their £24,000 RS5 system. As well as being an ultra high quality reverb unit (30bit processing is employed!), the 3D technology allows thirty reflections to be realistically placed and surrounded you in a 360 degree circle. Full MIDI control, true stereo processing, -40-20 dB ins & outs, a wealth of editing facilities and exceptionally great performance make this an unbeatable buy. Very limited quantities at this bargain price!



RRP £859  
**£429**

### FOCUS EQ PARAMETRIC EQUALISER



Focusrite have long represented the pinnacle of audio achievement, but sadly their products have always been out of reach for most of us. Now, specifically with the high quality project studio in mind, they have designed the Green range of processors.

Turnkey are well known for bringing you clearance deals at bargain prices, but not often does the chance come to own something as prestigious as Focusrite outboard, at a fraction of the original cost. The Focus EQ features an ultra high quality mic pre-amp complete with phantom power and phase reverse, as well as line and instrument level inputs, making it an excellent recording channel, or even a top quality preamp for bass or acoustic guitar. In addition to the four parametric EQ bands, there are also variable high and low pass filters, and the EQ and filters each have their own bypass switches. Typical Focusrite build quality can be taken for granted, as can some of the best sounding EQ you've ever heard. Very limited quantities available for this exclusive deal - order now or regret forever!

RRP £939  
**£499**

**The Dual Mic Pre** - an audiophile quality dual channel mic preamp. **£819**

**The Voicebox** - this combines a mic/instrument preamp, compressor, de-esser and parametric EQ in a single unit - the ultimate signal path for digital recording! **£989**

**The Compressor** - highly versatile compressor with hard & soft knee types, separate limiter and gate and built-in sidechain filters. **£1049**

**The Channel Strip** - similar to the Voicebox, but also featuring line level inputs and extra EQ. **£1129**

All 5 are on permanent demo at Turnkey.

CALL TURNKEY PROFESSIONAL ON 0171 240 4036 FOR DETAILS

### EQ1 Parametric EQ



TLA's range of outboard must be the best selling valve gear ever! Their classic warm valve sound, combined with the low noise floor that modern digital recording demands have made them a huge success story. Our tremendous buying power now allows us to offer the superb EQ1 at this incredible price. The EQ1 is a dual 4 band (or single channel 8 band) parametric EQ - a high performance transformerless pre amp is followed by four valve stages per channel, which provide a fine and gradual overdrive characteristic, and a frequency response which is virtually flat from 20Hz to 40kHz. Limited quantities only at this price!

RRP £821  
**£499**

CALL TURNKEY PROFESSIONAL ON 0171 240 4036 FOR DETAILS

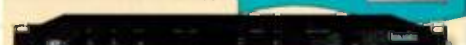
### FINALIZER MASTERING PROCESSOR

Brings top professional quality mastering tools to the project studio. 5 band stereo EQ, De-esser, Digital Radiance Generator™, Normalizer, and Dynamics, all with highly flexible editing, or the option to let TC's Wizard do the work for you by analysing the program material automatically. Analog and digital I/O, call us for a demo - guaranteed to improve your masters!

RRP £1899  
**£1499**

CALL TURNKEY PROFESSIONAL ON 0171 240 4036 FOR DETAILS

### ALEX EFFECTS PROCESSOR



If you're looking for a straight reverb unit, Lexicon have a reputation that's hard to beat! These are the cheapest units to offer the famous 'Lex' sound - The Reflex has the additional benefit of dynamic MIDI, allowing real time control of multiple effects parameters. Huge discount only at Turnkey!

RRP £399  
**£199**

REFLEX ALSO AVAILABLE WITH MIDI CONTROL only £299

### OUTBOARD NEW, USED & EX DEMO

Alesis 3630	£169	APHEX-105	£199	Lexicon ALEX	£169
Alesis MEQ230	£34233	Behringer Composer	£139	Lexicon MPX1	£369
Alesis MICROVERB4	£179	Behringer Dualflex	£119	Lexicon REFLEX	£339
Alesis MIDIVERB4	£269	Behringer Ultraflex	£189	PHONIC PCL3200	£169
Alesis Nanoverb4	£145	BOSS GX700	£369	TC Final	£1395
Alesis QUAD2	£599	BOSS SX700	£359	TC M2000	£1095
APHEX-104	£199	Drawmer 1961	£975	Yamaha REV500	£349



# EUROPE'S LOWEST

## turnkey

**Ringing round for the cheapest Pentium?**  
 We sell audio equipment - not office software and games! The computer is the heart of any studio setup, and a Turnkey Pro Tech audio-ready PC, built with carefully selected components, means a quality solution at an affordable price. We deliver a tested, working, integrated system - if you have a problem, just call us!



A modern Pentium can be used for a myriad of tasks ranging from desktop publishing, multimedia, games, and office work. However, few applications are as demanding as digital audio recording. Criteria which are irrelevant to most PC shoppers (such as the level of radio frequency interference within the casing), become very important, and sound cards which are otherwise considered "best buy" in the press often lack the essential "full duplex" ability which permits monitoring of audio during recording.

By supplying a pre-installed computer which we build from carefully selected components, we ensure that you get up and running immediately, you won't need to delve into DMA channels and PnP BIOS conflicts, and you won't get any nasty surprises like "insufficient system resources" warnings, when you try to run your software. Call us to discuss your requirements - **satisfaction guaranteed!**

PACKAGE PRICE TABLE	16 bit full duplex & SW60	Fiji & DB50	Digi. Fiji & DB50	Pinnacle & DB50	Digi. Pinnacle & DB50
Digital Orchestrator Plus	£1,069	£1,399	£1,429	£1,349	£1,429
Steinberg Cubase VST	£1,199	£1,529	£1,549	£1,599	£1,669
E-magic Logic Discovery	£1,199	£1,549	£1,569	£1,629	£1,699
E-magic Logic Audio	£1,299	£1,629	£1,649	£1,699	£1,799

\*Add £89 for deluxe 15" monitor  
 \*Add £129 for PC200 keyboard  
 \*Add £129 for Sony powered speaker system with subwoofer  
 \*Add £99 for MIDI interface with 4 separate MIDI outs.

### THE TURNKEY PRO TECH PENTIUM: A TOWER OF STRENGTH

RRP £1791  
**£1199**

- #### CUBASE VST STARTER PACK
- Intel Pentium 166mmx (opt. 200, 266)
  - 512k L2 cache RAM
  - 32 Mb RAM (optional 48Mb, 64 Mb)
  - 1Gb HD (optional 2 Gb, 4 Gb, 9 Gb)
  - 24x speed CD-ROM drive
  - 14" SVGA display (optional 15")
  - Windows95 CD. keyboard & mouse
  - Cubase VST PC 3.5
  - 16 bit full duplex audio system
  - Yamaha SW60XG synthesiser card
  - 1x1 MIDI interface adaptor

**WANT A P200 INSTEAD?**  
 Ask for details!  
 RRP £1661  
**£999!**

**P166 PC PACKAGE AS ABOVE BUT WITH CAKEWALK V5.0**

### CAKEWALK PRO

OVER 60% OFF PRICE

Cakewalk has been the US #1 sequencer for ever. For a limited period, we are offering Cakewalk Pro v5.0, with 4 discrete audio tracks and 256 MIDI tracks for £79.00. That's less than the price of Cakewalk Home Studio! Upgrade option to Pro Audio 6.

(Comes on CD-ROM. Also includes v4.5 for Win3.1)

Steinberg Pro 5 + MIDIMan Dman	£ 229
Cakewalk Pro 5. MIDIMan Dman + DB50	£ 335
Cakewalk Pro 5 + Iaplot MIDI Interface	£ 149
Cakewalk Pro 5 + Pentium package	£ 999

**RRP £109**  
**£79**

### ZIP REMOVABLE DRIVE

170 DISK & 25 PIN SCSI CABLE

There was a time when hard disks were a luxury for sampler owners, but with the advent of the ultra cheap Iomega Zip Drive, this has become a thing of the past. For under £150 the Zip drive stores 100Mb (94Mb formatted) on each cartridge. A must for anyone with more than 2 meg of RAM!

RRP £219  
**£149**

### SIBELIUS-7

TOP-END NOTATION V3.0

Why do so many music academics use a program which doesn't work on the PC or Mac? Because for professional notation typesetting, nothing else comes close. It's a totally different league from anything else! - Paul Patterson, Royal Academy of Music, Future Music Platinum award.

We are now an Acorn Authorised Dealer, we stock and demonstrate the exciting new RiscPC computer, running RiscOS/3 powered by the 200 MHz ARM Processor, and with optional 486 or 586 board for running Microsoft Windows software.

Call Geoff for a DEMO. Due to one tuition also available upon request.

FROM ONLY  
**£499**

### MUSICTIME

NOTATION ARRANGER

MusikTime Deluxe has been our best selling music package for 4 years. Based around the industry leading Encore software (as used by Disney and many film & TV producers), it allows you to perform all editing functions without leaving the notation environment, making it simple and clear to use especially for people with some classical music training.

Keyboard Review - Overall I found MusikTime an extremely well thought out program as well as being versatile, user friendly and very good value for money. As a music type-setting package I have no hesitation in giving it the highest recommendation (rated 9/10 Diamond Award).

With Music@Passport, you get all the features of MusikTime Deluxe, but with built-in "pitch-bend" technology which transcribes what you sing or play on an acoustic instrument (price included). Also, Music@Passport includes Microsoft Internet Explorer 3.0 which gives access to a dedicated web site for MIDI users. Download other users files, or publish your own free of charge.

RRP £99  
**£79**  
 RRP £129  
**£99**

### CODA FINALE 3.7

Finale has long been considered the "Rolls-Royce" of score programs, but at a price of £699, few people would stretch as far as buying it, and with its extremely powerful but complex user interface, many beginners were just off. Well, Finale 3.7 now reads for just £499 (£249 for Academic Users), and now sports a radically redesigned user interface and rewritten manuals. If you're looking to nouse Holst's "Planets" or Stockhausen's "Gruppen", Finale contains all the features you'll need!

WAS £699  
**£499**

### DIGITAL ORCHESTRATOR PLUS

DIGITAL AUDIO SEQUENCER

"D.O.P." allows recording or playing of independent digital audio tracks synchronised with MIDI tracks. The number of digital tracks is limited only by a user's hardware. Full drag and drop digital audio editing features are provided, as well as unlimited bouncing of tracks and support for multiple sample rates, import & export of WAV files. Audio Transforms include digital delay, chorus and reverb to focus up tracks, noise gate, limiter and compressor controls to remove unwanted noise and alter dynamics, and echo, reverb, reverse and fade/crescendo.

NEW  
**£129**

### BAND-IN-A-BOX

INTELLIGENT ARRANGER V7.0

Tired of starting each song with a Blank Slate? Band-in-a-Box is the world's leading intelligent arrangement software. List with built in styles, or create your own includes full GS / XG compatibility, as well as "Auto Solos" which has to be heard to be believed. Notation / Lyrics display during playback. Can export music into Cubase.

Combine your chord NEW VERSION now  
**#1 SELLER**  
**£89**

### MIDI INTERFACES

FOR PC COMPATIBLES

Garnport Cable	fits any Soundblaster™ type card	£25
MIDI Link	1 in, 1 out serial interface for notebooks	£69
MPC401-11	1 in, 1 out MIDI card with Waveblaster	£65
Whitman 1x1	Works easily with your existing sound card	£59
Whitman 2x2	2 in, 2 out MIDI card for Windows only	£79
PortMan 2x4	2 in, 4 out parallel interface for notebooks	£119
MIDI Edge 1x1	1 in, 4 out MIDI card with Waveblaster	£129
WinMan 4x4	4 in, 4 out MIDI / SMPTE card for laptops	£219
PortMan 4x4	4 in, 4 out MIDI / SMPTE card for laptops	£219
PortMan 4x4x	4 in, 4 out MIDI / SMPTE card for Parallel port	£219

### 16 BIT DUPLEX

DIGITAL AUDIO RECORDING

This 16 bit card has much lower noise levels than similarly priced cards, and allows full duplex recording on fast 486 or Pentium computers. Ideal with Cubase 3.0, Digital Orchestrator, Sound Studio Gold etc. Built-in MIDI interface (cable included in the price), and connector for optional synthesiser daughterboard. Really really easy installation with Win95 (Plug 'n Play). After putting the card in, switch the PC on, and insert the disk when prompted. Taken about 90 seconds! (4 bit longer if you already have a sound card). Buy with Cubase - £399, with Digital Orchestrator - £275.

RRP £249  
**£149**

### CUBASE VST FOR PC!

Cubase VST for PC! The industry standard MIDI sequencer is now even better value than ever! Version 3 now includes full hard disk recording facilities as on the Mac, that with virtually any soundcard! Get £20 off Score version at only £449

RRP £329  
**£POA**

### MIDIQUEST 6.0

UNIVERSAL PC EDITOR LIBRARIAN

MIDIQuest is the most powerful, flexible and comprehensive editor/librarian around, with support for the widest range of MIDI devices including XP50, P1100 series, Morphous UltraProcess, PULSO, PULBO, Quadserver Plus / CT, Classic Keys, TD-7, XT76 / XT88, Kang X5, DPM4 and many others. Driver upgrades are generally free of charge, so MIDIQuest will last for as long as MIDI is around! It's a really good investment. New version comes on CD-ROM and is fully Windows 95 native (4.32 bit).

RRP £295  
**£199**

### 2 EXCITING NEW SOUND CARDS FROM MIDIMAN

DMAN 2044 - PCI card provides 4 audio ins and 4 audio outs all on separate I/O jack plugs (NOT stereo mix/master!) 20 bit, 128x oversampling onboard DSP, full duplex, recording and monitoring. Comes with Windows95 drivers for all audio software.

DIO card - Not just S/PDIF (on RCA) but AES/EBU (on XLR) interfaces. Use either digital input as "word-clock" to synchronise the digital outputs. Onboard DSP allows use in "processor challenged" systems, and permits future software upgrades. IDEAL FOR MUSICIANS WITH DAT MACHINES

BOTH ARE  
**£249**

### REBIRTH RB-338

SOFTWARE SYNTHESISER

If you're into techno, trance, ambient, hardcore... you simply must have the sound of a 303 in your arsenal of sonic weapons. As it's been out of production for well over a decade, those still in existence are collector's items. They'll cost you an arm and a leg which has opened a market for clone products. The ReBirth RB-338 is a CD-ROM which gives you two 303s and one 808 - a software recreation of these two classic pieces of analog hardware. All the quarks and subtle qualities of the real thing are there, with full MIDI and sync capabilities. No cables, no boxes, all you need is a Mac or a PC.

RRP £149  
**£139**



# PRICES GUARANTEED\*



## A DIGITAL HURRICANE IN YOUR PC?

99% of available sound cards use the old-fashioned "DMA" system of recording audio in order to be compatible with Soundblaster games. With the Pinnacle and Fiji, Turtle Beach abandoned this system in favour of their proprietary Hurricane architecture. Basically, it gives you more tracks than DMA on the same PC hardware, and leads to less driver conflicts.

The Turtle Beach Multisound series has long been considered the "Rolls Royce" of sound cards, from the very first Multisound in 1993, through to the highly respected Tahiti card, and now - the Multisound Pinnacle.



The audio quality of the Pinnacle is beyond reproach, based around a Motorola DSP with 20bit converters on both record and playback, 64x oversampling, and Delta/Sigma converters. An on-board Kurzweil chip provides a top-quality set of synth sounds, which can be augmented with your own samples which can be mapped to a MIDI keyboard via the SampleStore™ control panel. (Up to 48 Meg of samples can be loaded, depending on the size of SIMMs fitted). Create your own drum-kits, mix in break-beats sampled from CD etc... etc...

Other upgrade options include a synth daughter-board (eg DB50XG), cable for MIDI interface, and S/PDIF daughter board allowing direct digital transfer to/from DAT, CD player, MiniDisk etc... (£99 for either card). The Pinnacle is bundled with Voyetra's D.O.P. sequencer which gives up to 16 audio tracks with digital effects (eg reverb, delay...) depending on hardware specification.

- 20 BIT DAC / ADC
- Enhanced or Std Duplex
- Sample Store (up to 48 Meg)
- Kurzweil Wavetable Synth
- WaveBlaster™ Connector (for DB50)
- Optional S/PDIF Daughterboard

<p><b>EVE</b> OVALK PRO AUDIO 6</p> <p><b>£649</b> PACKAGE WITH FIJI</p>	<p><b>Logic</b> LOGIC AUDIO</p> <p><b>£699</b> PACKAGE WITH FIJI</p>	<p><b>CUBASE</b> VST</p> <p><b>£599</b> PACKAGE WITH FIJI</p>
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ADD £100 FOR PINNACLE INSTEAD OF FIJI  
ADD £100 FOR S/PDIF DIGITAL I/O



FREE DIGITAL ORCHESTRATOR PLUS WITH PINNACLE (WORTH £129)



**PINNACLE**

**£449**  
INC. FREE DIGITAL ORCHESTRATOR PLUS

**FIJI**

**£349**  
A PINNACLE BUT WITHOUT SYNTH & SAMPLESTORE

**MU10 GM SOUND MODULE**

The Yamaha DB50XG daughter-board took the market by storm. Yamaha release the MU-10 external sound-card! No more screw-drivers, no IRQ conflicts, no DMA problems, just connect to the serial-port (cable included) and install the software. This boasts even the best plug-n-play cards. FOR SOFTWARE, Yamaha wouldn't settle for the "stodding Bliff" program often thrown in with lesser products. MU10 includes the CD-ROM version of Steinberg's brand-leading Cubase. (not Cubase Lite) Also you can route any sound through MU10 effects!

RRP £109  
**£189**

**SU10 SAMPLING UNIT**

INC 2 FREE TIME & SPARE CD's

Yamaha's SU10 is a ground breaking unit, making professional quality stereo sampling available to everyone. Up to 54 seconds of sampling is available and 48 samples can be held in memory at any one time. Samples can be filtered, reversed, scaled, crossfaded, pre-faded and even stretched using the ribbon controller. The built in sequencer means you can produce your own tunes using just this unit! The SU10 comes bundled with 2 free Time & Space CDs containing almost 800 samples.

RRP £299  
**£269**

ALSO AVAILABLE WITH 3 OCTAVE MIDI KEYBOARD only £329

**PROTECH 12x CD-ROM DRIVE**

If you want access to large amounts of sample libraries there's no better way to do it than via CD-ROM. Hundreds of discs are now available full of everything from orchestral instruments to hip hop loops, all ready prepared to load into your sampler. In theory SCSI is SCSI, but in practice it's just not the case, particularly when it comes to samplers. Drives that work perfectly with one machine will often fluff out to work with another. So we've taken the guesswork out, and come up with a bargain priced CD-ROM drive that works with all current Akai, Emu and Roland machines, and what's more, it runs at 12x normal speed for ultra quick loading (actual speed depends on SCSI spec of sampler). Guaranteed to work! (Supplied with connector for 25 pin SCSI port, specify sampler when ordering - may require additional cable)

NEW PRODUCT  
**£169**

**SAMPLE LIBRARIES**

We have two 100 CD jewelboxes in store holding the complete Time & Space range of sample CDs. Whether you want drum loops for techno, drum & bass or deep house, ethnic instruments & textures or a sound FX library - there's sure to be something to suit your needs. These discs make ideal fodder for all kinds of sampler, from those built into mothers to full-blown stand alone units.

Check one out today!

PRICES FROM  
**£19**

**COMPUTER NEW USED & EX DEMO**

Emu Logic Audio	£119	Turtle Beach Pinnacle	£329	Yamaha MU103G	£179
Steinberg Cubase 3	£189	Turtle Beach TBS2000	£149	Yamaha SW90	£129
Akai MPC2000	£479	Turtle Beach Tropez	£99		
Akai S2000	£339	Yamaha DB50XG	£99		

**SAMPLING NEW, USED & EX DEMO**

Akai CD3000 XL	£1999	Akai S3000XL	£1549	Emu E6400	£1999
Akai CD2000	£1499	Akai S2000XL	£999	Emu E532 SCSI	£799
Akai MPC 2000	£975	Emu EA	£3199	Yamaha SU10	£249
Akai S2000	£849	Emu E4 Keyboard	£799		

**ESI4000 NEW SAMPLER**

The ESI4000 has all the features of the ESI32 we have come to know and love, but now has 64 note polyphony, memory capacity of up to 128 meg, and an operating system upgrade giving you E4 style multi mode filters. All E-mu samplers come with free access to our enormous sample library (we have all the Eill library on CD-ROM) and of course, excellent technical support. Also available with the fantastic Calamari Turbo board pre fitted for only £1499! Initial stocks are very limited - call to reserve yours now!

NEW PRODUCT  
**£1199**

**S3000XL INC FREE ZIP DRIVE & 32 MEG WORKHORSE SAMPLER**

Akai continues its tradition of supplying workhorse samplers to the studio market with this sturdy offering. The compact 2U rackmount machine features 32 note polyphony, 10 outputs, 2 meg expandable to 32 with SIMMS. SCSI as standard, MESA editing software, and a whole range of expansion abilities including digital I/O and an extra filter board. Buy from us and get 16 meg and a ZIP drive free!

RRP £1799  
**£1599**

**S2000 SAMPLER**

Akai's entry level studio sampler, the S2000 doesn't skimp on features: 32 note polyphony, low pass resonant filters, 2 meg RAM expandable to 32 meg, optional 8 output board and quad FX board. Comes bundled free with MESA software to allow full graphic editing from your computer.

RRP £999  
**£799**

We endeavour to keep all AKAI expansion boards in stock at all times, including those for the more obscure and discontinued models. Here are some examples of ways to get the maximum out of your sampler or hard disk recorder.

IB208P	8 outputs & dig I/O for S2000	£399
IB304F	2nd filter board for S2000/S3000XL	£349
EB1E	multi FX board for S2000/S3000XL	£349
EXM300B	8 meg expansion for S2000/S3000/CD3000	£549
EXM00B	8 meg expansion for S1000/1100	£499
IBM208P	8 outputs & dig I/O for MPC2000	£249
IB807V	monitor output board for DRB/DR16	£399
IB804AEX	8 in 16 out ADAT interface for DR16	£499
IB803M	MIDI interface for DRB/DR16/DOB	£199
IB802T	SMPTE board for DRB/DR16/DOB	£249

**S20 SAMPLER**

All new sampler from the makers of the industry standard, the S20 brings quality sampling to a new affordable level. 16 bit sampling gives great quality and the standard 1 meg memory is expandable to 17 meg giving up to 16 minutes sampling time depending on the sample rate used. Built in sequencer means you can build up grooves without the use of a computer, and the special auto loop tempo mode makes BPM calculation a doddle. The 1.44 meg disk drive reads Roppies from virtually all Akai samplers giving you instant access to a huge library of sounds. Initial stocks are very limited - get your order in now.

NEW PRODUCT  
**£479**

**MPC 2000 SAMPLING DRUM MACHINE**

Ever since the launch of the Roger Linn MPC60, Akai have led the way in sampling drum machines. It's latest evolution, the MPC2000, is a lot more than a glorified drum machine however - the 64 track sequencer is a development of which most people consider to be the only real alternative to computer based setups (32 MIDI channels are available), the sampling section is virtually identical to the best selling S2000, SCSI is standard, and the outputs can be expanded from 2 to 10 and dig I/O for only £249! There are far too many other features to mention here - on demo now at Turnkey.

RRP £1199  
**£1175**

**REMIX 16 SAMPLING UNIT**

Akai are world leaders in sampling - just try finding a production studio without one of their machines - and now they have brought that knowledge to the DJ market. 16 pads trigger fully editable samples live, whilst the removable cross fader (with transformer buttons) fades between the deck/line input, and the sampler. There are far too many features to list here - but if you want to take your mixing to a higher level, this is the tool to do it.

RRP £999  
**£549**

**ESI32 + SCSI SAMPLER WITH V2.0 SOFTWARE**

**STOP PRESS**  
END OF LINE EXCLUSIVE DEAL  
OVER 40% OFF!



The ESI32 features 32 note polyphony, 4 polyphonic outputs (expandable to 10), G-chip resonant filters, a huge top quality library (also Akai and EmuXL compatible), and DSP processes like time-stretch, doppler FX, parametric EQ, exciter etc. All E-mu samplers come with free access to our enormous sample library (we have all the Eill library on CD-ROM) and of course, our excellent technical support. The best sounding sampler this side of an E6400, order yours now before it's too late!

RRP £1199  
**£699**

Also available bundled with 12x speed CD-ROM drive, ZIP drive and 8Mb of RAM plus 2 CD's for the irresistible price of only **£999**

**CALAMARI ESI-32 TURBO EXPANSION BOARD**

The upgrade all ESI32 owners have been waiting for! For only £369, you get six extra outputs, giving a total of ten, two simultaneous FX processors, and a plethora of new filter types taken from the E4x. Unbelievable value for money every ESI owner should have one!

RRP £369  
**£299**

Also available bundled with the ESI4000 for only **£1999** INC. 16 MEG FREE

\*We will beat any genuine quote from a UK or European dealer at the time of order. We must be able to substantiate the quote and the goods must be available and in stock. Prices include 17.5% VAT. U.K. mainland carriage £9.99. Please allow 10 working days for check orders. Errors & omissions excepted.



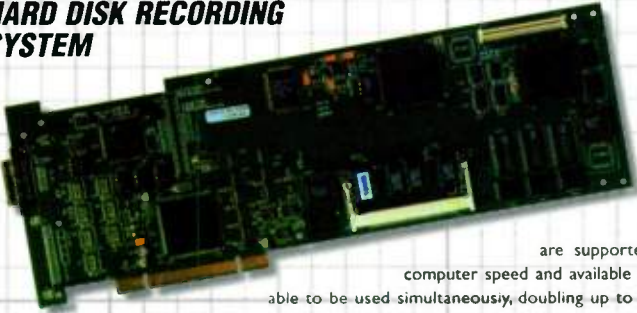
# EUROPE'S LOWEST



## THE PROFESSIONAL SOLUTION FOR CUBASE VST

Lexicon have long been known as the world leaders in digital signal processing, particularly for their universally acclaimed reverb devices. Now they are applying that expertise to the field of hard disk recording, and with stunning results.

### LEXICON STUDIO HARD DISK RECORDING SYSTEM



The Lexicon Studio system comprises three main parts:

The **Core 32** PCI card for PC or Mac (initially PC compatible only) uses full 24 bit processing with onboard DSP and RAM, to tremendously increase the power of your computer and give superb audio quality. Up to 24 tracks of audio

are supported from a single card depending on computer speed and available RAM, and in future, two cards will be able to be used simultaneously, doubling up to 48! The on board variable oscillator provides true sync to external timecode.



The **PC-90** effects card and software gives you Lexichip power (as used in the PCM90) from within Cubase VST, giving you true master quality recording and reverb processing from your desktop.

What's more, two completely independent stereo effects can be used simultaneously, allowing different groups of signals to be treated separately.



Finally, the 19" rackmount **LDI-12T** interface takes all connections and D/A, A/D conversion away from the computer thus avoiding any interference. Balanced XLR stereo analog ins and

outs are provided, together with SPDIF optical and co-axial i/o, and 8 channel ADAT format digi i/o. As if all that wasn't enough, LTC (SMPTE), ADAT and Sony 9-pin synchronisation are all included as well, making the Lexicon Studio easy to integrate into the heart of your studio.

Check out the Lexicon Studio on demo at Turnkey - the desktop studio has come of age!

- Professional Cubase VST Compatible Solution
- Comprehensive Audio I/O & Synchronisation
- Superb Lexicon Professional Quality Reverb
- 24 Bit Processing Gives Pristine Audio Throughout



### RAVE-O-LUTION 309 DANCE WORKSTATION



The Rave-O-Lution 309 is undoubtedly Quasimidi's best and most innovative product to date. Imagine the raw powerful sound quality of Roland's TR909 and TB303, give them 50 times as many sounds, add resonant filters to the drums, and you've still only got half the instrument that is the Quasimidi 309! Knobs for all functions all send out MIDI controllers, built in real-time and step-time sequencer, 2 on board effects processors & EQ, optional rack ears, typical German build quality - far too many features to mention here! The ultimate dance production workstation, must be heard to be believed. "superb bass synth ... excellent drum sounds ... one of the most immediately useable products on the market" - Sound On Sound. Call for a free demo CD. Money back within 7 days if not satisfied (ask for conditions).

FACTORY DIRECT £649

RACK EARS ALSO AVAILABLE only £25

### 309 AUDIO-EXPANSION



Input / output expansion board now available only £149! 2 extra outputs, 2 inputs allowing you to route any 2 external signals through the AES synthesis. Also comes with new operating system with many new features.

FACTORY DIRECT £149

### POLYMORPH SYNTHESISER

Coming soon, the Polymorph is a four part analogue style synthesiser, with 8 note polyphony, 4 outputs and superb 309 style realtime editing facilities and sequencer & FX. Call for more details.



FACTORY DIRECT £769

### JV1080 SYNTH MODULE



In the same way as the S1000 became the industry standard sampler, Roland's JV1080 has become the industry standard synth module. It's not hard to see the reason why - straightforward operation combined with top flight sound quality and a huge range of useable sounds. But expandability of the machine is where it really comes into its own. There are over 10 different expansion boards which can be fitted (up to 4 at once), each one with as much ROM as the original machine, covering sounds from Vintage to Orchestral and Dance to World. At Turnkey we have the full range in stock, as well as an unbeatable price on the machine itself. Buy with any four expansion boards for only £499 extra!

RRP £1199 £869

### JV2080 SYNTH MODULE



The Roland JV1080 has been become the industry standard sound source for home studios and professionals alike. It's superb sound quality, 64 note polyphony and expandability were a winning combination. Now the new JV2080 builds on that success by offering a giant editing screen, three independent effects processors as well as reverb / delay and chorus, and room for 8 of Roland's renowned expansion boards - the potential is virtually limitless! Judging by the success of the JV1080, these will be in strong demand - call us now! Buy with any four expansion boards for only £499 extra!

RRP £1399 £925

### SYNTH MODULES EMU



Emu have taken their wealth of experience in making modules such as the Proteus, Vintage Keys and Morphex, combined it with the talent from the incredible Emulator 4, and with their usual innovation, came up with the Orbit, Planet Phatt and Carnaval. The Orbit is stacked full of classic drum sounds, pulsating basses, ambient pads, as well as a huge variety of hits and effects. Planet Phatt brings a new deconstruction to swing, and the Carnaval is ideal for dance grooves as well as Latin specialists. The inclusion of the Emu's 16 different types of 6-pole filters mean that these modules have more power / filtering than any other synth. Finally the 'BEATS MODE' includes a wide selection of loops and grooves which can have their pitch changed without tempo change and vice-versa, and even their sounds too! V2 software now gives improved beats mode and other enhancements. Orbit upgrade available for only £69.

RRP £869 £699

### MATRIX 1000 SYNTH MODULE Oberheim

Now almost 10 years old, and still sounding as fresh as the day it was released, the Matrix 1000 is essentially a Matrix-6 in a rack. 6 note polyphonic, 2 oscillators per voice, true analog VCF filters with 8 modes, "Matrix" modulation with 20 sources and 32 destinations, raw gutsy analog sounds. Why 1000? The 1000 presets were generated by Matrix-6 owners worldwide in response to a competition to find the best analog sounds on the planet. You're sure to find the perfect patch for virtually any application. Group mode allows changing of up to 6 units to create a true monstrosity! Fully editable via MIDI, Mac, PC or Atari editor (available for only £49).

NEW PRODUCT £2799

### PROGRAMMER FOR MATRIX 1000 OR MICROWAVE ACCESS

There's no doubt that the Oberheim Matrix 1000 and Waldorf MicroWave deliver powerful analog sounds. However, when it comes to programming your own sounds, top producers have tended to go for older synths like the Minimoog and Super Jupiter, because their knobs and sliders make for easy creation of new sounds. The Access for Matrix 1000 programmer gives you the best of both worlds - now you can freely experiment with your modern analog synth using the same intuitive front panel, and better still, record every tweak of a parameter into your sequencer.

EXCLUSIVE £329

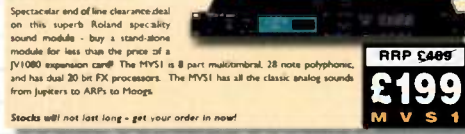
### DEEP BASS 9 TB303 CLONE Control Synthesis



A great sounding TB303 clone. In rack with 1 knob per function. All the sound controls of the 303 are duplicated, filter cutoff, accent and glide all controllable over MIDI. Audio input allows treatment of external signals by the filter etc, and CV / gate in / out also means it can be used as a MIDI - CV converter. An excellent analog bass machine - this unbelievable price on the end of the line means they will sell out very quickly!

RRP £449 £219

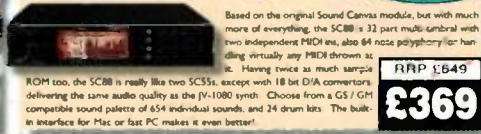
### MVS1 SOUND MODULE Roland



Spectacular end of line clearance deal on this superb Roland speciality sound module - buy a stand alone module for less than the price of a JV1080 expansion card! The MVS1 is 8 part multitrack, 28 note polyphonic, and has dual 20 bit FX processors. The MVS1 has all the classic analog sounds from Junipers to ARPs to Ploggs. Stocks will not last long - get your order in now!

RRP £489 £199

### SC88-VL SOUND MODULE Roland



Based on the original Sound Canvas module, but with much more of everything, the SC88 is 32 part multi-timbral with two independent MIDI ins, also 64 note polyphony for handling virtually any MIDI drum set. Having twice as much sample ROM too, the SC88 is really like two SC55s, except with 18 bit D/A converters delivering the same audio quality as the JV-1080 synth. Choose from a GS / GM compatible sound palette of 654 individual sounds, and 24 drum kits. The built-in interface for Mac or fast PC, makes it even better!

RRP £849 £369

\*We will beat any genuine quote from a UK or European dealer at the time of order. We must be able to substantiate the quote and the goods must be available and in stock. Prices include 17.5% VAT. UK mainland carriage £9.99. Please allow 10 working days for cheque clearance. Errors & omissions excepted.



# PRICES GUARANTEED\*



## A3000 SAMPLER



market and come up with a highly competitive product. 64 note polyphony, four outputs (expandable to twelve plus digi i/o), .WAV file compatibility and memory expandable up to 128 meg, means that the A3000 must be taken seriously at this price. Call for full details or a demo.

- 64 Note Polyphony as Standard
- 4 Outputs Expandable to 10 + digi i/o
- Reads Akai and .WAV Format Files
- Memory Expandable to 128 meg

## AN1x VIRTUAL ANALOGUE SYNTH



## BLUE MEANIE INVASION!

Arriving any time now, Yamaha's A3000 is their first entry into the sampling market for almost ten years, but this break has allowed them to take a good look at the

The analogue emulation market is hotting up with this exciting new release from Yamaha. Building on the incredible success of the CS1x, the AN1x is built on the same

design principles but uses technology from the groundbreaking VL range to produce stunning virtual analogue sounds. With a 5 octave aftertouch sensitive keyboard, 10 note polyphony, 8 knobs and a ribbon controller, and built in effects, the AN1x is sure to be an instant hit. Demand will far outstrip supply - get your order in early!

- Amazing Low Price for Polyphonic Modelling
- Front Panel Knobs all Send MIDI Controllers
- 5 Octave Velocity & Aftertouch Keyboard
- 10 Note Polyphony

**NEW PRODUCT**  
**£1299**

**INCLUDES FREE STAND, CASE & HEADPHONES**

## XM1 & XMc1 ORGAN MODULES

Amazing sounding all new organ module with remote drawbar controller! Based on the guts of the £8000 X33, there is nothing as realistic as this on the market. Built in Leslie simulator and overdrive, up to 3 registrations simultaneously, variable release envelopes, percussion and too many more features to list here. Exclusively supplied by Turnkey.



RRP £1069  
**£999**

## BASS STATION BUDGET MONO SYNTH

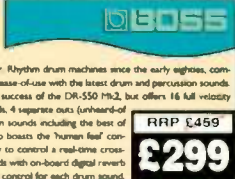
**END OF LINE CLEARANCE EXCLUSIVE TO TURNKEY**  
If you need to get into analog synths on a budget, then the Bass Station keyboard is for you. But this is no mere toy! Two oscillators, pulse width modulation, two LFO's and knobs that send out MIDI information, make this a versatile sound creation tool, capable of a wide range of bass sounds and effects. An ideal addition to any MIDI setup!



RRP £349  
**£219**

## DR-660 DR. RHYTHM DRUM MACHINE

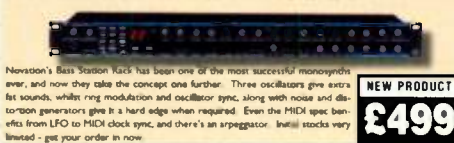
BOSS have been making Dr. Rhythm drum machines since the early eighties, comparing value for money and ease-of-use with the best drum and percussion sounds. The DR-660 builds on the success of the DR-550 MK2, but offers 16 full velocity and aftertouch sensitive pads, 4 separate out (inward-of) at this price, and 255 drum sounds including the best of TR808 / 909. The 660 also boasts the 'human feel' control first introduced on the RB which allows velocity to control a real-time crossfade between several waveforms. Process your sounds with on-board digital reverb and chorus - fully editable, with individual effect-send control for each drum sound.



RRP £459  
**£299**

## SUPER BASS STATION NEW MONO SYNTH

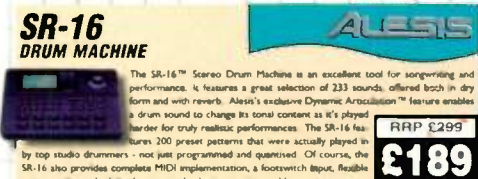
Novation's Bass Station Kicks has been one of the most successful monosynths ever, and now they take the concept one further. Three oscillators give extra fat sounds, whilst ring modulation and oscillator sync, along with noise and distortion generators give it a hard edge when required. Even the MIDI spec benefits from LFO to MIDI clock sync, and there's an arpeggiator. Initial stocks very limited - get your order in now.



**NEW PRODUCT**  
**£499**

## SR-16 DRUM MACHINE

The SR-16™ Stereo Drum Machine is an excellent tool for songwriting and performance. It features a great selection of 233 sounds, offered both in dry form and with reverb. Alesis's exclusive Dynamic Articulation™ feature enables a drum sound to change its tonal content as it's played harder for truly realistic performances. The SR-16 features 200 preset patterns that were actually played in by top studio drummers - not just programmed and quantised. Of course, the SR-16 also provides complete MIDI implementation, a footswitch input, flexible programming and editing features and velocity-sensitive pad buttons.



RRP £299  
**£189**

## MICRO PIANO PIANO MODULE

The MicroPiano is the most highly regarded piano module on the market, featuring Kurzweil's breathtakingly realistic true stereo samples - 32 note polyphony means you won't suffer from note-stealing and the wide range of other keyboard sounds and strings make it useful in many other situations. Built in effects including very high quality reverb mean there's no need to tie up another effects unit. Strictly limited quantities at this price mean that stocks won't last long. Order today - you won't be disappointed!



RRP £599  
**£349**



## FREEBASS TB303 CLONE

If you need the unique sound of an original Bass Line™, but can't afford the inflated prices that go with it, then Freeform Analog Technologies' Freebass is the product for you!



It's the only authentic sounding TB303™ clone on the market, and it's got MIDI! I/O rack with 1 knob per function, all the sound controls of the 303 are duplicated, Cutoff, Resonance, Envelope Mod, Accent, Tune and Decay. Waveform is continuously variable from square wave to sawtooth, and an auto tune button is included to retune the oscillator - no more continual drifting!

On top of this, there's an audio input to the filter stage, allowing you to process any external signal with the FB303's powerful synthesis. The ultimate analog bass machine - this incredible price means these will fly out of the door! Another Turnkey exclusive.

- Superb Sounding TB303™ Clone
- Fraction of the Price of an Original
- External Input to the Filter
- Exclusively Available at Turnkey

**NEW PRODUCT**  
**£199**  
**FACTORY DIRECT**

## MC-303 GROOVEBOX DANCE WORKSTATION



The enduring popularity of the TB303, MC202 and TR909 has just refused to go away but increasing rarity has meant that secondhand prices have been driven up to ridiculous levels. Roland, the creators of these machines, now bring you the MC303 Groovebox which combines all their classic drum machine sounds, a step time / real time sequencer, 303 'acid' bass sounds complete with

front panel filter controls and a whole host of other useable sounds (it's 16 part multi-timbral!). This box is an all in one dance music solution, and believe us, it sounds the business! Initial supplies will be very limited, order now to avoid disappointment!

**NEW**  
**£900**

ALSO AVAILABLE WITH MK149 MIDI KEYPBOARD only £599

## MICROWAVE II WAVETABLE SYNTHESISER

The Microwave II combines all the famous features of the original Microwave together with today's requirements for user interface, signal to noise ratio and sonic purity. It's simplicity of use is obvious with the use of just 5 rotary dials and a 2x40 character back lit LCD. On the back the Microwave II has 2 fully modulatable stereo outputs (configurable as 4 monos with panning). Tone generation comes from a powerful DSP generating wavetables, the 10 voices each feature two oscillators, 2 wave generators, a mixer, two filters in series, a stereo amplifier, four envelopes, 2 LFOs, a modulation matrix with 16 slots and several 'modifiers', more than enough to keep even the most demanding programmer satisfied!



**NEW PRODUCT**  
**£999**

## PULSE MONO SYNTH

Waldorf quality at a previously unheard of price! Their first venture into the burgeoning monosynth market has been universally acclaimed - not rightly so. The Pulse's three oscillators provide some of the fattest sounds around, and its modulation matrix allows a far higher degree of programming complexity than anything else in its range. Add to that the fact that editing any parameter sends out a MIDI controller and you have a fantastic all round performer.



RRP  
**£499**

## PULSE PLUS MONO SYNTH

The Pulse Plus has all the features of the Pulse but with audio input, CV and gate control. You can even play your guitar through it! The latest sounding monosynths around just got better - check one out today!



**NEW**  
**£599**

## SOUND MODULES NEW, USED & EX DEMO

Alesis DM5	£249	Korg OSR/W	£250	Yamaha MU50	£299
Alesis OSR	£649	Korg XSR	£389	Yamaha MU30	£349
Alesis SR16	£129	Kurzweil K2000KB	£1649	Yamaha P50	£379
Boss DR5	£249	Roland JV1080	£650	Yamaha QY22S	£319
Emu MORPHEUS	£799	Roland JV2080	£1199	Yamaha QY700	£299
Emu Orbit	£595	Roland MC303	£385	Yamaha RY20	£229
Emu PLAYLET PHATT	£599	Yamaha Electronic/ATC	£699	Yamaha RY8	£99

\*We will beat any genuine quote from a UK or European dealer at the time of order. We must be able to substantiate the quote and the goods must be available and in stock. Prices include 17.5% VAT. UK mainland carriage £9.99. Please allow 10 working days for cheque clearance. Errors & omissions excepted.



# EUROPE'S LOWEST

## Wave Synthesiser

**TURNKEY EXCLUSIVE!**

We now offer a new custom range of Wave synthesisers with 76-note keyboards in four colour options - standard blue, red (as shown), Sahara and black. Totally unique sound.

**PRICES FROM £6299**

CALL TURNKEY PROFESSIONAL ON 0171 240 4036 FOR DETAILS

## THE RAVEN KEYBOARD DANCE WORKSTATION

**QUASIMIDI**

Dance experts Quasimidi have done it again with this incredible new product. Stacked full of hundreds of the finest dance sounds, from fat analog synths through retro drums and special effects. On board sequencer with special loop motif mode makes it a cinch to create instant hits! Typically superb sound quality from this top German manufacturer. Also available, Raven Max expansion board giving over a thousand new sounds. Call in for a demo, we guarantee you'll be impressed. Free demo CD available, please call to receive one. Money back within 7 days if not completely satisfied - please ask for conditions.

**NEW PRODUCT £999**

## K5000s ADDITIVE SYNTH

**KAWAI**

In this age of many 'soundlike' sample synth keyboards, it's not often you get something coming along with a completely fresh approach. Kawai have dared to be different though with the K5000s, and reintroduced additive synthesis. This has been tried in the past, but the limited DSP power has severely curtailed the possible results. The only method of synthesis that can theoretically produce any possible sound, additive has a palette which ranges from superb acoustic simulation, to timbres quite unlike those offered by any other synth. The inclusion of a traditional synthesis section complete with an incredibly powerful filter means it's also a cinch to create fantastic analogue style sounds, and a generous complement of knobs which all send MIDI controllers add to the ease of use. Far too many features to mention here - call for more information or for a demo.

**NEW PRODUCT £1199**

RACK VERSION ALSO AVAILABLE only £999

## XP-10 MULTITIMBRAL SYNTH

**Roland**

Fantastic deal makes this the most affordable pro keyboard on the market. Take Roland's legendary sound set, add a decent five octave keyboard, an arpeggiator and innovative editing features like sound morphing, and you have the XP10. Fully General MIDI compatible for all your midpiles, the XP10 comes bundled with a free stand, headphones and cables only at Turnkey.

**RRP £499**  
**£319**

## JP8000 ANALOG MODELLING SYNTH

**Roland**

So far, modelling technology has been used to recreate acoustic timbres, but Roland are the first to specifically model true analog synthesis with their new Analog Modelling technology, and believe us, the results are spectacular!

Analog Modelling not only produces superb emulations of the great synths of the 60's and 70's, but also totally unique timbres never before heard. Realtime control is excellent, and all knobs, sliders, buttons and the ribbon controller send out Continuous Controller messages. For instant creativity, a powerful arpeggiator and real time phrasing synthesizer are included, which can be easily synchronized to an external MIDI clock. This is very likely to be the hottest synth of '97 - order now!

**RRP £1499**  
**£925**

## QS8 EXPANDABLE SYNTH

**ALESIS**

The QS8 64 Voice Expandable Synthesiser starts with an 88 note piano weighted keyboard, and a powerful 64 Voice synth engine, powered by 8MB of sound ROM which is expandable to 16MB, either through the large range of Alesis QuadraCards, or blank Flash RAM cards for use with the free Alesis Sound Bridge sample transfer software. There are 640 programs and 500 'mixes', including a complete GM bank. Built-in serial port for direct interface to a computer, and free CD-ROM filled with sequencers, editors, song files, and samples which turn the QS8 into a complete music work station. Call now for more details, and find out about one of the most underrated synths on the market.

**RRP £1699**  
**£1499**

QS6 ALSO AVAILABLE only £599 QS7 ALSO AVAILABLE only £849

## XP-50 WORKSTATION KEYBOARD

**Roland**

All the power and flexibility of the JV1080 in a keyboard, together with what has to be the best onboard sequencer around, and a built in disk drive. The XP50 has a 5 octave keyboard and 2 outputs, also available as it's big brother the XP80 with a 7 octave keyboard, 4 outputs and the large size display as featured in the new JV2080. We have limited stocks only at staggering prices - don't delay - order today!

**RRP £1499**  
**£999**

## XP-80 WORKSTATION KEYBOARD

**RRP £1799**  
**£1299**

## TRINITY KEYBOARD WORKSTATION

**KORG**

When it comes to workstation keyboards, the Korg name is legendary. Their current flagship product, the Trinity not only features the customary range of exemplary sounds, but also touchscreen technology to make it one of the most intuitive instruments on the market, and a range of options to turn it into a fully fledged recording studio: sample playback (Akai compatible), Prophecy expansion board, and even hard disk recording!

**RRP £2245**  
**£1499**

TRINITY PLUS £1799  
TRINITY PRO £1999  
TRINITY PROX £2499

CALL SOHO SOUNDHOUSE ON 0171 379 6766 FOR DETAILS

## DTR-1 RACK-MOUNT DIGITAL TUNER

**KORG**

- Oversize easy to read LED meter.
- Auto tuning with 3 selectable modes; Strobe, Cent, Hz.
- Two tuning inputs to handle tuning of 2 instruments.
- Built-in microphone is perfect for tuning acoustic instruments.
- 3-Octave reference tone. • Cable check function.

**RRP £249**  
**£169**

## DTR-2 RACK-MOUNT DIGITAL TUNER

- Rack-mount auto chromatic tuner with large LED meter.
- Full 7 octave tuning range.
- Auto reference calibration function can automatically calibrate the tuner to instruments that are not easily tuned.

**RRP £349**  
**£99**

## JV SERIES EXPANSION BOARDS

**Roland**

Roland's JV modules and XP keyboards are superb units in their own rights, but expandability of the machines is where they really come into their own. There are over 10 different expansion boards which can be fitted (up to 4 at once, or 8 in the JV2080), each one with as much ROM as the original machine, covering sounds from Vintage to Orchestral and Dance to World. At Turnkey we have the full range in stock, as well as this unbeatable offer - buy any compatible machine from us and get any four boards for only £499! Check them out today!

**RRP £1076**  
**£499**

## CTK-601 GENERAL MIDI KEYBOARD

**CASIO**

A 61 key, touch sensitive, General MIDI keyboard at an unbelievable price. This is an ideal instrument for professionals and beginners alike as it is extremely easy to use, but don't think that means it's not powerful. The sound quality is excellent and the auto-accompaniments, which can be transmitted via MIDI, are superb.

Add to all this 10 digital effects, four sound/control pads, layered or split keyboard modes, recording and four registration memories and you've got the best value for money keyboard on the market. And we've got an unbeatable deal - Turnkey price includes free power supply and headphones!

**RRP £199**

## PACIFICA 112 ELECTRIC GUITAR

**YAMAHA**

Available in Natural, Satin, Black or Antique stain with maple or burlings fingerboard. All with FREE Pro setup.

**RRP £199**  
**£169**

PACIFICA LEFT HOOKER ALSO AVAILABLE only £179

## PC-200 MkII MIDI CONTROLLER KEYBOARD

**Roland**

Compact touch sensitive master keyboard offering full control over pitch bend and modulation via slider assignments to reverb, pan or any controller, sustain pedal input, transpose over 2 octave range, send patch & bank change messages.

Check out our unique package prices with these modules:

PC200 + PC209	£249
PC200 + PC209 + PC210	£289
PC200 + PC209 + PC211	£319
PC200 + PC209 + PC212	£399

**RRP £199**  
**£149**

## WK-1500 76 NOTE MIDI WORKSTATION KEYBOARD

**CASIO**

THIS TOP OF THE RANGE Casio has 128 sounds, 100 auto accompaniments and a 76 note keyboard. It is also fully General MIDI compatible and all 16 MIDI channels can be controlled from the keyboard.

With an onboard six track sequencer all your songs can even be recorded on the instrument itself. This is unbelievably good value for such a great instrument.

**RRP £549**  
**£299**

## SANSAMP RANGE

**TECH 21 - NYC**

The Tech 21 range of hand built American products simulates every tube amp, giving you the sound over desired, giving you the classic Fender, Marshall, Boogie, HiWatt, Vox sounds etc. all in one versatile unit at a fraction of the cost of the original!

XXX distortion preamp pedal	£89
TRIO 3 ch. preamp	£149
GT3 preamp simulator	£149
Classic Buffering	£29
SmartSaver DI	£169
Smoothing FET	£499
Tonemaster 60 1A12 IN STONE	£499

CALL SOHO SOUNDHOUSE ON 0171 379 6766 FOR DETAILS

## CS1X SYNTHESISER

**YAMAHA**

Not only does the CS1X look great, it sounds great! As well as 480 16G format voices and 118 different drum kits, the CS1X also has 128 special performance sounds especially designed for dance and techno music. From panel knobs allow instant access to crucial editing parameters like the filter, and 238 assignable to 128, giving you the best of the best.

**RRP £599**  
**£POA**

BUY WITH VL70M VIRTUAL LEAD MODULE for only £799

## MK149 MIDI CONTROLLER KEYBOARD

**Evolution**

Compact touch sensitive master keyboard offering full control over pitch bend and a mod wheel assignable to reverb, pan or any controller, sustain pedal input, transpose over 2 octave range, send patch & bank change messages.

Check out our unique package prices with these modules:

MSW - 99155	£29
MCI - 99156	£29
MU15 - 99157	£29
SC - 99145	£19

**NEW £119**

## GM01 GUITAR RADIO SYSTEM

**SOUND CRAFT**

UNDER HALF PRICE

The GM01 by Soundcraft is a single channel diversity guitar/radio system. The system gives you total freedom from the hassle of cables, with none of the interference or drop out sometimes experienced from systems at this price. The end-of-line clearance deal represents the last opportunity to acquire one of these superb systems at a fraction of their original asking price. Hurry - Limited quantity available, so always first come, first served!

**RRP £327**  
**£149**

## KX88 MASTER KEYBOARD

**YAMAHA**

The KX88 has been the luxury master keyboard of choice in top studios, and with the death of the Synclavier, has probably the best action available. 88-note wooden weighted keyboard, inputs for 2 sustain pedals, 2 continuous controller pedals (one of each is included), breath controller, 2 wheels, 4 sliders, 5 momentary switches, 2 toggle switches and aftertouch. Apart from taking priority-of-place in your studio, the KX88 can be considered a collector's item, and with no sounds to go out of date, it will last your whole musical career.

**RRP £1649**  
**£849**

## KEYBOARDS NEW, USED & EX DEMO

Korg K5	£399	Korg Trinity Hard Disk Option £389	Kurzweil PC88	£1699
Alesis QS6	£569	Korg Trinity PLUS	Roland A33	£325
Alesis QS7	£799	Korg Trinity PRO	Roland PC200GS	£139
Alesis QS8	£1399	Korg Trinity Prophecy Option £299	Roland RD500	£1249
Hammond GM1000	£349	Korg Trinity PROX	Roland XP10	£269
Hammond XE2	£349	Korg Trinity Sample Option £429	Roland XP50	£369
Korg N364	£599	Korg Trinity Scal Option	Roland XP80	£1299
Korg PROPHET	£549	Korg K3	Yamaha CS1X	£399
Korg Trinity	£1350	Korg K5	YAMAHA PF150	£1195
Korg Trinity Digi Vx Option	£199	Korg K5D		

## ME-8 MULTI-EFFECTS PROCESSOR

**BOSS**

OVER 35% REDUCTION IN PRICE

The Boss ME-8 is a professional floor multi-effects unit with 50 preset and 50 programmable memories, giving you all the classic Boss sounds including pitch-shifting and Boss's own unique hummeriser as well as the usual distortion, chorus, delay, reverb, etc. making it one of the most usable effects processors. We have only a limited quantity available to buy now to avoid disappointment.

**RRP £349**  
**£199**

\*We will best any published price from a UK or European dealer at the time of order. We must be able to substantiate the quote and the goods must be available and in stock. Prices include 17.5% VAT. UK mainland carriage £9.99. Please allow 10 working days for cheque clearance. Errors & omissions excepted.



# PRICES GUARANTEED

**TURNKEY MEGA DEAL**

## ALESIS

### MONITOR 2 MID FIELD STUDIO MONITOR

Top producer Dave "The Blade" Mark



Buying a great pair of speakers for your home studio setup often involves a compromise between sound quality, cost, bass performance and portability. Now you can have it all with this once in a lifetime deal on the stunning Alesis Monitor 2's.


Flat bass response down to 40Hz assisted by the substantial ported cabinets which come in a mirror image pair. The three way design with 10" woofer offers superior transparency with excellent quality reproduction across the whole frequency range. Power handling is up to 150w per speaker. We cannot hold this offer forever - buy now before it's too late!

RRP £689  
**£349**

BUNDLE WITH SERVO 550 only £749

## ABSOLUTE ZERO by SPIRIT NEW NEARFIELDS

The latest additions to Soundcraft Spirit's monitor range are the Absolute Zero's. For those of us with slightly less demanding monitoring applications, they make the ideal choice.



RRP £199  
**£159**

## ABSOLUTE 2 by SPIRIT STUDIO MONITORS

Here at last! Stunning sounding and looking monitors from the UK's leading mixer manufacturer. Incredible bass extension and power handling at a killer price. In stock now, come in and audition them ASAP!

RRP £259  
**EPOA**

## CONTROL 5 STUDIO MONITORS

These classic monitors from JBL have been a standard in studios for several years and still stand up very well against more recent competition. The solid build quality you can expect from JBL comes as standard and the ported design gives fantastic bass response. Internal fuses help to prevent blown tweeters and a compatible Turbosound sub-woofer is also available for only £199. Exclusive to Turnkey.



RRP £499  
**£249**

## CONTROL 1 COMPACT MONITORS

These superb compact monitors (RRP £229) are ideal for accurate monitoring on a budget. Sturdy impact resistant casing makes them the only choice for location work.



RRP £189  
**£99**

BUNDLE WITH DENON PMA250 only £269

## MONITORS FROM HARBETH ACOUSTICS

Many of today's popular budget monitors sound impressive in the store, with tremendous bottom end and sparkling treble. But once made on these monitors can still sound wrong when played on other systems. The problem? Lack of clarity and detail in the mid-range, particularly vital when working with vocals and lead instruments. Harbeth, manufacturers of monitors for the BBC and others for many years, now address this problem with their new expression near-field monitors, offering great frequency response, and excellent mid-range clarity.



NEW PRODUCT  
**£379 PER PAIR**

## MONITORING NEW, USED & EX DEMO

Alesis monitor 1	£199	Samson SERVO150	£194
Alesis RA100	£189	Samson SERVO240	£199
Behringer Autocom	£169	Samson SERVO500	£339
JBL CONTROL 5	£199	Soundcraft Absolute 0	£179
JBL CONTROL1	£149	Yamaha NS10MSTUD	£275

## SPIRIT STUDIO CONSOLES BY SPIRIT

Soundcraft's Spirit Studio desks revolutionised the project studio market when they were introduced over 5 years ago offering sound quality and features only previously found on desks several times the price. Even then they were great value for money, but because Soundcraft have recouped their R&D costs, and because of our substantial buying power, they are now available at an unbelievable price. No other desks represents such fantastic value for money, just check out the feature list:

'In line' layout means 40, 56 and 72 inputs respectively for the 16, 24 and 32 channel desks. 4 band EQ with 2 mid sweeps. 6 aux sends. 8 true nulling direct outs on every channel. LED metering, fader reverse - the list is endless!




RRP £1587	RRP £2093	RRP £2894
<b>£969</b>	<b>£1469</b>	<b>£1999</b>
16 ch	24 ch	32 ch

## GHOST CONSOLES

INC FREE METER BRIDGE

Ultra low noise inputs, 4 band EQ with 2 fully parametric mids, up to 12 auxiliary sends, MIDI mute automation and MTR transport control are a few of the features that put other project consoles to shame (no MIDI on LE versions).



RRP £6607
<b>£3399</b>
32 ch LE
RRP £3647
<b>£2849</b>
24 ch LE

## SERVO 170 AMPLIFIER

Samson's Servo 170 is specifically designed for use with nearfield monitors, and does an excellent and unobtrusive job, sitting as close as possible to the "ears with gain" ideal for an amplifier. It offers a power rating of 85 Watts per channel RMS, making it an ideal partner for most of today's nearfield studio monitors. The standard 2u design means it fits neatly into your rack system. Independent left and right volume controls are given, and there are both in signal and clip indicators, together with protection circuitry to help prevent blowing your speakers.

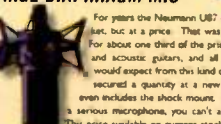
At this price stocks won't last long - another Turnkey exclusive!



RRP £289  
**£159**

## AT4033 LARGE DIAPHRAGM MIC

For years the Neumann U87 dominated the large diaphragm condenser mic market, but at a price that was well the achievement of the Audio Technica AT4033. For about one third of the price, it offered superb sound quality - sparkling vocals and acoustic guitars, and all the kind of qualities you would expect from this kind of mic. Now Turnkey have secured a quantity at a new unbeatable price, which even includes the shock mounts. If you're in the market for a serious microphone, you can't afford to pass this one by! This price available on current stocks only.



RRP £599  
**£319**

## SM58 INDUSTRY STANDARD DYNAMIC MIC

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# Roland V-Drums/TD10

## COSM-Modelled Drum System

*First previewed at the NAMM show in January, Roland's first foray into the world of drum modelling is now almost ready for release.*

*NICHOLAS ROWLAND brings you an exclusive preview from the official launch party.*

Wherever the V-Drums go, they raise a smile. It seems that many people just can't believe what they're hearing;

electronic drums were just not meant to sound this good. These emotions were in evidence at January's NAMM show, where the system was first unveiled. Though not fully functional, the system showed sufficient promise to put broad grins on the faces of the many top drummers who heard them. In late September, the grins were also to be observed among the impressed audience at London's Rock Garden, where Roland launched the production V-Drums in the UK during a day of highly impressive demos from drummer, singer and songwriter/demonstrator Tommy Snyder. Tommy, whose pedigree with Roland electronic percussion systems goes back more than 10 years, proved an ideal salesman for the product. Not only was he able to show off the V-Drums in a musical context, he is also the man who has been more closely involved than anyone with the V-Drums' development, working with Roland's software team to develop the hardware design, the system's architecture and its user interface.

### THE SYSTEM

There are two components to the V-Drums system: the V-Pads (of which more below) and the TD10 Percussion Sound module, which contains all the processing power necessary to physically model the drum sounds, and acts as the 'brain' of the system. The pads have been developed to work with the brain, but contain nothing radically new; they are essentially piezo-based trigger pads. The TD10 is where the action is, so much so that it will actually work as a stand-alone, MIDI-triggerable module. Lurking at its heart is a COSM software-based engine (Composite Object Sound Modelling, Roland's take on physical modelling), as already seen in the likes of the V-Guitar, VK7 V-Organ and indeed the effects expansion board on the



*A possible V-Drums setup. The TD10 'brain' is the black box on the left of the setup.*

VS880 multitrack recorder (reviewed in SOS May '95, July and May '97 respectively). On the TD10, the lion's share of on-board COSM power is devoted to 'virtually' modelling what drummers would tend to regard as the most important instruments — in other words, the snares, kicks and toms. With the snares in particular, the TD10 offers considerable potential to customise your own sound. You can change the shell material of your 'virtual' drum (wood, steel, brass), shell depth, drum tuning, and even release the snares or try different types of drum heads. And just like in real life, overtones can be damped with virtual pieces of gaffa tape or mufflers. For that matter, you can even stuff a virtual blanket inside your bass drum. But Roland says the

point about COSM is that it is concerned not just with modelling instruments, but the entire audio/recording chain. So, having 'virtually' tuned and tweaked the individual drums, you can then customise the ambience of the virtual environment in which these sounds are heard. For example, you can use different types of virtual mics for each drum and also experiment with the ambient mic types and virtual placements for the kit as a whole. You can then change the apparent size of the space in which your virtual kit is sitting and even change the type of wall coverings! A couple of preset kits show off nicely the extremes to which these acoustic treatments can be taken. The Next Door kit, as its name suggests, sounds like a drummer neighbour heard through a party wall; while the stadium kit is pure U2 in Sarajevo. Add to all this a virtual mixing desk equipped with compression, reverb, delay and 3-band parametric EQ, and you begin to appreciate that the TD10 is not so much a box of triggerable drum sounds, but a drum room in a top-flight studio with a vast stockpile of drums, cymbals and percussion from which to build the kit of your dreams.

### THE FEEL DEAL

Of course, all this sonic sophistication would be to little avail if the system didn't actually

### TD10 BASIC FEATURES

- Over 600 drum and percussion sounds
- 50 melodic sounds
- 50 drum kits
- 12 stereo triggers (two with positional detection)
- 8 output jacks (four stereo pairs)
- Hi-hat control jack
- MIDI In, MIDI Out/Thru
- Audio input
- Wave expansion board slot
- Memory card slot



feel right to play. Drummers are always quick to make comparisons between the feel of electronic kits and acoustic drums. Having been let loose on the V-Drums for an all-too-brief session, I can assure you that they really do deliver 'the speed of response' and 'expressive natural feel' promised in the brochures. This is down to the all-new V-Pads, designed in partnership with acoustic drum manufacturers Remo. The main pads are the 10-inch PD100 and 12-inch PD120, the latter with an extra trigger in the rim. There are others (a hi-hat controller and kick pad, for example), but lack of space means I'll have to save the description of these until my full review of the system. The new pads are not only highly sensitive, they enable you to trigger sounds with different timbres according to where you hit the pad. One TD10 preset kit even allows you to play the pads with brushes in traditional jazz style. What's amazing is that this is achieved from a single piezo pickup in the centre of the head (the secret here, I'm told, is a combination of a special widget that is able to detect the position of a hit from the vibrations of the head, plus the sophistication of the COSM software in the TD10 itself).

Other features that should whet your appetite for our forthcoming full sticks-on review include a built-in 8-track sequencer with real-time phrase recording capability and the ability to trigger sequences from pads. There's also a fully featured metronome section with adjustable time signature. And of course, the whole thing syncs swimmingly with other MIDI devices.

Finally, a word about the TD10's user interface. One area where much of the development work has been concentrated is in making the whole system extremely easy to use. As the TD10 bristles with dedicated knobs and sliders, I really can believe Roland's claim that the main functions are literally but one push of a button away. What's more, all editing actions are visually represented on the TD10's generous backlit LCD. Slap some virtual gaffa tape on a snare drum as damping and, sure enough, a little tape icon appears on the drum head depicted on the TD10's LCD. The more I saw the system in action (despite Roland's own description of the interface as 'drummer-friendly', which rather under-sells its capabilities), the more I liked it. After all, why deal in abstruse parameter names when all you want to do is replicate the sound of a bass drum stuffed with a blanket?

### CONCLUSIONS

If first impressions count for anything, the V-Drums system should be a winner. It offers stunning sounds, an excellent user interface, and first-rate playability. What will prove interesting will be to test out Roland's claim that, as a stand-alone unit, the TD10 will be of as much interest to producers as drummers. In the meantime, the good news is that not only are the V-Drums coming off the production line, but they are on the shelves of the eight V-Drums dealers across the UK. The bad news is that they will not stay there long, given the long list of back orders. And this is mainly from drummers who have only seen the advance specification sheet! Having experienced the demo, played the kit and even got the V-Drum T-shirt, I think these early buyers will find their faith has been well rewarded. As usual, expect a full SOS review as soon as we get a production model to play with.

SOS

€ TD10 'brain' alone £1399; PD120 trigger pad £339; PD100 single-trigger pad £299; TD10kb (basic V-Drums kit comprising one TD10, two PD120 pads, one PD100, two smaller pads, a kick pad, and a hi-hat controller) £2599. All prices include VAT.

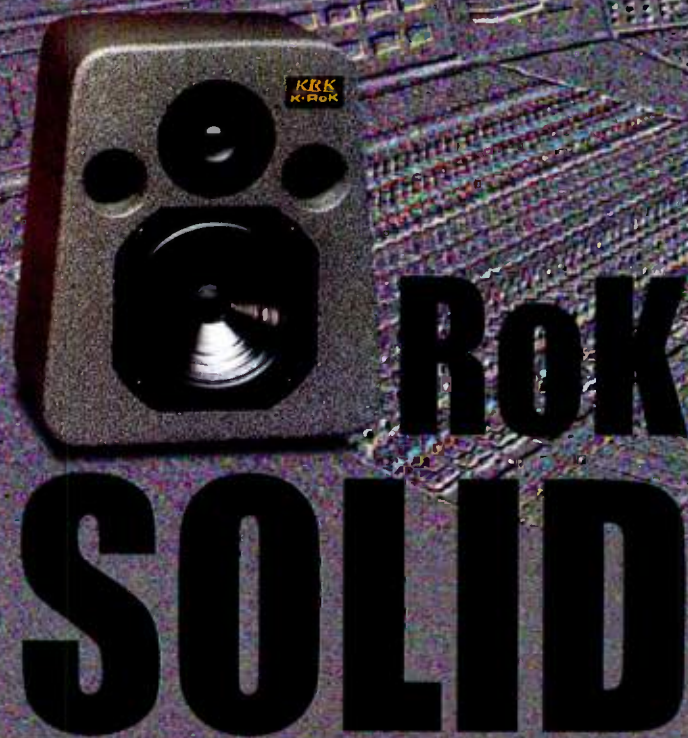
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# Access Virus

Advanced Simulated Analogue Synthesizer

*Access's strangely-named Virus is another digital synth emulating the analogues of yesteryear — but this one might be the best of the bunch so far. PAUL NAGLE brings you a sneak preview of the first Virus to hit the UK.*

The Access Virus is red, knobby and supposed to digitally simulate an analogue synth. Does this sound familiar? Well, comparisons with Clavia's Nord Lead are to be expected, but the Virus is far more than just a cheaper copy of the Nord. It has a character all of its own, and, in my opinion, scores over its Swedish rival with 12-note polyphony, 16-part multitimbrality, two superb filters, effects, models of digital as well as analogue waveforms, three LFOs, an LCD, 256 onboard user patches, 128 onboard multis, and upgradable operating software via the MIDI In (which proved particularly useful while writing this preview). The Virus is also generously endowed with three stereo output pairs plus a pair of stereo inputs for processing external signals via its filter and effects sections. In this preliminary review, we'll take a quick whizz around the synth's features, sounds and operation; the detailed review will follow as soon as Access have completed the final operating system software and as soon as I can tear myself away from the production model.

## FIRST IMPRESSIONS

You may remember Access as the German company who produced the hardware programmers for the Waldorf Microware



and Oberheim Matrix 1000 (see *SOS* September '96). Since the company's expertise lies in producing quality controllers, it will come as no surprise that the user interface of the Virus is beautifully thought out, with the right balance of features and complexity, and without compromising its, well, accessibility. Construction is first-class, with 32 firm knobs (titter ye not!), 27 positive switches and a 2 x 16-character display. Of particular note, too, are the 52 yellow LEDs. These pulse in time with the LFO cycle, and have a fair crack at representing the particular waveform by varying their intensity as the LFO cycles; so with a triangle waveform, the LEDs gradually fade up and down, whilst with a sawtooth they throb percussively. Apart from being visually very appealing, this is one of those touches that assure you that this instrument has class. The back panel has the MIDI In and Out sockets (no Thru), the six audio outputs and two inputs, and the connector for the (huge) wall-wart PSU.

When the pre-production Virus arrived for this preview, it had no onboard sounds, and operating system software that was more than a little flaky. After a little web surfing, I unearthed a bank of factory sounds and a much improved OS — v1.08 — from Access's German site (see URL at

the end of this review). I did still manage to crash the Virus once after that, and several features were still not in place, but there was enough to get a feel for what the final instrument should offer. Within half an hour of starting to program it, I had saved away a number of patches which were almost as good as the ones my old Jupiter 6 once produced before it developed dodgy oscillator syndrome. I was immediately struck by the quality of the filters, which were smooth and responsive. There must be some fancy computation going on under the bonnet, because here were cutoff sweeps every bit as convincing as a real analogue synth, with killer resonance thrown in too. RIP zipper noise, and good riddance.

## PROGRAMMING

The Virus operates on two levels. If you prefer, you can simply turn the knobs to rustle up the sounds you need, in the traditional style. For many people, this will be more than sufficient. Indeed, you should be able to conjure all your favourite 'normal' analogue patches in this manner. For those who want the more complex or less common features, there's an 'Expert Mode' behind the LCD menus, where you perform edits using the data entry knob and switches — more on what this offers

## MIDI MATTERS

In the manner of all good modern synths, every knob on the Virus's front panel responds to a dedicated MIDI controller, and will send that controller from the MIDI Out socket for sequencer automation. There's another nice MIDI-related touch, too; instead of the usual MIDI indicator LED, the Virus LCD shows a note icon, controller icon or SysEx icon depending on what it's receiving. Tasty!



in the full review. There are two user-definable knobs, although in all the early factory patches I've heard, these are always set to portamento time and delay send.

Casting a beady eye over the basic synth architecture, the two oscillators have the now familiar virtual sawtooth and square waves, with a fairly convincing pulse width modulation. Unusually, and perhaps as an insurance policy against the whims of fashion, Access have added a further 64 digital waveforms so that you can produce PPG-like textures and then process them via the filter section. The waveshape can be modulated via velocity or LFO so you don't get stuck with the static and lifeless raw sounds that many people associate with digital synths. A single knob controls the balance between the oscillators (I wish it had been two separate level controls!), and the sub-oscillator (offering a choice of either square or triangle wave) adds some extra sonic muscle, although the Virus is already very unlikely to have sand kicked in its face. If you do want to thicken things up, Twin Mode is a means of allocating two voices to every note with detune and pan options to add 'mush' and spread the sound across the stereo image, but of course in this mode the Virus's polyphony is halved to six notes.

## MODULATION & ENVELOPES

The two main LFOs divide their labour so that the first modulates the pitch and pulse width of Oscillators 1 and 2, plus the resonance for filters 1 and 2 and filter gain. The second LFO handles the waveshape of Oscillators 1 and 2, FM amount, Filter 1 and 2 cutoff, and pan. The third LFO is accessible only via the LCD, and is dedicated to oscillator pitch although it does still have the same waveforms as the other two, namely triangle, sawtooth, square, sample and hold (S&H) and S&G. This last waveform is a smoothed-out version of S&H and, if applied in small amounts, is ideal for creating those subtle pitch variations everyone tried so hard to minimise in real analogues but now strive for again

## SOUNDS

I picked up a MIDI file from the Access web page containing a bank of factory sounds. I've no idea if all of these will make the final-release Virus (nor, it seems, do Access yet), although many deserve to. Here are some of my favourites:

- **A11 PP?-PAD**  
Sounds like a PPG and shows that the repertoire of the Virus

encompasses far more than brassy farts and squeelchy basses.

- **A12 NO-SEQ**  
This uses the arpeggiator and delay for a great sequenced effect.
- **A20 SAT-SYNC**  
One of these big sync lead sounds that are ideal for the soundtrack to the sort of films that always seem to have titles like *Large American Cop III*.
- **A22 ZZ-BASS**  
It's rich and Minimoog-like. What

more could you want?

- **A54 V-BIRTH3**  
An arpeggiated patch which just cries out "twank me!" Grab these knobs and hold onto your cheque book.
- **A55 V-RESO2**  
If you're not sold on the Virus's filter after listening to this patch, this isn't the synth for you.  
Various analogue drum sounds are thrown in, too: hi-hats, bass and snare drums, even wood blocks.

because they've realised it sounded cool after all! LFOs may operate in single or polyphonic mode; they can also work as mini-envelopes with a simple 'one-shot' action. Speaking of envelopes, there are two of these, hard-wired to filter and amplifier, although Envelope 1 can also modulate the pitch of Oscillator 2 — handy when using oscillator sync.

## FILTER & EFFECTS

The most crucial sound modifier of an analogue synthesizer is its filter, and the Virus comes supplied with not one but two. Both of these feature resonance and may operate in low-pass, high-pass, band-pass or band-reject modes. If that isn't enough, Filter 1 may operate in either 2- or 4-pole mode. Different configurations allow the filters to be connected in series or parallel up to a maximum of 6-pole operation — that's 36dB rolloff! In addition, Filter 1 has a shaper/distortion option for increasingly more aggressive overdrive effects.

The filters may be linked or controlled separately, or can even process each oscillator separately and spread the results across the stereo panorama. If you remain as yet unconvinced that a digital synth can produce a warm, powerful, smooth filter sweep, you simply must hear the Virus.

The built-in effects are fine without being over-complex. At present, just simple delays and chorus are offered, but the Access web site promises reverb, phasing and flanging, so I'm hopeful that these will be ready in time to make the finished version. Delay can add so much to an analogue synth and the chorus makes Juno-style pads easy to program.

## ROUTING & MIDI

The Virus has three stereo outputs, plus a stereo input for external signals. With some clever routing, you can send the output of certain patches out for external processing then return it via the inputs to be handled by the rest of the synthesizer section. This flexibility means you can add effects before the filter, envelope, and amplifier sections if you so wish. The internal buss system is unusual, as it allows the reprocessing of patches with other patches in Multi mode. You can use two separate signals or a stereo input and process this via the filters and stereo VCA.

## CONCLUSIONS

This is one Virus I wouldn't mind getting. The filters are first-rate and the fact that the oscillators produce both digital and analogue-sounding waveforms gives it a palette far broader than anything in its class. The 16-part multitimbrality, built-in effects, multiple outputs and inputs for external processing should make people sit up and take notice, but better than all of this, it simply sounds great.

Of course, there are still things I'd like to see implemented/finished. For example, a unison mode, a note-reserve function for multis, some improvements to the arpeggiator, and response to aftertouch, but since these are all easily added in operating system upgrades, I won't start bleating until I get my hands on the final version. Physically, the Virus is a bit of an odd shape, but if it can be made to fit comfortably in a rack (a rack kit is planned, apparently), and if the final power supply is rather smaller than the housebrick supplied with the preview model, then I confidently predict Access will have a hit on their hands. Don't buy a virtual analogue until you've heard it!

SOS

## FEATURES AT A GLANCE

- 12-note polyphonic.
- Two oscillators per voice plus a sub-oscillator and noise source.
- Each oscillator may be a sawtooth or square wave (complete with modulatable pulse width) or one of 64 digital waveforms.
- Two filters usable in series or parallel for 12-36dB operation with a remarkably flexible routing system.
- Three LFOs, two envelopes.
- Oscillator Sync and Frequency Modulation.

- Built-in effects (delay, chorus and so on).
- Three pairs of polyphonic stereo outputs.
- One stereo input.
- Arpeggiator (more on this in the full review).
- 16-part multitimbral (with the ability to use up to four different chorus effects on individual parts of a multi).
- Operating system upgradable via SysEx.
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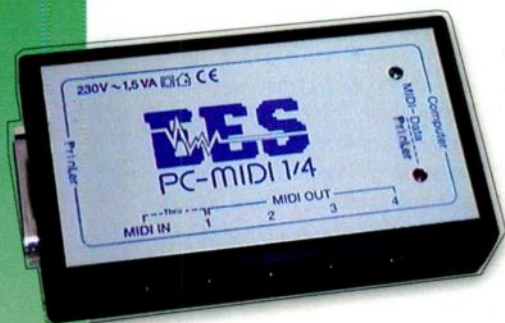


# EES PC-MIDI 1/4

## PC MIDI Interface

*As PC musicians expand into the world of MIDI outside their computer casings, they'll find a few more MIDI outputs never go amiss. MARTIN WALKER enters a parallel dimension.*

As reported in our recent roundup of PC MIDI Interfaces (see *SOS* August 1997), Cimple Solutions have recently started to market a 1-In/4-Out interface from manufacturers EES in Germany. It's an external device, which attaches to the parallel (printer) port on the PC,



and comes in a neat but tough ABS casing, with a connector for the parallel printer port at one side, and a through connector to attach additional devices (such as your printer) on the other. (If you buy an interface without a through port, you'll either have to buy a parallel port switching box or expander card to simultaneously attach your printer — around £15 — or power-down and change the cables every time you want to print something.) A cable is provided so that you can place the

interface a short distance from the PC, rather than trying to hang it off the printer port itself.

### CONSTRUCTION & OPERATION

The PC-MIDI 1/4's MIDI sockets are all along one side, with a single MIDI In and then four identical MIDI Outs in a row. These are discrete outputs, each providing a totally separate 16 MIDI channels, giving a total of 64. Unusually, the PC-MIDI 1/4 case contains a mains power supply, and if the unit is powered up without the PC the MIDI input is passed 'thru' to Out 1, so that you can play attached modules without switching on your computer.

On the top, there are two LEDs: the red one initially comes on to show that mains power is reaching the unit, and the other lights up green when the interface is active, whereupon the red LED flashes if MIDI activity is detected. Driver installation from the floppy disk is fairly painless, although some of the text options on the review model were still in German at the time of the review (I have been promised that this will have been sorted, as well as the drivers being upgraded for multi-client use, by the time you read this issue of *SOS*). Once the driver has been installed, you need to tell it the settings of your parallel port (look in Device Manager first). Having clicked on the correct values (see screenshot, below), click on OK, and then reboot the PC to initialise the interface.

I decided to plug the unit into the chain of other devices that I already have hanging off my printer port (*Cubase Score* dongle, *Waves Native Power Pack* dongle, and an *Epson Stylus Color* printer), to see if anything untoward happened. I connected my devices in the order 'PC, dongles, MIDI interface, printer', and everything worked first time for me. However, in the interests of thoroughness, I persevered, and did manage to make *Cubase* throw a wobbly by reconnecting the devices in the order 'PC, MIDI interface, dongles, printer', as *Cubase* then refused to see its dongle. It seems that leaving the dongles nearest the computer is the way to do it. Some

### pros & cons

#### EES PC-MIDI 1/4 £99

##### pros

- Four separate outputs.
- Should co-exist happily with other parallel port devices.

##### cons

- Multi-client drivers still not available, but promised very shortly.
- Some people might prefer to have the option of powering the unit from the PC.

##### summary

A straightforward MIDI interface that should suit a lot of people.

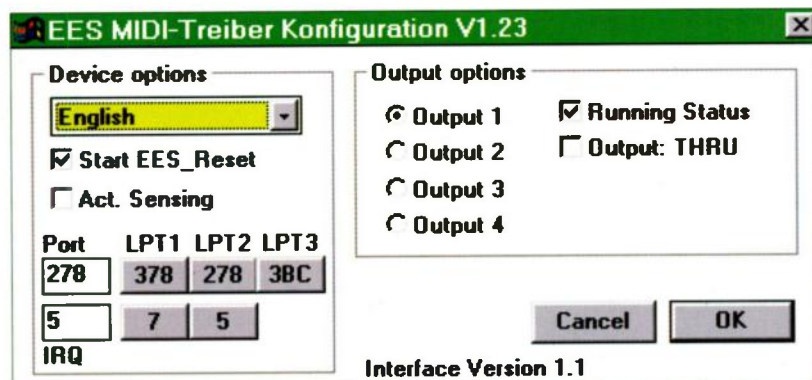
**SOUND ON SOUND**

people have apparently had trouble with fast parallel ports recognising *Cubase* dongles (see the Steinberg web site for more details), but as long as your dongle worked before installing this interface, there seems no reason why it should not continue to do so afterwards.

Unlike some interfaces which provide no through port, this one allows everything to co-exist in relative harmony. This is because the MIDI interface is automatically disabled by the interface driver when you send the first byte to the printer, so there cannot possibly be any interaction. Whenever a subsequent MIDI application is run, a small utility automatically reactivates the interface. This all worked well for me, and the LEDs were useful for indicating current status.

### SUMMARY

This is a robust interface that has sensible precautions designed into it, so that it works alongside other devices using the parallel port. It also seems to be the cheapest 1-In, 4-Out device currently available. Most people only need a single MIDI In, but nearly always need more outputs, so this interface ought to find a lot of potential customers, especially once the multi-client drivers have been finished. Sometimes the Cimple things are the best!



The EES drivers are still of the Windows 3.1 variety, so this screen can be found under the Advanced part of the Multimedia section of Control Panel.

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# Joemeek VC6

## Compressor/Enhancer/Mic Preamp

**PAUL WHITE** tries his luck on the green and finds that where voice channels are concerned, this box is a whole in one.

Where recording equipment is concerned, Ted Fletcher's Joemeek designs are one of the UK's more recent success stories. Though the company produces a wide range of products at different prices, the majority of them use an

### LAYOUT

Constructionally, the unit is simple but soundly engineered, with an integral mains power supply and all the components mounted on one single-sided circuit board. All the controls and sockets other than the XLR are fitted directly to the board to minimise wiring, and a number of surface-mount components are fitted below the board. The gain cell is clearly visible in the centre of the board, where two amber LEDs are mounted in close proximity to a photocell.

The front-panel controls are set out in the order of signal flow, with the mic preamp at the left-hand end of the all-metal rack case. The mic input is a balanced XLR, and separate unbalanced jack inputs are provided for line

standard Joemeek optical design and features controls for Compression (threshold), Ratio, Attack and Release. Both the attack and release have wide ranges and ratio is adjustable to a maximum of 6:1. The Bypass button has what looks like a green status LED, but this actually lights to show that gain reduction is taking place — there is no gain reduction meter on this model, presumably again to save on cost.

The enhancer is based on a type of dynamic equaliser and has controls for Drive, Q and Enhance. There is no Bypass button for this stage, and the dual-colour Drive LED on other models has given way to a single amber LED that flickers when the enhancer is getting enough drive to kick in. This is no great loss



updated optical gain control system (photocell and light source), based on the one that producer Joe Meek originally designed for himself. The result is a compressor that sounds distinctly different to a conventional VCA-based unit. The new 1U mains-powered VC6 Meekbox comes towards the low-cost end of the range, and uses all solid-state circuitry, but nevertheless combines a fully-featured mic/line instrument preamp based around the SSM 2017 mic amp IC, plus a compressor and an enhancer section. There's no EQ or gate, but there is a rear-panel TRS insert jack for patching extra processing into the signal path after the mic preamp should you need it.

The manual describes the preamp as being a revolutionary design with five gain stages controlled from a single knob. The signal from the preamp passes via the insert point to the compressor, then to the enhancer, and there are two high-level outputs, both on unbalanced jacks, isolated from each other by resistive pads. A Mix In jack allows external line signals to be mixed into the VC6's signal path before the compressor stage, but the stereo link connector present on some of the other Joemeek units is absent on this model.

and instrument level signals. Pads, filters and phase invert buttons have been left off this model to save cost, but there is switchable phantom power. Rather than incorporate expensive switching, plugging into the line or instrument jack disables the mic input. Given the simplified metering on this model, I would have welcomed a mic amp clip LED.

The compressor is a variation on the

as even with the dual-colour LED on other models, you still had to do most of the setting by ear. Like most enhancers, the end result can be anything from a subtle sheen to a harsh edge depending how you use it; the harsher sounds tend to be associated with wider Q settings, while the narrower settings produce a more restrained sparkle that really helps improve vocal clarity. As far as I can make out, this particular enhancer works by emphasising a part of the high-frequency end of the spectrum, then compressing it before adding it back into the main signal path via the Enhance control.

A single volume control sets the output level, and the five-stage LED output level meter monitors the signal strength directly before the output stage.

### IN USE

The mic preamp produces a clear, solid sound that takes on an appealing aura of detail and 'airiness' when just a little enhancer is added with a fairly narrow Q setting. The compressor behaves as you'd expect a Joemeek design to, combining warmth with clarity and articulation. The effect is exactly right on most vocals, both in smoothing out level changes

**pros & cons**

**JOEMEEL VC6 £349**

**pros**

- Fully variable controls.
- Helps vocals sit nicely in a mix.
- Very musical compressor and effective enhancer.

**cons**

- No compressor gain reduction meter, just a single LED.

**summary**

Though corners have been cut to keep the price down, they don't detract from the sound or flexibility of this unit.

**SOUND ON SOUND**



# Meekbox

and adding a little character, and if you're using a dynamic mic, the enhancer is capable of adding a capacitor-like sizzle to the sound reasonably convincingly. Though this unit is evidently designed with vocals as the main application, the instrument input means you can also treat clean guitar and bass via the VC6 and create a sound that's both even in character and nicely detailed.

## CONCLUSIONS

Every time I try a Joemeek unit, I think they've finally built all the permutations that are possible, but in the VC6, they've come up with all the classic Joemeek ingredients for a voice channel — including a fully-controllable compressor — and then made it affordable by simplifying the mic preamp and the metering and providing unbalanced outputs. Because compressors are often plugged into unbalanced insert points or recorders with unbalanced inputs, the lack of balancing won't be a problem in most normal studio applications, and the lack of stereo link socket is also actually no great loss. It's more likely that the unit will be used to get mic, line or instrument signals directly into a recorder when track laying, and then, during mixing, the line inputs and outputs can be



“...the unit will be used to get mic, line or instrument signals directly into a recorder when track laying...”

used to connect the VC6 to a console's channel or group insert point.

At £349, the VC6 is hardly a bargain-basement product, but it does deliver the distinctive Joemeek sound at a low cost without sacrificing controllability or overall sound quality, and at a lower cost than most of the other products in the range. I miss not having a gain reduction meter on the compressor, but the rest I could live with quite happily.

505

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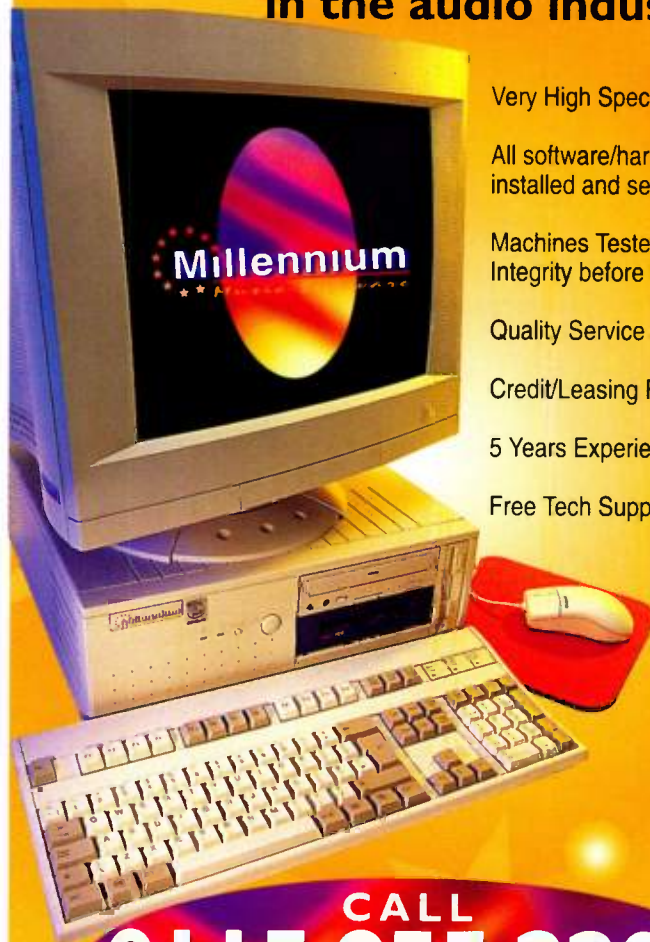
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# Alesis Studio

## Rack Mixer

*ANDY KEIR casts a critical ear over the new Alesis rack mixer and discovers that he's in for a quiet time.*

The last three or four years have seen a great increase in competition as far as the small general-purpose mixer is concerned, so it's curious that Alesis should come in with what appears to be a very basic product in terms of facilities — though you could argue that they've decided to focus on quality rather than quantity when it comes to features. Behind the advertising blurb, the Studio 12R is a simple 12-channel, stereo out mixer with basic EQ, a single fixed pre-fade

mic preamps are capable of accommodating low-impedance input signals with up to 60dB of amplification, which the manufacturers are keen to point out is some 10-20dB more than many other rackmount mixers. All level controls have their unity gain point at the usual three-quarters point of travel, with 10dB of gain at full position. The single Master fader is the only exception, and is designed for unity gain (0) when the fader is up full. Effectively, this places smooth, professional fades within the ability of the shakiest of hands, and I should know!

All connectors are on the rear panel, leaving the front-panel control surface very compact, but at the expense of convenient access to the connectors. Outputs include two balanced aux sends, L/R Main Out and Monitor Out on balanced quarter-inch jacks. Connection to a stereo mastering recorder can be made via RCA tape in and out phonos, which operate at -10dBV. Tape In allows playback of a -10dBV level signal through the Monitor Out and phones jacks only — this will

### pros & cons

#### ALESIS 12R £375

##### pros

- The signal path quality is excellent.
- Easy to use.

##### cons

- The simple layout means a lot of repatching, and this is fiddly as all the connectors are on the back.
- Seems costly given the very basic facilities on offer.

##### summary

A useful but very simple mic/line mixer. The very clean signal path is its main advantage.

**SOUND ON SOUND**

the tape machine. You can mix multiple tracks to tape by patching one of the stereo outs to the required multitrack input, so it would be sensible to ensure that you can get at the rear of the mixer easily once it's rackmounted.



aux send and a single post-fade foldback send. There's no routing, no grouping, and no MIDI, and the master section is very basic, but at least you do get faders on every channel, rather than rotary controls. It could be used in anything from keyboard submixing and small live sound systems to mobile multitrack recording, but in this last application only the simplest operations are possible.

The 3U rackmount unit offers 12 balanced quarter-inch jack inputs, two of which are stereo (line-only pairs on channels 9/10 and 11/12), giving a total of 10 channel strips, each with 60mm faders, running alongside the control knobs. The eight mic/line channels also feature XLR balanced mic inputs with globally switchable 48V phantom power. The

not be heard via the Main Out. You'd normally use these Tape In phonos to monitor a stereo mixdown, using the Master/Tape Monitor switch on the front panel.

The eight mic/line channels also have quarter-inch TRS insert points, allowing pre-EQ, in-line processing through the use of the usual 'stereo splitter' cables. It is here that the in-line recording capability of the Studio 12R begins to become apparent, as these insert jacks can also serve as direct outputs to, and monitor returns from, a multitrack, providing you only need to record one channel to one track. By using an insert Y lead connected to the multitrack in and out, it's possible to monitor both to-tape and from-tape signals, simply by selecting input or output monitor on

In a more comprehensive recording setup, two Studio 12Rs would offer greater flexibility than one. This is described in the manual: one 12R acts as the 'source' mixer and the other as a dedicated monitor/mixdown unit connected to the multitrack outputs. Because the mixers are so small, even two of them combined with something like an ADAT would provide a fairly compact live recording setup.

### CHANNELS

Each of the 12R's channels is equipped with pan/balance, two aux sends (fixed pre and post-fader), and peak indicators that light 6dB before clipping. These are useful for setting up the input gain control, as you can increase until the indicator just flashes on the loudest



# 12R

peaks — the type that flashes only when clipping occurs is less useful.

On channels 1-8, the Trim gain sweep on the Line input ranges from 10dB attenuation to 40dB gain, and on the Mic input from 10-60dB gain. The Trim controls on stereo channels 9/10 and 11/12 range from -15dB attenuation to +15dB gain, which is adequate for all normal applications.

Below the Trim is the EQ section, a basic standard shelving affair with two centre-detented pots, offering 15dB of cut or boost at 80Hz and 12kHz respectively. The master section is very sparsely populated, comprising one fader, two knobs and a single button. There's a small indicator LED for mains power and another for phantom power. Beside these are the stereo master LED meters (which Alesis describe as Fast Peak), and the Master fader, single-ganged for matched stereo fades. There's also a Stereo Aux return level and phones/monitor level controls, plus

the monitor select switch and a standard quarter-inch stereo headphone jack.

## USING IT

Setting up the Studio 12R is straightforward enough, with everything clearly marked and sensibly spaced given the unit's compact size. Thankfully, the power supply is internal — no fiddly AC adaptors to lose or break. Once I'd sorted out my good connecting cables from my less-than-good ones, the unit turned out to be very quiet — as you might expect from such a simple signal path. Undoubtedly the 65kHz audio bandwidth has a positive influence on the audio transparency.

For uncomplicated sound reinforcement and simple home studio use, the 12R behaves very well, with ample headroom (clips at 24dB), though the simplistic design means that you have to apply a little lateral thinking if you want to do anything out of the ordinary.

## SUMMARY

Ultimately, the Alesis Studio 12R is a very basic rackmount, 12-input module, but it lends itself to a number of different applications in both live sound and recording. The manufacturer's blurb suggests that the unit provides a portable, cost-effective mixing solution for basic 8-track recording systems, which it does if you don't need to do anything

too fancy. There's no doubt that it's mobile, with particularly impressive mic preamps for the price, and phantom power means you can use quality capacitor mics with it.

Things can get a little fiddly once the unit is in the rack, though, especially when you're repatching multitrack inputs to the insert points, or feeling around for either the mains or the phantom power switches. Caution needs to be exercised here as they're in close proximity. These are minor gripes, but I'd have preferred to see all the switches on the front panel.

The noise figures compare very well with those of most recording consoles I've come across, and the mixer is very quiet. With a retail price of £375, it has some pretty fierce competition on its hands: it doesn't provide as many features and frills as some of its rivals, but does offer an extremely good quality, minimum signal path for getting mic or line signals into your recorder.

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# INSIDE THE

RECORDING VANGELIS • NEMO STUDIOS  
• KEITH SPENCER-ALLEN • RAPHAEL PRESTON

# SYNTH LAB

*A tremendously gifted yet private man, Greek composer Vangelis has contributed greatly to the acceptance of electronic music as an art form of its own with soundtrack works like Chariots Of Fire and Blade Runner. From 1975 to 1987, Vangelis did nearly all his recording at his own Nemo Studios in London, a place hitherto as shrouded in mystery as the man himself. RICHARD CLEWS dons his investigator's mac and turns his attention to Vangelis's Nemo years...*

Vangelis showed himself to be at the forefront of electronic-based music, and collaborations with Jon Anderson, Demis Roussos, Irene Papas and the English Chamber Choir, among others, saw him take the synthesizer into uncharted musical territory. The success of this work added to a reputation stretching back to Vangelis' time as keyboard player and songwriter in Aphrodite's Child, a leading Greek rock band which featured Demis Roussos on bass.

Through the '70s and '80s, demand for Vangelis' music in almost every medium grew, and Nemo became the launch pad for a bewildering range of projects. Music critics usually point to *Chariots Of Fire* as the high point of this period, but it was only one of many acclaimed film scores — *Blade Runner*, *Antarctica* and *The Bounty* could have enjoyed similar commercial success. Ballet music for *Frankenstein* and *Beauty and the Beast*, and themes for many television series and adverts list among Vangelis' other ventures while at Nemo.

The sleevenotes on the Nemo albums reveal a host of engineers who helped Vangelis shape and record this music, among them Raine Shine, John Walker, Alan Lucas, Jess Sutcliffe, Marlis Dunclau and Andy Hendriksen. With respect to the work of these people and of others who remain uncredited,

**T**he name of Nemo Studios has a special meaning for Vangelis fans; between 1975 and 1987 the Greek composer and multi-instrumentalist recorded a series of groundbreaking records at this, his very own 'synthesizer laboratory'. From 1975's *Heaven and Hell* through to 1977's *Spiral* and 1985's *Mask*,

Photo: Chris Walter





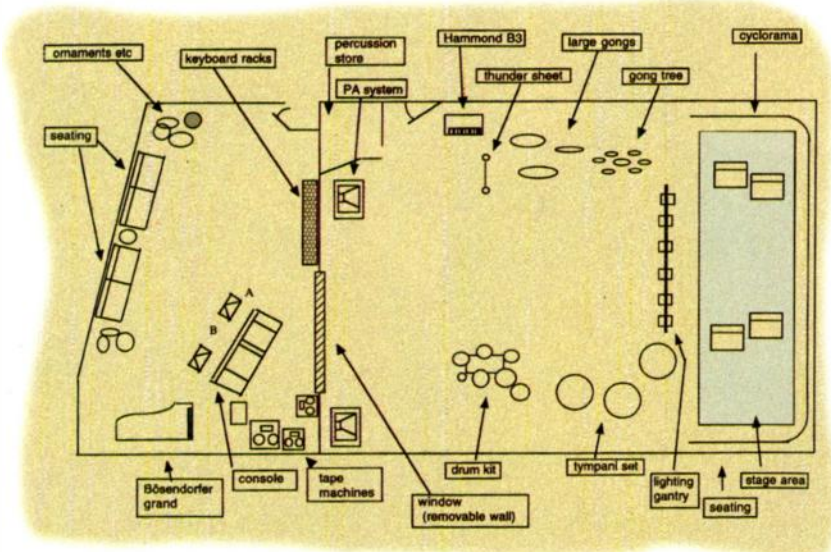


Diagram: Keith Spencer-Allen.

the two people regarded as Vangelis' closest technical collaborators at Nemo are Keith Spencer-Allen and Raphael Preston. Their comments shed light on one of the first studios designed for keyboard-based music, and the work undertaken there.

### FIRST APPROACH

Keith Spencer-Allen had served his technical apprenticeship as an engineer in several studios before he met Vangelis in 1975. He spent four years as engineer and studio manager at Nemo, and moved on to a successful career in journalism. Today, as well as being a highly respected figure in the professional audio world, he is a writer, producer and technical consultant.

Keith recalled his first meeting with Vangelis: "I was chief engineer at a small central London studio called Orange that doesn't exist any more. Vangelis suddenly turned up one day asking to look around, and then booked about a month of 12-hour days to produce two albums for artists signed to Phonogram Greece. The month booking ran way over, and I got to know Vangelis quite well on a professional basis. A couple of months later he called me at the studio asking if I knew of any experienced recording engineers who would like to work for him, as the engineer who had just finished the *Heaven and Hell* album [Alan Lucas] had left. I had been looking for an excuse to leave Orange Studios, but Vangelis didn't know that! I asked him if I could come and look around Nemo, and talk about what he needed, and he agreed.

"During the time we had worked together producing those Greek albums he had made some keyboard overdubs, but I had never heard any of his music. When we talked a

*Nemo Studios, rough floor plan and layout circa 1978 (following the re-equipping of the studio in that year). Thanks to Keith Spencer-Allen and his photographic memory for supplying this information!*

few days later, he played me the master of *Heaven and Hell*, and I thought it was like nothing I had heard before. It seemed fresh and exciting, and he had clearly created it with a passion. The discussion ended with me joining him — not just to act as his recording engineer, but also to try and knock the studio into some workable shape."

### NERVE CENTRE

Vangelis set up his recording studio in 1975, on the top floor of Hampden Gurney Studios, a former school building in Hampden Gurney Street, near Marble Arch. He originally wanted to buy Command Studios in Piccadilly, a former BBC facility where Roxy Music recorded their debut album, but the owners of the building decided it should not continue as a studio, so Vangelis bought some of their equipment instead.

As Keith Spencer-Allen discovered, there was already enough equipment to produce an album. There was also plenty of space — Nemo's main studio area was 23 x 44 feet, with a ceiling 20 feet high, and the control room was approximately 430 square feet. But the layout left much to be desired. Firstly, the top floor had been used as a film studio, and old lighting tracks and props were left behind; secondly, the acoustics were impaired by the 'creative environment' in which Vangelis liked to work (some idea of this can be obtained from the picture of Vangelis astride a metal-plated horse elsewhere in this article). For example, the control room alone contained a fountain, a bed, a hammock (in which Demis Roussos was often to be found), speakers stacked like tower blocks, mobiles hanging from the ceiling, plants, mirrored statues and a tiger skin on the floor. The latter was placed between the desk and the tape machine, so Keith had to avoid breaking his neck when rushing around.

*Main picture: Vangelis (left) at work on a solo album for Demis Roussos (right) in the control room at Nemo Studios in late 1976, some time before the studios were completely re-equipped in 1978. This picture was taken from approximately the location marked by the letter A on the studio floor plan (above), facing the bottom right corner of the control room.*

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## A WAY WITH DECOR

The above picture shows Vangelis taking a break from the Demis Roussos sessions, late 1976. This shot was taken from approximately the same position as the first picture in this article, but further back from the mixing desk. Vangelis's *Elka Rhapsody* can be seen leaning against the window leading through to the recording area. Above the window can be seen strips of what look like hieroglyphics — according to Keith Spencer-Allen, these were the closest Nemo came to mixer snapshot automation in those pre-digital days; they were simple strips covered in notes of settings that lined up with the various channels when placed on the mixer, so that tracks could still be mixed properly at any time after the recording, even if the desk had been used to record other tracks in the meantime and the settings changed. This picture also affords a glimpse of Nemo's crazy decor. Apparently, Vangelis liked a cosy atmosphere to work in, and filled the studio with all manner of ornaments, statues, busts and models. The horses that flank the mixer here came from the window display of a department store located near the studio, which was delighted to sell them off when the display was dismantled. *Matt Bell*

Some obstacles were removed, but the acoustics needed more improvement; acoustic consultants found that sound was leaking out and that the studio's roof was resonating at certain bass frequencies. The solution was to increase the mass of the ceiling, which required a group of helpers to carry paving slabs up on to the roof.

Another problem was the equipment Vangelis bought from Command. The API desk (which had been heavily customised) and Scully 16-track tape machine produced a sound whose quality was undeniably limited. This was exacerbated by the noisy Binson Echorec units through which Vangelis patched his keyboards. The older equipment was eventually replaced in 1978 by a 36-channel Quad/Eight Pacifica mixer, and Lyrec TR55 24-track and Ampex ATR100 2-track tape machines.

## MULTI-TRACK SUGGESTION

With the structural and technical problems solved, Keith and Vangelis could enjoy the benefits of one of the best-equipped studios in the country. The massive main studio and control room (see Keith Spencer-Allen's rough floor plan of the studio in this period) enabled Vangelis to work with whomever he wanted, from choirs and soloists to African drummers, and with all kinds of instruments. In addition to the vast array of keyboards (see the equipment list, right) there was a large variety of percussion, including a drum kit, three tuned timpani, a 3.5-foot symphonic bass drum, a symphonic snare drum, gongs, a thunder sheet, a gamelan, a circular saw blade, two bell trees, a glockenspiel and two sets of tubular bells.

Together, Keith and Vangelis followed a spontaneous method of working, which they tried to preserve through the lengthy, overdub-ridden process of recording. Keith: "Most of Vangelis's

music was created through overdubbing; there was no other way. With no MIDI then and only primitive sequencers, every instrument had to be played. Even some of the simpler lines were in fact frequently made up from several unison parts, to create the right tonal colour."

When recording just synths, compression and EQ proved less important than for an acoustic session: "In general, EQ was only used on keyboards to overcome the limitations of the technology. Most of those early machines were noisy or had very strange artefacts. The *Elka Rhapsody* had a process that was used to 'multiply' the sound to make it seem orchestral. Although it wasn't very noticeable on a single track, string lines would be built up of maybe 10 parts, and then that processing effect would be as noticeable as the music. We developed

## NEMO STUDIOS — SELECTED EQUIPMENT 1975-87

### 1975-77

#### KEYBOARDS/SYNTHS

- ARP Pro Soloist
- Bösendorfer Imperial Grand Piano
- Dubreq Stylophone 350S
- Elka Rhapsody 610
- Farfisa Syntorchestra
- Fender Rhodes Stage 88 electric piano
- Hammond B3 organ
- Hohner Clavinet (customised, with built-in stereo EQ section)

- Korg 800DV
- Korg Mini 700
- Korg Poly Ensemble
- Roland SH3A
- Roland SH1000

- Roland System 100
- Steinway Grand Piano

- Selmer Clavoline
- Tornado keyboard

#### RECORDING

- API mixer (customised)
- Scully 16-track recorder
- dbx noise reduction
- Klark-Teknik graphic EQs
- Roland RE201 Space Echos
- Binson Echorecs
- Urei LA2A compressors

### 1977-83

#### KEYBOARDS/SYNTHS

- ARP 2600 modular
- Korg PSS3300
- Moog Minimoog
- Moog Satellite



complex EQ templates to reduce that. Sometimes, on some of the more resonant sounds, if they were being used with a chorus effect and some other modulation, I might have used low-ratio compression or peak limiting, just to catch the odd stray peak. However, Vangelis is very skilled at playing within a limited dynamic range, and he would control his levels for the effect he wanted.

"On some instruments, Vangelis liked to shape the EQ himself, using 27-band graphics. He had very specific ideas about guitars, basses, percussion and, to a lesser extent, his pianos. We didn't always agree; sometimes he had to be restrained from over EQing because of possible technical problems, but in general he was trying to achieve the sound he wanted to hear in the mix at the recording stage, and as he knew what else was going to comprise the finished track, he was usually quite accurate."

Unlike the situation in commercial studios, the work carried out at Nemo was not subject to routine: "There was no such thing as a typical day, really. It depended very much upon what projects were in hand. When working on an album, I would arrive at around midday to set everything up and prepare the studio. The plan was that Vangelis would turn up around two o'clock, aiming to start recording at around three o'clock. At least, that's what he would do when the record company pressure was really on, but otherwise there would often be no sign of him until after seven in the evening, or much later. Once we started recording, we would work through until a convenient time to break which was probably between two and four in the morning. At times when an album was running late, this would go on seven days a



Engineer Keith Spencer-Allen today.

week, for as long as three months! When working on non-Vangelis projects, we tried to return working hours to a slightly stricter 10am to 8pm, which was more reasonable."

### CURIOUS ELECTRIC

The completion of Nemo Studios coincided with the arrival of the first polyphonic synthesizers, sold through a handful of specialist music shops in London. Although Vangelis was visited by synth company reps, he liked to try the latest gadgets for himself in the shops. At one of his regular haunts, Chase Musicians, he met French keyboard programmer Raphael Preston.

Raphael came to England in October 1975, after studying classical guitar at the Scholla Cantorum in Paris. In London, he followed a course in electronic music at the Cockpit Theatre, and joined Chase Musicians as a demonstrator in 1976. A year later, Raphael was offered work at Nemo, where he immediately began experimenting: "There was a wall full of synthesizers, all on shelves. I had things that could trigger all the different synths together, linking them to sequencers and getting all the gates of the sequencers to work with each other. It ended up like one huge machine that you could control and transpose easily."

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**ALESIS**

- Oberheim 4-Voice
- Oberheim 8-Voice
- Roland Jupiter 4
- Roland VP330 Vocoder Plus
- Sequential Circuits Prophet 5
- Sequential Circuits Prophet 10
- Yamaha CP80 electric grand
- Yamaha CS80
- Yamaha CS40M
- Yamaha GS1 FM synth
- RECORDING (FROM 1978)
- Quad/Eight Pacifica mixer
- Lyrec TR55 24-track tape machine
- Ampex ATR100 2-track tape machine
- dbx noise reduction
- Lexicon 224 reverb (from 1980)
- AKG BX25 spring reverb
- MasterRoom spring reverb (with 7-second decay)
- Tannoy Dreadnought monitors
- DRUM MACHINE/ELECTRONIC DRUMS
- Linn drum machine
- Simmons SDS5 electronic drum kit
- SEQUENCERS
- ARP sequencer
- Roland CSQ100 sequencer
- Roland System 700 sequencer
- SAMPLER
- Emu Emulator
- 1983-87
- KEYBOARDS/SYNTHS
- Korg Poly 800
- Roland D50
- Roland Juno 106
- Roland Jupiter 6
- Roland MKB1000 mother keyboard
- Roland MKS20 piano module
- Roland MKS70
- Roland MKS80 Super Jupiter (with MPG80 programmer)
- Sequential Prophet VS module
- Yamaha DX7
- Yamaha DX7II FD
- DRUM MACHINES
- Emu SP12
- Roland TR626
- SEQUENCERS
- Roland CSQ sequencer
- SAMPLERS
- Akai S900
- Emu Emulator II
- Roland S50

(Note: Vangelis had more than one model of some of the keyboards in this list, to help cut down on overdubs, and to take advantage of the fact that different models of the same synth could have a different character.)



# RECORDING VANGELIS

► “Because all the equipment was then voltage-controlled, I would experiment by wiring a 9V battery to a jack lead, connecting that to a volume pedal and sending different voltages to the synths’ oscillators. So the volume pedal could transpose everything by nine octaves. That’s how we could get outrageous modulation on synths where it wasn’t even built in. A good example of that is in ‘Chung Kuo’, the first track on *China*, where the pedal was connected to a Korg PS3300 for the white noise sounds. It’s not that we didn’t respect the synths, but we didn’t feel that we were bound by what they were supposed to do or not supposed to do. We didn’t read the manuals!”

Among the synths in Nemo at this time were an Oberheim 4-Voice, a Roland SH3A and Vangelis’ favourite, the Yamaha CS80, to which he had been introduced at a trade fair in 1977. He was excited by the possibilities it offered, but arranged to have one on loan for a few weeks before deciding whether to spend the necessary £4850 (the CS80’s asking price at the time)! During this period, Vangelis recorded the *Spiral* album (released 1977), which featured the CS80 on every track. Shortly after, he imported a CS80 from Japan in order to bypass the six-month UK waiting list, and the synth arrived in London after a mammoth train journey through Russia. With help from Yamaha-Kemble’s Dusty Miller, Vangelis eventually went on to buy another seven CS80s, some of which were for concerts, while others were just for spare parts.

Analogue sequencers were another important element in the sound Vangelis achieved on *Spiral*. They proved inspiring for composition, but rather unpredictable. Keith Spencer-Allen: “The first sequencers we used were those from the Roland 100 series modular; we had two. They were rather limited and difficult to set up; all the pitch settings were manual adjustments, and sometimes very critical.

They would also tend to drift in pitch over time. Vangelis used them predominantly to produce tuned rhythm-type effects which he could play over — an extension of the drum boxes he had always used.”

The Roland System 100 sequencers, used to great effect on *Spiral*’s title track, were later joined by Roland System 700 and ARP sequencers, and an ARP 2600 modular synth was used as an interface to link them together. The sequencers took on a still more substantial role when Raphael found a way of controlling them: “We were the first people to find a way of syncing sequencers to tape. At the time, there was no way of putting a code on tape, so you had to stop and re-record everything from the top if you wanted to change anything. I knew a sequencer’s gate gave out a voltage, not a sound, but I thought if I plugged the output of a sequencer’s CV gate into a mixer channel and heard a sound, I should be able to record that onto tape, and with luck play it back into the gate and step the sequencer that way. I took the output from the gate into a mixer channel and promptly blew it up! When I reduced the volume, though, recorded it, and played it back, it did step the sequencer. That was great, because we could then change or overdub sequences, and use the pulse on the tape to run drum machines. It was a great breakthrough for us. You can hear the polyphonic sequencing from [1979’s] *China* onwards.”

The finishing touch to Vangelis’ compositions was a generous portion of reverb. There was not enough room at Nemo for a reverb plate, so AKG and MasterRoom spring reverbs were used instead, until 1980, when a Lexicon 224 digital reverb took over as the main effects unit. According to Raphael, Vangelis had serial number 0002 — the first one was Lexicon’s own. Other effects included the Roland RE201, which provided the echoes on Keith’s narration on 1976’s *Albedo 0.39*, while a Boss Chorus Ensemble pedal warped Vangelis’ vocal chords on ‘Ballad’ from *Spiral*.

## VANGELIS — SELECTED DISCOGRAPHY

- *Heaven and Hell* (RCA, 1975)
- *Albedo 0.39* (RCA, 1976)
- *La Fête Sauvage* (Polygram, 1976)
- *Spiral* (RCA, 1977)
- *Odes* (Polygram, 1978)
- *China* (Polydor, 1979)
- *Opera Sauvage* (Polydor, 1979)
- *Short Stories* (Polydor, 1980)
- *See You Later* (Polydor, 1980)
- *Charlots of Fire* (Polydor, 1981)
- *The Friends of Mr Cairo* (Polydor, 1981)
- *Antarctica* (Polydor, 1983)
- *Soll Festivités* (Polydor, 1984)
- *Mask* (Polydor, 1985)
- *Rhapsodies* (Polygram, 1986)
- *Blade Runner* (EastWest, 1994)

## KINEMATIC

Vangelis has described his approach to film score composition as ‘spontaneous’, rarely going into detail about the specific stages of the process. Keith Spencer-Allen observed Vangelis’ technique when he recorded soundtracks for wildlife film-maker Frederic Rossif: “Vangelis would watch the parts of the film that had been earmarked for music. After two or three passes of the film he had the core of an idea and we would then start recording. Often it only took a couple of attempts to create the complete musical section. While the very simple synth lines often worked brilliantly against the visuals, when it came to creating the soundtrack album we frequently added a sprinkling of overdubs to make it stand up better by itself.”

If soundtrack work had some limitations, Vangelis enjoyed total freedom on his solo projects. Keith: “The recording of the albums was different. The standard procedure was that all the keyboards were connected up to the desk going out to the multitrack, so that as he worked through a theme he





## BLADE RUNNER BLUES: RECORDING THE FUTURE

*Chariots Of Fire* is often referred to as the major landmark in Vangelis's career, but his work on *Blade Runner* has attained cult status. The music from this 1982 film remained unreleased for 12 years, only becoming commercially available after expensive bootlegs had appeared. Even now, many pieces from the soundtrack are still in the archives, alongside other work that has yet to see the light.

*Blade Runner* was a departure from normal electronic sci-fi scores. Vangelis concentrated on atmosphere and emotion, avoiding the bumbles and wails that cinema audiences had often had to endure. The music was also a technological tour-de-force, drawing on the combined might of the masses of synths and sequencers built up at Nemo Studios. Instruments which stand out include Fender Rhodes piano and the ubiquitous Yamaha CS80, which provided the eerie synth solo heard over the opening titles. A Roland VP330 Vocoder was used for choir and strings, while a Prophet 10 bass sequence underlined the end titles. The very

rare Yamaha GS1, an early FM keyboard resembling a miniature Grand piano, contributed tuned percussion sounds, and the music was mixed in quadraphonic for a special presentation of the film at the Leicester Square Odeon.

One of the best scenes in the film occurs early on, when Deckard (Harrison Ford) has an awkward meeting with Rachael (Sean Young). The music heard in this scene fits it perfectly, yet was taken from an earlier Vangelis album. The piece, 'Memories Of Green', is distinctive for its melancholy, 'drunk' piano sound. Raphael Preston: "We used an Electroharmonix Electric Mistress flanger pedal on 'Memories Of Green', putting a Steinway Grand through it. The electronic noises on there came from one of the first hand-held electronic games, a Japanese thing called the Bambino UFO Master Blaster Station! I had to play it for the length of the piece without losing the game, because when you lost, it made the most horrible noise."

could play any keyboards he chose to without stopping. Sometimes we would record for days like this, filling reels and reels of tape. If an idea took off, we might work on it there and then, but frequently he would come to the studio and sort through days of earlier recordings.

"Sometimes, we would compile a basic track from improvised sections. *Albedo* was typical of this — the number of two-inch multitrack edits was in three figures. What was remarkable was the way Vangelis could hold days of seemingly improvised tracks in his head, and assemble them mentally. It was very rare for them not to work when we eventually made the edit."

Naturally, Vangelis then worked without timecode, which could make things difficult when music had to be changed, but suited his approach to composing. Raphael: "When I was engineering *Chariots Of Fire*, there was no sync between the video and the tape machine, so we used visual cues. The opening scene of *Chariots Of Fire*, the running sequence on the beach, was filmed with a piece called 'L'Enfant' [from *Opera Sauvage*] being played through speakers. So the actors were already running to music by Vangelis. It was a great thing to do; it set a pace, and created an attitude. Afterwards, we used the tempo of 'L'Enfant' for the opening theme."

Nobody guessed during the making of *Chariots Of Fire* that the film would become a landmark in the marriage of sound and picture. While many composers have been asked to deliver music in the *Chariots* style, none of the resulting soundtracks have had the same impact. Raphael: "*Chariots Of Fire* was the first synthesizer score to win an Oscar. That showed that Hollywood had recognised synthesizer music as something of real artistic value; it paved the way for a whole generation of composers, and established a new approach to film music."

## BON VOYAGE

Working at Nemo was a rewarding experience for everyone involved, but inevitably people moved on. Keith's departure coincided with Vangelis's switch of record label, from RCA to Polydor: "We had just completed a large number of album projects, both for him and other people, and we were in the middle of the first Jon and Vangelis album. I was tired and wanted a change from 18-hour days and seven-day weeks for four months at a time. By then, Raphael could engineer, and was backed up by Andy Hendriksen. However, I did continue looking after the technical aspects of the studio for several months after that."

Into the '80s, Nemo's recording setup remained the same, but each Vangelis album had its own character. Raphael credits this to the atmosphere: "The reason why the albums from that time are so exciting, and sound different from each other, despite the use of the same equipment, is because there was an atmosphere of creative enjoyment, and a search for different approaches. One thing I have learned from this is that the way not to repeat your compositions is not to repeat your approach."

"Nemo Studios was really like a huge home studio, and this was unusual, because very few people owned their own studios at the time."

Nemo is now fondly remembered as a kind of electronic 'alma mater' by its former personnel. Sadly, anybody who wants to visit Hampden Gurney Studios now will find a block of flats in its place — the old building was demolished after Vangelis left England in 1987. Nevertheless, the spirit of Nemo has been preserved on Vangelis' pioneering records, which have shaped people's attitudes toward synthesizers and the way they can be used.

Many thanks to Keith Spencer-Allen, Raphael Preston and John Martin for their help in the writing of this article.

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**ALESIS**





# Rig Mother

## KORG SGproX MASTER KEYBOARD/STAGE PIANO



*In the mid-'80s, Korg released their first Sampling Grand, the SG1, a digital stage piano that doubled as a MIDI master controller keyboard. 10 years on, they've revisited the concept with the heavyweight SGproX. PAUL FARRER considers whether a decade has made all the difference...*

This is where the SGproX comes in; it's an 88-note weighted master keyboard perfect for the studio — but, once again, it also has a host of top performance-related features and 24Mb of sampled 'realistic' sounds (piano, electric pianos, vibes, strings, organs, and just a smattering of synth sounds). There are many more sounds on the SGproX than on its SG1 predecessor, but still far fewer than you find on a typical S+S synth today). In other words, it's also a digital stage piano, but a well-equipped one. Interested? Read on...

### SIZE ISN'T EVERYTHING

The first impression you get of the SGproX is its size: it's big. Very, very big. In fact, it's 132x40cm big, and heavy with it (23.8kg, to be precise). Although in theory a single roadie could manage to deal with it, its weight combined with the sheer length of the keyboard means that moving it around is more of a two-person job. As a result your average X-frame keyboard stand will probably look a little inadequate if called upon to prop up this beastie, particularly on a cramped and perhaps unstable stage. Having said that, I imagine it would fit securely enough into any good A-frame, and perhaps Korg will bring out a keyboard stand specifically designed to deal with the extra weight.

A music stand, which is never the trendiest (but often one of the most important) of keyboard accessories, is included in the SGproX's price, and can be easily attached to the back if you need it. The whole unit is powered by a standard IEC mains cable; at the other end of the rear panel from the mains socket and power switch are a stereo pair of jack output sockets, MIDI In, MIDI Thru and two sets of assignable MIDI outputs, with two sockets for each (ie. four in total). The SGproX also has a total of three different sockets for connection to a number of footpedal controllers: a pedalswitch, for connection to a footswitch, the function of which

**T**hroughout history, many human beings have tried to make doubly-large successes by combining two previously successful ideas in some way, and throughout history, on the whole, the composite concepts have failed. Some bright spark obviously thought that since instant coffee had been such a huge hit in Britain, and that the same could comfortably be said of the beverage known as tea, what British people obviously needed was instant tea granules; but of course, the concept proved a complete duffer. The same is true of many other ideas; the 1950s 'boat-car' and hard disk recording on the Atari, to name but two. An exception to this long-established trend can be found in the form of the hybrid digital stage piano/MIDI master keyboard, which has proved quietly successful over the years. Korg's SG1, released 11 years ago, featured just a few sampled piano and electric piano sounds, a chorus effect, a weighted keyboard, plus a host of master keyboard functions. Just over a decade down the line, sampling technology is better, DSP has improved beyond all recognition, and even weighted keyboard technology has come on, so Korg obviously thought it was time for an update.

**pros & cons**

**KORG SGPROX £1799**

**pros**

- Beautifully musical keyboard action.
- Sensible and authentic onboard sounds.
- Intuitive and uncomplicated user interface.
- Excellent MIDI control spec.

**cons**

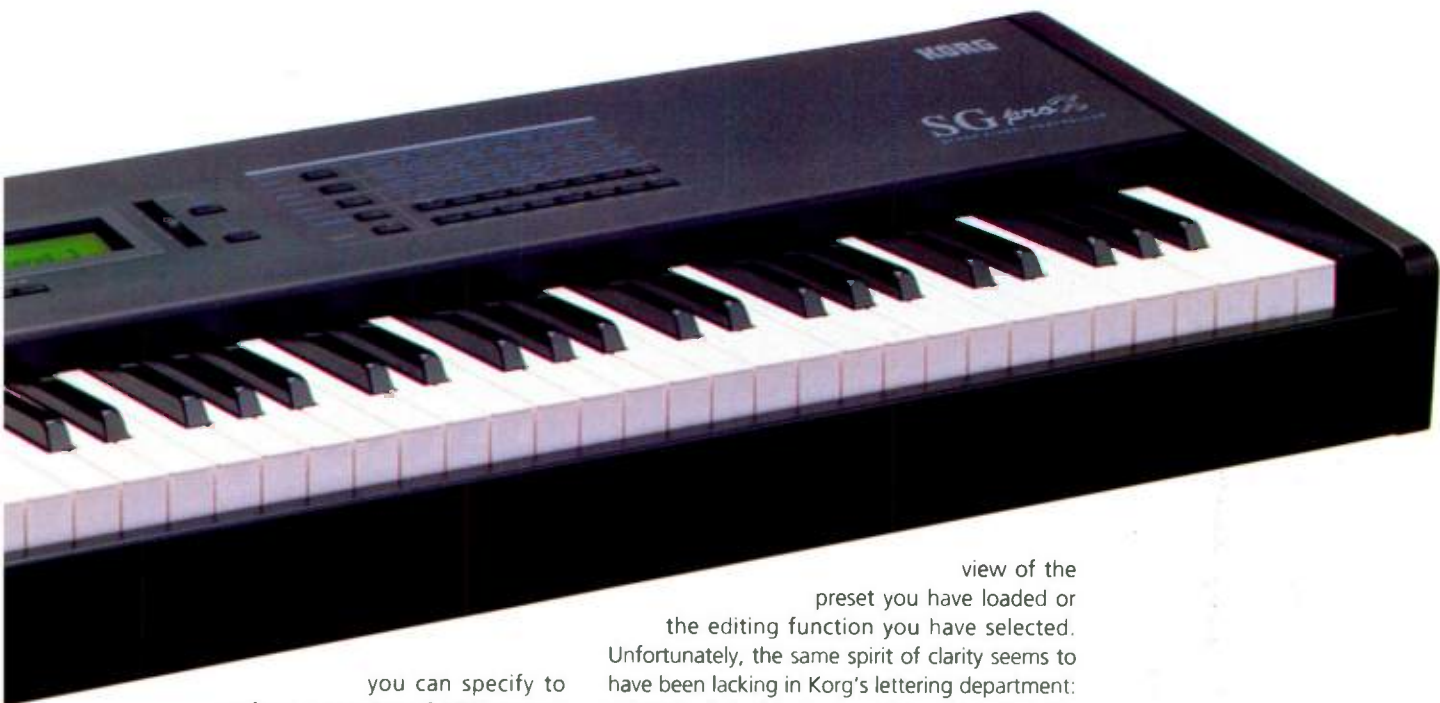
- Heavy!!!
- Function button lettering not very clear.
- Quite pricey if you're just looking for a keyboard controller.

**summary**

A very desirable master keyboard ideal for the solo performer, band keyboardist or studio programmer. The simplicity of the user interface will please the non-technically minded musician, and the high-quality onboard sounds will prove themselves useful for years and years. A class act.

**SOUND ON SOUND**





you can specify to perform a number of MIDI control functions; a continuous pedal, designed with volume/expression pedals in mind (but again, you can change its function should you need to); and a damper switch jack socket.

On the front of the keyboard, the most strikingly obvious feature is the chunky, backlit LCD screen. Despite being only two lines of 20 characters each, this friendly green strip offers a clear, uncluttered

view of the preset you have loaded or the editing function you have selected. Unfortunately, the same spirit of clarity seems to have been lacking in Korg's lettering department: although all the function keys are well labelled, the choice of colour scheme leaves something to be desired. While grey writing on a black background can look very cool, in the dimly lit corners of a studio, or under colourful stage lighting, the sections of the front panel with light-ish grey lettering on a marginally darker grey background and purple lettering on black is bound to cause confusion.

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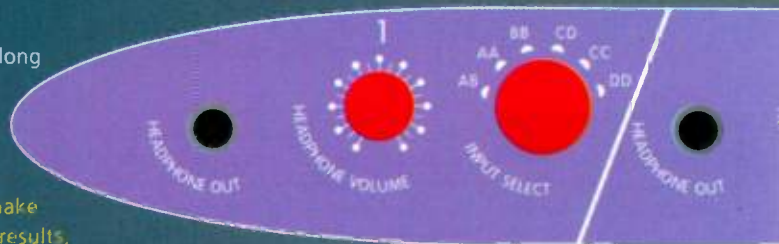
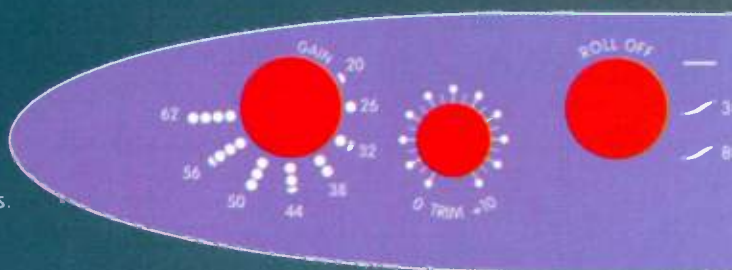
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## PRESETS

<i>Presets marked with an asterisk are in mono.</i>	B16 Fretless*
A01 Concert	C01 Classic
A02 Studio	C02 Jazz Piano
A03 DancePiano*	C03 Mix Piano
A04 Dyna-Stage	C04 Stage Bell*
A05 Wurlly EP*	C05 FM EP 2*
A06 FM EP 1	C06 Motion EP
A07 Piano & EP	C07 MIDI Grand
A08 Funkamatic*	C08 EP&Strings
A09 SGX Organ	C09 Perc Organ*
A10 R&B Organ*	C10 Gospel Org*
A11 Clav*	C11 Mutronics
A12 Vibraphone	C12 Crystalline
A13 TheStrings	C13 PadStrings
A14 WhisperVox	C14 BreathyVox
A15 SynthFlute	C15 Synth Air
A16 Acoustic*	C16 FingerBass*
B01 Bright	D01 Dynamic
B02 Rock Piano	D02 Ballad
B03 Chorused*	D03 Stage Piano
B04 Classic EP	D04 Stage Tine*
B05 Dyno Bell*	D05 FM EP 3*
B06 Wave EP 1*	D06 Wave EP 2*
B07 PF&Strings	D07 Power Keys
B08 FM&Analog	D08 EP Magic*
B09 Velo 'B'*	D09 Full Organ*
B10 CX3 Organ*	D10 Pipe Organ
B11 PhaserClav	D11 Clavitar
B12 Bellphonic*	D12 BellString
B13 Symphonic	D13 StringsL&R
B14 Slow Waves	D14 Voices
B15 SynthBrass	D15 Synth Horn
	D16 Synth Bass*

Those familiar with Korg's other keyboards will recognise the sensible layout of the Inc/Dec switches and the fader to the right of the screen with cursor buttons underneath it, reminiscent of keyboards such as the O1/W or Wavestation. Finding and selecting presets (or Programs, as Korg call them) is made effortlessly simple by the 16 main function keys located on the extreme right-hand side of the keyboard. Each of these 16 keys is labelled with the Program's name; when you select one, a small LED illuminates to show it's active, and of course the program's name also appears in big letters on the main screen. There are also dedicated buttons that handle the most frequently used functions, such as master tuning, transposition, and activation/deactivation of the master effects processor. It's useful in the studio and often essential on stage to have easy, fast access to these functions, so gold stars to Korg for not burying them at the end of 17 LCD sub-menus.

In keeping with other Korg devices, to the left of the main screen is the Bank Select button, which allows you to cycle through the unit's four banks of sounds. This means that if you've selected, for instance, program 16, Bass, hitting the bank button scrolls through the four main types of bass sound in program memory: Acoustic, Fretless, Synth and Finger Bass. It's very easy to warm to this approach, and while some users might feel that pressing the button marked Strings to load a string sound or Organ to load the organ sound relegates any instrument to the home-keyboard-auto-rhythm-duffer pile, in the case of the SGproX they couldn't be more wrong.

To the left of the LCD, there are four assignable MIDI controller sliders (see the 'Question Of Control' box), five faders which constitute a basic five-band output EQ (of which more in a moment), a master volume fader, and two assignable mod wheels — and that's your lot. In practice, the combination of the large screen, well-thought-out function keys, and a sensible selection of edit options means that even the most technologically inexperienced keyboard player will be navigating confidently through many aspects of this keyboard in minutes.

## THE FEEL

One of the biggest selling points for potential owners is, of course, the keyboard itself. In the past, many people might have been put off weighted MIDI

controllers for a number of reasons: the higher price, the larger size, and the question of what possible advantage solid heavy keys could have over a conventional keyboard when it comes to simply programming MIDI notes into a sequencer. A fair comment, perhaps, until you've played the SGproX. Every one of its 88-note weighted action keys has a level of responsiveness that has to be played to be believed. Within seconds of first laying your hands on the keyboard, you are left in no doubt that this is a true professional's product built to an extremely high standard, with tons of musical expression just waiting to be unlocked.

For my money, in the context of the MIDI studio, this level of keyboard sensitivity makes the distinct difference between simply inputting notes and actually playing. One criticism often levelled at keyboard manufacturers by conventional pianists is the artificial feel that unweighted (and even some weighted) keyboards have, and to Korg's credit, I can't imagine there will be any complaints about the SGproX on that front. Perhaps the greatest testament to its quality was when I invited my Dad (a traditional pianist, and heavily sceptical of all things technical) round for an afternoon to play with the SGproX. He'd approached the keyboard with a dubious air, but I sat him down and left him alone in the studio, returning half an hour later to find him furiously flicking through the presets and flying through his favourite Bach and Beethoven pieces with a big smile on his face. Of course, it's not just classical music that benefits from being played on such a responsive keyboard; using it to work on many other styles of music, I found a much higher level of interactivity between myself and the sounds I was accessing. I've often felt that keyboardists can sometimes have a very intellectual, even detached, way of making music — as opposed to, say, guitarists or violinists, who have to build up a relationship with their instrument. The SGproX went some way to changing this, and the music I played and programmed when using it to control the sound modules in my studio felt more expressive and at the same time more realistic.

## THE SOUNDS

Sensitive keyboard control may be one thing, but what about the onboard sounds? At the heart of the SGproX roars a powerful PCM-based sound engine boasting 24Mb of waveform ROM samples; when you're playing any programs from memory the sound engine has either 32 or 64-voice operation, depending on whether you're accessing a stereo or mono program. Obviously, no performance-based instrument would be complete without a flagship piano sound, and indeed 15Mb of the SGproX's total memory is taken up with this impressive stereo multisampled Grand. With so many different kinds of piano sound to choose from and so many players with their own opinion of which is the best, Korg have done well in selecting what is a very natural and dynamic yet fairly neutral piano to sample from.

In its pure state, program number A01, ▶

## EFFECTS

The SGproX essentially offers two effects units connected in series, each program and performance set having independent access to both. The effects are: Reverb, Early Reflection, Stereo Delay, Stereo Chorus, Stereo Flange, Overdrive, Stereo Phaser, Rotary Speaker, Auto Pan, Wah, Flanger-Delay and Hyper-

Enhancer. The Hyper-Enhancer is a form of parametric stereo equalisation designed to give the extreme low and high ends of the sound spectrum a more dynamic quality; it can be extremely effective with some of the piano and string programs. In keeping with numerous other Korg instruments, the rest of the effects section is equally well specified and very musical-

sounding. The reverb is clean and detailed and the Stereo Phaser and Auto Pan used over the Wurliizer-style Electric Piano sound are sheer poetry in (rotary) motion. Again, within the edit parameters there are just enough variants to keep the sounds flexible without offering you over-complex options, such as the ability to change the type of wooden flooring used in the reverb simulation.



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“Even the most technologically inexperienced keyboard player will be navigating confidently through many aspects of this keyboard in minutes.”

## A QUESTION OF CONTROL

As its name suggests, the SGproX is a controller, and as such puts a whole host of MIDI control features at your fingertips. Firstly, the function of both pitch and modulation wheels can be specified to perform a huge number of MIDI tasks (almost everything from song start/stop through to things like volume changes) as can the four assignable sliders and switches located just to the left of the main screen. The functions of these are specified either in the context of a Performance set, or globally when you're playing just a single Program. Assigning, for instance, three of the faders to alter attack, decay and release times and setting the fourth to control the brightness gives you almost analogue synth-style control over the sounds. As a factory setting, slider three boots up controlling the overall FX-to-signal ratio — a really neat inclusion, perfect for creating the effect of your piano disappearing into the distance as a song fades out. If Korg were asking me to make a wish list it would be that, although having four of these faders is great, having eight or even 16 would be wonderful... In short, the combination of the assignable pedals, assignable wheels, switches and faders will make most MIDI control freaks happy for years to come.

► Concert, is probably the best example of this sound at its most uncoloured — across all 88 notes, it does not disappoint. As you might expect, the loop points are wonderfully inaudible with plenty of natural sustain and resonance; there are lots of rich and convincing harmonics throughout, and — with the possible exception of the interval between notes G#6 and A7 — you are never really consciously aware of any crossfades or differences in samples as you move up and down the keyboard. There is great top-end detail, and at the extreme low end of the keyboard there's just the right amount of depth and ring without the sound ever becoming muddy or unclear.

On top of such meticulously recorded and edited samples, Korg have then added a host of processing options to fine-tune the sounds. The five tone-control faders found in the Equaliser section on the front panel are an interesting inclusion, and cannot be programmed as part of the sounds in any way; they are wired in series across the main L-R and headphone outputs, so you simply set up the EQ to work best with your current sound, and leave it at that. The EQ doesn't reset as you move between programs, or when you power down the unit. While some studio users might prefer to leave equalisation until the mixing desk stage, this does offer live performers (particularly those working without the aid of an external mixing console) a good degree of real-time flexibility over the sounds while they are playing them.

As for the dedicated editing functions, the emphasis is on providing a few well selected tweakables instead of hoards of complex and, in this context, generally unwanted edit parameters; there's a simple choice of a high-frequency filter called Brightness (which ranges from -99 to +99) and the familiar Attack, Decay and Release parameters. Nevertheless, the average user should find this offers sufficient scope to keep them busy without them getting too bogged down technically. Once you're happy, edited programs can be named and stored in one of the 64 program memory locations.

Moving through the other sounds that take up the remaining 9Mb of sample memory (see separate list), you are again struck by the real quality as opposed to quantity. The SGproX is, after all, not designed as a platform for groundbreaking sonic exploration, so rather than stuff it full of presets ill-suited to most live performers' needs, Korg have filled it with more conventional sounds imbued with a high degree of playability and realism. Of particular note are the Clav and Hammond-type sounds which seem to leap from the speakers with almost uncanny familiarity. The good selection of swirly pads is also highly usable.

## WHAT A PERFORMANCE

Apart from its individual Programs, the other side of the SGproX is its powerful Performance mode. This is where you can layer two programs on top

of each other, create keyboard splits, and design a comprehensive control environment for your live or studio MIDI setup. The SGproX is bi-timbral — so no more than two of its internal sounds can be playing at any given time — but what Performance mode offers you is the chance to control and play as many as eight external timbres via the four MIDI Outs. Considering the vast amount of controllability this mode offers you over other devices in your live setup in terms of keyboard zones, filter settings, MIDI controllers, program changes, velocity and aftertouch curves, this can be rather fiddly to set up, and the manual is not always as clear as it might be on the subject, tending to get caught up in a sea of abbreviations. As I've already mentioned, though, the actual user interface is generally easy to understand, so once you've set up one Performance, named it and saved it to one of the 64 Performance memory locations, working through all the other songs in your live set shouldn't prove too difficult.

Of course, using Performance mode simply as a way of creating thicker-sounding combinations of two of the SGproX's internal programs also works well, and the unit is shipped with 64 cracking examples. Some of the best take the form of interesting vibraphone bell sounds, and mellow hippy-ish electric piano and vox-pad combinations.

## CONCLUSION

At nearly every level of the SGproX, it's clear that a good deal of time and energy has gone into providing a keyboard designed for two specific types of user. For the studio programmer, the feel and precision sensitivity of its keyboard will, in the right hands, help to turn almost any sequenced track into a festival of realism and expression. For the live performer, the un-fussy and instinctive layout makes it both a fabulous solo keyboard instrument and a powerful MIDI manager. Add to both of these a totally authentic and instantly playable set of onboard sounds and you have a serious machine that should please anyone who plays it. On the downside, its vast weight and fairly hefty price tag will probably attract only serious users, and while the tech side has been kept to a sensible minimum throughout, the manual seems to struggle at times in getting the message across concerning some of the more in-depth editing features. But it looks great, sounds fantastic, and plays like a dream. To play one is to want one — now, where did I put my credit card...?

SOS

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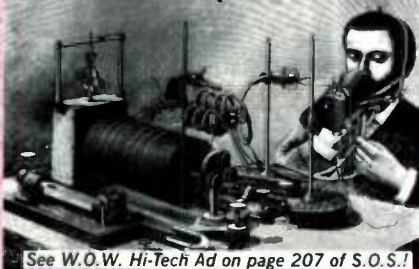
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# double exposure

## KRK E7 EXPOSÉ ACTIVE REFERENCE MONITORS

KRK's E7 Exposé (left), pictured with its larger brother, the E8 (right).

most accurate monitoring reference possible in a relatively compact format, and in the case of the Exposé, this has been tackled by a combination of unique cabinet design and specially designed drivers teamed with appropriate active electronics.

### EXPOSING THE TRUTH

KRK are the first to acknowledge that loudspeaker design is a series of compromises, but they've done their best to keep these to a minimum with the Exposé, starting off with a very solid cabinet that has eight sides rather than the usual six. The cabinet's angled walls help minimise the problems caused by internal cabinet reflections, and the outside edges are all heavily radiused to reduce cabinet edge diffraction. The superb polyurethane showroom metallic finish may not do a great deal for the sound either way, but it certainly looks impressive, and KRK are obviously proud of it as they include a polishing cloth (Alpine fleece wool, no less), as part of the accessory kit.

Signal input to the two-way Exposé is via a conventionally wired balanced XLR and mains comes in via a fused EC socket. The power switch is on the rear of the cabinet along with an input gain trim preset and a DIP switch for setting the HF response (more on this later). For use in different countries, the mains inlet may be switched to 100, 120, 230 or 240V operation via a jumper on a small PCB behind a cover adjacent to the mains inlet.

As with other KRK systems, the Exposé's drivers use woven Kevlar (a very light, but incredibly strong material used to make bulletproof jackets), and in the case of the bass/mid drivers, this is fashioned into a two-ply layer. The cone profile is designed to produce an action that's very close to perfect piston motion throughout its range. Flattened wire is used for the voice coil, and KRK have followed the long magnetic gap route to maximising linearity at larger cone excursions, although this particular low-frequency driver is designed to work over relatively short excursions

**PAUL WHITE**  
*studio-tests KRK's latest active monitoring package, designed to provide compact, reference-standard monitoring.*

Most monitor manufacturers, including KRK, build nearfield monitors, which became popular when engineers realised that the physically imposing main monitors found in typical large recording studios could rarely be trusted to provide a true interpretation of a mix. However, the majority of nearfield designs can't provide the depth of bass or the dynamic range to satisfy all professional monitoring requirements, so now we see a new breed of studio reference monitor emerging to fill the gap. These new monitors tend to be active, often two-way systems, but they're still very compact compared with a typical fixed monitoring system. Their aim is to produce a useful reference in the true meaning of the word, by combining the wide frequency range and higher SPLs of larger systems with the superior imaging and flatter response of the better nearfield models. The ATC SCM20A reviewed in the October issue of SOS is a good example of this new breed of monitors, and KRK's similarly priced Exposé is targeted at the same market. The aim is simply to provide the

### pros & cons

#### KRK EXPOSÉ E7 £2697

##### pros

- Solid, tight bass end balanced by good transient response.
- Wonderful to look at.
- Compact and reasonably portable.

##### cons

- Expensive.

##### summary

These are very nice monitors that bridge the gap between nearfields and large studio monitors, enabling mixes to be undertaken with a good degree of confidence. Both the mechanical engineering and the sound quality are extremely good.

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# KRK E7 Exposé Monitors

► so as to maximise transient response.

The Exposé is available in two versions, both two-way actives, the E7 and the E8 (both pictured here). The main difference is the size of the bass driver (as the name suggests, the E7 has a 7-inch driver, the E8 an 8-inch one), although the E8 also has a slightly larger cabinet and an extended frequency response. In both cases, the tweeter employs a 1-inch, concave, Kevlar fabric inverse dome. Unusually, both the bass driver and the tweeter are fed from 140W, discrete-component amplifiers, rather than the tweeter being run at a lower power. Not that a tweeter ordinarily needs this much power, and indeed, there's more than enough to roast it twice over, but this arrangement does ensure there's plenty of headroom, which is important in delivering clean transients. Both amplifiers are safeguarded by thermal shutoff systems, current limiting and DC protection. Power comes from a large toroidal transformer, and KRK stress that the whole system has been overdesigned, including a power supply rated at a continuous 400W. Heatsinks are inset into the front section of the angled cabinet sides to dissipate the heat from the power transistors, but inside the cabinet, the air movement caused by the bass driver is also harnessed to help keep the power supply and driver transistors cool.

The crossover frequency for the E7 is set at 1.5kHz while the E8 is actually higher at 1.7kHz. To allow the user to tailor the sound to the room or to personal preferences, the high end (above the crossover point), can be attenuated by up to 1.5dB in 0.5dB steps using the previously mentioned DIP switches, but there's no control over the low end.

## LISTENING TEST

Though I have a collection of test CDs I use to help me evaluate monitors, units of this calibre also have

jobs above their capabilities. There's also plenty of SPL capability, with the E7 maxing out at 109dB and the E8 pushing it out to 114dB on typical programme material, and in both cases, brief peaks can exceed this level by a further 9dB. The quoted frequency range is 54Hz to 20kHz (-3dB) for the E7s and 46Hz to 22kHz for the E8s, which, being realistic, is probably as low as most small to medium rooms can take unless they are properly designed for the job. Even so, the cabinets are surprisingly compact (at just 15 x 13.75 x 12 inches for the E7 being reviewed, and just a couple of inches larger for the E8). The weight is a hefty 50 pounds per cabinet, a little less than the ATCs, which my back still remembers weighed 66 pounds each.

After a few days, it was apparent that these are actually rather nice monitors to work with. I don't think they're quite as flat-sounding as the ATC SCM20As, but their slightly livelier sound doesn't seem in any way unnatural. I particularly liked the effortless quality with which the speakers projected just about any instrument, and as I had an acoustic session running at the time, I was able to check the monitors out on live drums, acoustic guitar, voice, violin and oboe, as well as electric bass and an assortment of MIDI sound sources. Bass guitar and bass drum in particular come over as solid, tight and very well defined. I couldn't detect any significant artifacts at the crossover point, something I usually test for by listening to solo'd vocal tracks, and the off-axis is good, as is the stereo imaging.

## SUMMARY

With speakers of this calibre, a review like this can only tell you what to listen for and point you in the right general direction — it would be presumptuous of me to try to make up your mind as to which monitor is best for you, as everyone seems to want to hear something slightly different from a speaker. In any event, if you're going to spend this kind of money, I imagine you'll want to do some critical listening tests and comparisons yourself.

I can say that these speakers surprised me in that they are far more accurate and uncoloured than I've come to expect from American designers, they have a rock-solid bass response with no nasty hot spots or other unwelcome surprises, and they handle fast transients well without getting splashy or harsh. You can work with these monitors for long periods and not feel that your ears are tired, or that the speakers are hiding anything from you. In fact the sound is as classy as the styling, and in the case of the Exposés, that's really saying something.

SOS

“The sound is as classy as the styling, and that's really saying something.”

to be assessed under real-life studio conditions, so as with the ATCs before, the KRK Exposés spent a few days in my studio being used on sessions. The impression I came away with is that these monitors are more honest than some of the KRK nearfields I've tried before — previous models have sounded slightly forward (not unpleasantly so I might add). However, in the Exposés, the designers seem to have gone to a lot more trouble to make the monitors as neutral as possible. Transient detail is revealed without harshness, the mid range is nice and open, and the bass sounds natural and tight rather than having a tendency towards boominess or sloppiness, which is sometimes the case with small monitors attempting

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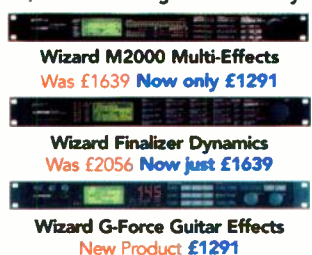
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*Generalmusic are perhaps best known for their home keyboards, but this powerful new high-end instrument is aimed more at the synthesizer workstation market, though it still includes keyboard auto-accompaniment features. Are the company mapping out a brave new world? SIMON TRASK explores the SK76...*



# Polished Performer

GENERALMUSIC GEM SK76  
WORLD KEYBOARD

**S**ynthesizer users will perhaps know Generalmusic from their previous foray into synthesis with the GEM S2 and S3, but the company's main market has traditionally been home keyboards. Recently they've also been raising their profile with the RealPiano series of physically modelled digital pianos and modules (see review of the GEM Pro2 in August's issue), and rumour has it that next year will see a physically modelled synth from the company.

Meanwhile, Generalmusic are aiming two new instruments, the SK76 and SK88, at the synth workstation market. Both are based on the company's WK series of home keyboards, yet offer power and flexibility to match — or even better — that provided by established synth workstation manufacturers. This isn't as surprising as it might seem to those unfamiliar with keyboard developments over the past few years. Keyboards have progressed in leaps and bounds technologically during this time, and extended their self-contained performance ethos to include workstation features, in the process blurring the boundaries between keyboards and synths. At the same time, keyboard Styles have improved vastly in musicality, and become much more contemporary as manufacturers have reached out to younger buyers. The SKs retain the keyboard auto-accompaniment capabilities of the WK series, presumably with the intention of enhancing their appeal to the company's familiar market. So are

the new instruments synths or are they home keyboards? And does it really matter?

## PANELS

The SK76 and SK88 are, as you might imagine, 76-key and 88-key versions of the same instrument. The 76 has a semi-weighted synth-style keyboard action (a bit 'clacky' for my liking), while the 88 has a fully weighted hammer-action piano keyboard. I had the 76-key model for review, but all my comments can be taken to refer to the SK88 as well. More expensive Powerstation versions of each model come fitted with an internal 540Mb hard disk, with a large collection of song files, samples and auto-accompaniment styles already installed. In addition, all four models come with 2Mb of battery-backed sample RAM fitted as standard, and can also be fitted with up to 32Mb of volatile sample RAM using standard SIMM chips. Generalmusic have dropped the built-in speakers that the WK series had and given the SK76 a suitably synth-styled casing. However, the front panel's combination of a large graphical backlit LCD and plentiful buttons and sliders is characteristic of today's home keyboards, and is in fact adopted from the WK4.

The user interface is for the most part accessible, though not always as intuitive as you might hope. Particularly effective are the large LCD pages, which are uncluttered, easily readable and informative. Also commendable are the yellow/green LED backlighting





and surround lighting for most of the front-panel buttons and their associated labelling. Not everyone will find the LED lighting aesthetically pleasing, perhaps, but it's undeniably practical in low-light situations such as on stage (SK, apparently, stands for Stage Keyboard). Less satisfying are the cramped, fiddly, uncomfortable buttons on either side of the LCD — which, ironically, are about the only buttons not to benefit from LED lighting. The SK76 has two headphone sockets, located on the front panel below the stylishly curved pitch and mod wheels. Meanwhile, round on the rear panel are the usual Left and Right stereo audio outs plus two individual audio outs, two mic/line inputs, two independent sets of MIDI In, Out and Thru sockets, pedalboard and computer serial port sockets, RGB and S-VHS monitor outputs, and four individual pedal/switch inputs (one preset to volume, three programmable).

The mic/line inputs allow external signals such as vocals and guitar to be routed through the SK76 and mixed in with the instrument's own stereo output. As standard, the signals remain in the analogue domain and are passed straight to the stereo output buss; however, with the addition of the forthcoming optional AV Harmoniser board, the signals will be digitised — for vocoding, up to four-part harmonisation, and routing through the SK76's on-board digital effects.

## SOUNDS

The SK76 comes with over 600 factory sounds, and has plenty of additional programmable memories. It adopts the General MIDI sound set with 16 groups of eight sounds each, which it treats as bank one of 16 banks. The first four of these banks are ROM, the remainder RAM; you can freely store any edited sound to any RAM location.

The SK76 provides sample-based subtractive synthesis editing capabilities to match those from the established synth manufacturers. An SK76 sound can have up to three Layers, each of which can use one or two oscillators. For each Layer you can select one of five Algorithms, which define the configuration

of oscillators, filters and amplifiers — one single-oscillator Algorithm and four dual-oscillator Algorithms. The dual-oscillator types let you choose whether to have two amplifier envelopes or one with a balance control, and two filters in parallel or series.

There are six options in the Sound Edit menu: Waveform, Volume, Amplitude, Filter, Pitch, LFO and Pan. The Waveform section lets you assign a ROM or RAM Waveform (multisample) to each oscillator, and set associated parameters such as waveform direction, transposition, fine-tune, wavestart location, dynamic control over wavestart, and aftertouch pitch sensitivity. The resonant filter section offers a choice of five filter types: low-pass, high-pass, band-pass, parametric boost and parametric cut. Each of the two filters is a two-pole 12dB/octave type; they're usable as a single four-pole 24dB/octave filter when connected in series. The oscillators, filters, amplifiers and balance and pan sections each have separate key on and key off envelopes with up to 10 segments, plus associated keyboard tracking curves with up to six segments. A single freely assignable LFO provides a choice of six waveforms, with associated rate, delay, sync, and modulation amount settings.

Sonically, the SK76 has a clean, crisp, transparent but well-rounded sound with a punchy bottom end. Overall, it's a sound that can be polite or powerful, but is short on warmth and character. The ROM source sounds have been well sampled, and overall the factory collection of sounds is well-varied yet consistent in quality; the synthesis and add-in sample capabilities provide plenty of scope for creativity and customisation. In addition, the four programmable effects processors (two for the Style backing parts, two for the keyboard parts) provide a strong and varied selection of effects.

## SAMPLES

Surprisingly, the SK76 has no built-in sampling capabilities to complement its sample RAM, audio inputs and AV Harmoniser board signal digitisation. Generalmusic have announced no plans for sampling yet, though the updatable operating system makes

## pros & cons

**GENERALMUSIC**  
**GEM SK76 £1999**

### pros

- Strong, clear, well-balanced sound.
- Accessible front panel with backlit buttons.
- User-programmable Styles.
- Performance memories.
- Sample RAM.

### cons

- Fiddly buttons on either side of the LCD.
- No sampling capability.
- No SCSI port.

### summary

The SK76 is a powerful, versatile and generously featured workstation instrument which combines synthesizer and keyboard functions to good effect. It would make a good songwriter's instrument for the studio, but is also a good stage performance instrument, not only for traditional auto-accompaniment work but also for modern pattern/loop-structured dance performance.

**SOUND ON SOUND**



# Generalmusic GEM SK76

▶ it a possibility. To get samples into the SK76, then, you have to either rely on Generalmusic's own large commercial library of samples, built up from their SX and WX keyboards, or else source your samples using an external sampler or computer-based sampling package, and import the results via MIDI in Sample Dump Standard format or off floppy disk (it's a shame there's no SCSI). The SK76 includes *Sample Translator* software which allows samples in other formats (Akai, Kurzweil, *Sound Designer I*, Sample Vision, AIFF, WAV) to be converted to native format — with the limitation that an SK76 Waveform (sample keymap) can contain at most 16 samples.

Compared with what you'd get on a dedicated pro sampler, the SK76's sample edit capabilities are somewhat limited, providing normalisation, gain, trim, and sample looping. There are no looping functions such as you'll find on dedicated samplers — not even a zero crossing-point finder — and no helpful waveform display (let alone zoom and 'splice' features); and don't even think about time-stretching or pitch-shifting. The expectation seems to be that you'll do this externally and then import the results.

## SEQUENCING

The SK76 has an on-board 32-track sequencer which can store up to 250,000 events across up to 16 songs. There are two record methods: Quick Record and Record. You use the former to record a Style performance, with or without a melody part, and the latter for standard multitrack recording. In Quick Record mode, keyboard parts are recorded into tracks 1-8 and auto-accompaniment parts into tracks 9-16 (see below for more on Styles and auto-accompaniments). The sequencer records the actual notes generated by the auto-accompaniment section, not just the harmony trigger chords as happens with

some keyboards, so you can customise the recorded backing parts by editing them at bar and event levels. You can also use the two record modes to mix and match auto-accompaniments with your own parts recorded from scratch, or use just standard Record mode to record all 16 tracks from scratch. To get more than 16 tracks, you have to create the additional tracks yourself manually, one by one, using the Create Track function on the Edit Track/Split page (the manual isn't at all clear on this, incidentally); alternatively, Generalmusic UK have a disk of 32-track Song templates available free.

The standard Record mode provides three recording options: linear, forced stop, and loop. You can also select from replace, overdub and punch in/out recording methods. Combining loop and overdub allows you to build up rhythm patterns of any length, and at any location, by adding different instruments on successive passes. The sequencer also lets you record multiple tracks at once, so you can record, say, a bass and piano split performance into two tracks, or bass split with layered piano and strings into three tracks.

You can store all the required settings in up to eight Performances for each Song; one of these Performances must be used as the 'setup' Performance for the Song, while all eight can be positioned anywhere in the Song as part of the recording, or called up spontaneously from the front panel (see the section below for more on Performances).

Performance selection and other general settings such as tempo, volume, effects selection and effect send levels are stored in a Master track, which can be edited in Microscope mode for fine control. The sequencer also has Chord, Music and Lyric tracks, used to create a melody score complete with lyrics and chord symbols, which can be displayed in the LCD and, optionally, on an external monitor.

Song Edit mode provides a familiar array of edit features, including erase, copy, move, quantise and transpose (which work at bar level) and microscope editing (which works at event level). You can use these to edit both the linear tracks and the tracks generated by the auto-accompaniment section in Quick Record. Finally, the SK76 has a Jukebox function which lets you compile a list of your 16 Songs in any order for automated playback, while, inevitably, it can load and play General MIDI songfiles and save Songs in SMF format (in both cases complete with any lyrics and chord symbols used).

## PERFORMANCES

The SK76 has 64 on-board programmable Style Performance memories, which let you store keyboard, sound, effect, style, mixer, tempo and pedal settings — in effect, the 'state' of the keyboard — for instant recall. All changes from Performance to Performance are executed smoothly, with no timing or other glitches. If you're not interested in Styles, you can still use the Performances to store keyboard and MIDI textures and associated on-board effects settings, ▶



## THE GEN ON THE GEM

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### • REVERB EFFECTS

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### • MODULATION EFFECTS

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Flanger Delay 1-2, Dubbing, Distortion, Distortion Delay, Pitch Shifter 1-2, Shift Delay, Rotary 1-2, EQ Jazz, EQ Pops, EQ Rock, EQ Classic.

### • FEATURES

**Keyboard:** SK76 — 76 dynamic keys; SK88 — 88 dynamic keys (attack and release velocity, channel aftertouch).

**Polyphony:** 64 voices.

**Multitimbrality:** 16 parts (Style mode), 32 parts (Song mode).

**Sound generation:** Sample-based subtractive synthesis.

**Sample ROM:** 8Mb, 264 Wavetables (multisamples).  
**RAM:** 1.9Mb system RAM (standard), 2Mb battery-backed sample RAM (standard), up to 32Mb volatile sample RAM (optional).

**Sounds:** 16 Sound Groups x 8 Sounds x 16 Sound Banks; Banks 1-4 are ROM; includes 29 drum kits.

**Effects:** Groups A and B, with 1 reverb + 1 modulation effect processor per Group; global two-band EQ; effects are editable.

**Performances:** 64 (Style); 16 x 8 (Song)

**Styles:** 96 preset, 32 user-recordable; 8 backing parts; 4 Variations, Intro, Ending and Fill sections.

**Sequencer:** 32 tracks, 250,000 events, 16 Songs.  
**Display:** Graphical backlit LCD.

**Storage:** Built-in 3.5-inch DSDD/HD floppy disk drive; 540Mb internal hard drive (optional on standard model; fitted in Powerstation model).

**Connections:** Left and Right stereo audio out jacks, two individual audio out jacks, mic/line input jacks with independent level knobs, RGB and S-VHS monitor outs (require AV board), computer serial port, pedalboard connector, MIDI A and B (each In, Out and Thru), volume pedal jack, sustain pedal jack, two programmable pedal jacks.



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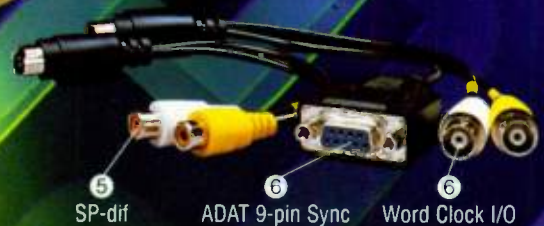
2 20-bit A/D Converters – professional sound quality.

3 Stereo in/out possible on all interfaces with any Sound Manager or Win 95 compatible programme "Future-Proof"

4 ADAT optical I/O sends 8 channels of 20-bit digital audio down one fibre optic cable, allowing simultaneous 8- channel recording from a digital mixing desk OR any digital recording device fitted with the optional interface. Separate external mix-down of those 8 channels outside the computer, now or at any point in the future.

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- £599.00 – Unbeatable price for the level of performance in digital systems.
- If you need to convert your analog signals to 20-bit digital – KORG'S new 880A/D is available in 19" rack format for (£599).
- If you need to convert from 20-bit digital to analog – KORG'S new 880A/D is available in the same rack format at £499.
- Deck II software available at £249.

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Generalmusic  
GEM SK76

▶ with up to eight Sounds, each of which can be given a number of settings, including volume, pan position, transposition, detune, delay, velocity curve, velocity range, and audio out and MIDI Out port and channel. You can set each Sound to internal or MIDI play or both, and customise the Sounds assigned to individual parts by making offset adjustments to envelope ADR, filter cutoff and resonance, and LFO settings for each part (you can do all this for the backing parts too). However, you can't create individual key zones; instead, Sounds 1-2 are assigned to the left and Sounds 3-8 to the right of a global (albeit easily re-programmable) split point.

If you need more key zones and more Sounds or MIDI parts for keyboard performance, you can turn to Song mode, as the 128 Performances there (eight per Song) add key zoning for each Sound or track and can have up to 32 keyboard and MIDI zoned parts, matching the number of tracks.

## STYLES

Styles, for those unfamiliar with the concept, are pattern-based musical templates which are used as the basis of a performance by an electronically-generated 'backing band'. This band 'reads' chords that you play live in a selected area of the keyboard and adjusts its playing accordingly; the resulting backing is commonly known as auto-accompaniment. Typically, while you play chord changes with your left hand to trigger the backing, you can add a melody part with your right. That's the traditional way to use Styles, anyway. The modern way, well suited to dance music production, is to use them for live pattern-based sequencing; this involves recording your own multitrack patterns into the various Style sections of user-programmable Style memories and then calling up the patterns live from the front panel.

The SK76 has a total of 128 Style memories — 96 preset and 32 user-programmable, organised as 16 groups of eight Styles each. Its preset Styles cover modern and traditional musical styles in a 50/50 split (see 'The Gen On The Gem' box), and are of decent musical quality, though not the best I've heard — or the most authentic or versatile when it comes to the modern dancefloor styles.

However, the 32 user Style memories mean that you can increase the number of musical styles of your choice, either by buying Style disks from Generalmusic or by programming your own. You can do this from scratch using the Style sequencer, or copy some or all of the parts from other Styles. Mixing and matching parts from different Styles is an easy way to get started, and fun. Sadly, there doesn't appear to be any way to grab phrases from the SK's on-board multitrack sequencer. Each Style has four Variations, an Intro, an Ending and a Fill-in pattern, all selectable from dedicated buttons, with three Fill buttons determining whether the Fill sticks with the same Variation or goes to the previous or next Variation. Also provided is a Fade I/O button for smooth automatic fades. What's more, each of the above sections has three separate patterns — one for major chords, one for minor, and one for dominant sevenths. If you're programming Styles

that don't require chord changes from the keyboard, you can still use the different chord types as a ready way to call up different patterns.

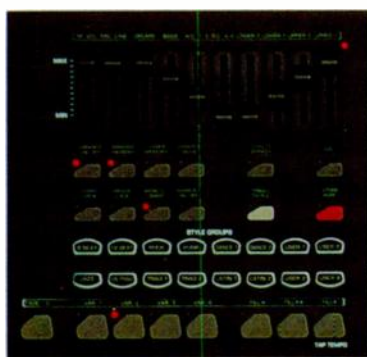
The SK76 has various chord-recognition modes for translating played chords into accompaniment harmonies, from single-finger in the lower (harmony) zone up to two-handed chords across the entire keyboard. Chord recognition can handle the more 'difficult' jazzy chords, as well as chords over pedal notes.

## CONCLUSION

The SK76 is a sophisticated, powerful and imaginatively designed workstation with plenty of depth and flexibility. Its sonic capabilities are impressive, with powerful sample-based subtractive synthesis capabilities, open-ended sonic expandability provided by the sample RAM, and versatile and satisfying multi-effects processing, plus scope for a huge number of on-board sounds to be stored. However, some might find the SK76's overall sound a bit too clean and bland for their liking, perhaps slightly lacking in warmth, ruggedness and character — though the instrument does have a pleasingly rich and punchy bass end, and provides a solid, crisp delivery of rhythm tracks which should go down well with dance musicians. Disappointments would have to be in the areas of sampling (it's not available), sample-editing (it's limited) and sample transfer/disk storage (there's no SCSI port).

On the sequencing front, the SK76's multitrack offering is one of the better examples of the on-board genre; and the Style section, in conjunction with user Styles and Quick Record mode, can be put to good use for live, spontaneous pattern-based sequencing and recording. This capability, plus the sample RAM and the punchy bass and drum sounds, should make the SK76 attractive to dance musicians. I can also see the SK76 appealing to singer/songwriters, singer/keyboardists and plain old songwriters, with such features as the auto-accompaniment 'backing band', the audio inputs and upcoming A/V Harmoniser board, and the Score display and monitor outputs. However, if none of the 'extra' features interest you, you've still got a powerful synth workstation, and an instrument that allows you to create versatile keyboard textures for performance work.

SOS



“...if none of the 'extra' features interest you, you've still got a powerful synth workstation, and an instrument that allows you to create versatile keyboard textures for performance work.”

**E** SK76 £1999; SK76 Powerstation £2499; SK88 £2499; SK88 Powerstation £2999; 13-note pedalboard £199; multimedia kit (serial cable for connection to PC plus driver) ETBA; A/V Harmoniser board £229. All prices include VAT.

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# MUSIC CONNECTIONS

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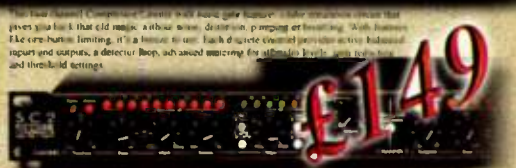
Like it's big brother the Pro VLA, the Dual Leveler is built to level signal as opposed to altering the complete dynamic range. Built in a road and rack-savvy 1U chassis, the Dual Leveler imparts all of the Vactrol Tube compression personality into a streamlined, stereo, cost effective package.



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# MUSIC

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- 64 performance-memories store combinations of timbres and controller information
- The panel layout is designed for smooth and easy operation, with direct selection of sounds and important functions
- Large backlit LCD for excellent visibility



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- The oscillator algorithms of Z1's MOSS tone generator is a descendant of KORG's unique open Architecture Synthesis System development platform. It's the result of years of development of detailed models and a toolkit approach to synthesis voice design, and gives the Z1 unsurpassed sonic power.
- 13 types of oscillator algorithms (2 oscillators can be used simultaneously), including both synthesis and imitative models. From the realistic to the most imaginative, sound creation is virtually limitless.
- 5 types of filter (2 filters per voice) providing enormous control over sound shaping
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- A large graphic display screen with pop-up menus makes the Z1 user-friendly and easy to work with

## YAMAHA



*Has this company woken up from a deep sleep or what. I mean, this is the company that bought us DX synths, TX Synths and VL synthesis. And now this little wonder called the AN1X. This synth really must be heard. No advert can ever convey just how good this little gem really is. Don't forget there's still the CS1X & VL70 as well.*

*Also hot on the heels of the AN1X is Yamaha's A3000, this sampler is so packed full of features, that it has most of the established sampler manufacturers hurriedly*



*rushing back to the drawing board. Once again you must come in and sample the delights of this unit for yourselves (no pun intended.)*



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## nord lead



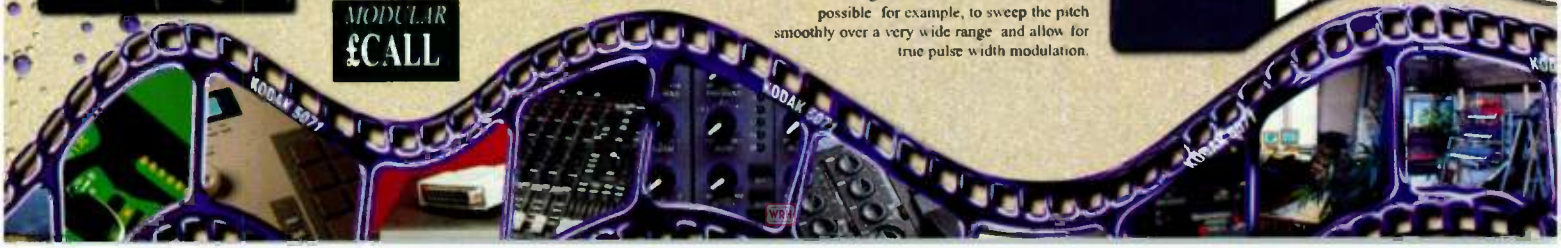
Clavia, the company that introduced the first commercial "virtual analog synthesizer" two years ago, unveils another revolutionary product based on the same innovative technology that brought the Nord Lead to the forefront of the keyboard market. The new synthesizer - NORD MODULAR takes synth programming and sound development several steps further.

NORD 2	CLASSIC
RACK 2	RACK
£1495	£795
NORD 2	SYNTH
£1295	£995

Nord Lead is the first digital synthesizer to use 'Virtual Analog Synthesis'. Clavia has analyzed analog synthesizer design in detail and implemented the research in a digital model. Nord Lead employs mathematical simulations of the electronic signal generated by analog oscillators, instead of using waveform tables. This makes it possible, for example, to sweep the pitch smoothly over a very wide range and allow for true pulse width modulation.



**MODULAR**  
**£CALL**





# CONNECTIONS

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BIRMINGHAM - 0121 2124777

LEEDS - 01943 850533

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**ENSONIQ**

Want to sound different? These days very few synths can make you sound unique. However one manufacturer namely Ensoniq can. At Music Connections we realise that Ensoniq is a wonderful niche synthesizer manufacturer.



Very few synthesizers sound as distinctive as an Ensoniq. That's why many top artists around the world don't want you to use Ensoniq. Otherwise they won't sound as unique anymore. If you haven't tried one of Ensoniq's new synths or their stunning new groove machine the ASRX, you really don't know what your missing.

ISR-V  
RRP  
£1199

**Steinberg**

Rebirth Techno Micro Composer RB-338  
Software synthesis Two Bass Lines One Rhythm Section Digital Delay Distortion Integrated Sequencer Full Automation Believe the unbelievable



**AKAI**

As we are the UK's largest AKAI retailer you can be sure that you will find units on show and on demo in all of our MUSIC CONNECTIONS stores.



**SPECTRAL**

SYNTRACK  
£299



Spectral Audio's Syntrack is an amazing analogue/digital hybrid synth. Its audio is generated from a wave table oscillator before passing through a 24dB/oct analog MOOG filter and an analog VCA with distortion control. An external audio input allows anything to be passed through the filter and distortion sections. All parameters are controllable in real time over MIDI.

It sounds absolutely unique. Amazing DX-like basses, jungle dupe basses, squealing leads and all manner of bleeps and thumps (an effortlessly achieved out of this little baby). It really hits the sweet spot! **FACTORY DIRECT PRICES!**



**Super BassStation**

An exciting evolutionary development of the BassStation rack, the new Super BassStation adds a plethora of must-have features: a sub oscillator, white noise, ring modulation, LFO2, independent external MIDI sync of both LFO's, arpeggiator, analogue chorus and distortion effects and stereo outputs with assignable autopanning. The MIDI to cv/gate converter can now be run on a separate channel, and can even derive an analog trigger output from MIDI clock. Phew!

This unit can now be seen as a serious tool for the serious synthesist.

innovation

**E-MU**



Just arrived by EMU the stunning new E-SYNTH. Just study the specification below to realise what this new combination can do for you.

Up to 128 note polyphonic • Up to 32Mb High Quality ROM sounds • Up to 32Mb Multitimbral with voice card • 16 Outputs • Digital Modular Synthesis • 64 x 6 Pole Filters with 2 filters • 24 bit stereo effects • Advanced 48 track sequencer • Stereo sampling up to 64Mb • Digital resampling • Pc & Mac Editor included • SCSI Interface & 2 Great CD-Roms included.

**DON'T FORGET ALL EMU'S OTHER PRODUCTS STILL AVAILABLE**

As manufacturers of some of the finest Hi-tech music equipment ever made, it is only fitting that a company, of the calibre of E-MU, should have a very comprehensive range of their equipment in stock, for you to try & purchase.

If you have any questions, or you have been quoted a price and would like to see if we can beat it for you, give us a call & let us show you why we are the best.



**Roland**



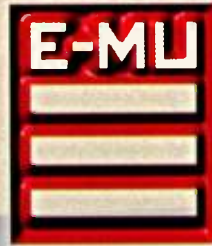




# MUSIC

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**LONDON - 0171 7315993**  
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Introducing the DARWIN 8-Track Digital Hard Disk Recorder from Emu Systems. DARWIN is a stand-alone random access recorder that features screen-based digital audio workstation (DAW) style recording editing capabilities, tape based system ease-of-use, and a price point competitive with ADAT and DA-88 modular multitrack digital recorders. What does that mean to you? Plenty. DARWIN is much more than a simple recording device. DARWIN is a creativity tool unto itself which will stimulate your imagination and allow your recordings to evolve as quickly as your ideas. Forget the limitations of traditional tape-based recording. DARWIN delivers the mindbending power of non-destructive random access and recording editing. Consider being able to cut and paste that riff you could only get right once, over and over throughout a song, seamlessly and effortlessly. Or, completely change the structure of a song - dozens of different ways with just a few keystrokes - without affecting your first take. Or, instantly resurrect that once-in-a-lifetime vocal track you accidentally punched-in on and wiped out. DARWIN will do it all.



Advanced DAW features? Absolutely. Try on DARWIN's high resolution graphic display, or nondestructive playlist-style editing, or multiple levels of undo. And those are just the tip of the iceberg. Want more than 8 tracks?

Just when you thought you had made up your mind on what hard disk recording package to buy, EMU arrive to spoil your plans. Do you remember the DARWIN??? this wonderful piece of equipment developed by EMU but unaffordable by you. Well EMU thank god have had a change of heart. Exclusive to Music Connections we bring you that exact piece of equipment for the amazing sum of £1495 inc vat. Yes that's right just £1495. Now when we heard this news we had to stop and think? Is there anything that's comparable at anywhere near the price to this amazing piece of equipment. To tell you the truth, we don't think so. And could this now, really be the end of tape based recorders as we know them? This machine is so capable that it is impossible to tell you everything about it in an advert, and really you should see it in the flesh to see just what amazing value this represents. So if you were thinking of a tape based machine, maybe you should think again. Give us a call, come and try it, or forever stay in the dark ages. This offer is limited to first come, first served.

No problem. Up to four DARWIN units can be slaved together for 32 instantly accessible tracks. Of course DARWIN can also be used as an expander to a tape-based multitrack. But most amazing of all is the unlimited track capability of a single DARWIN through it's Virtual Slave Reel (VSR) feature. Using VSR, you can instantly create new versions of a project that can then be used for recording additional tracks. The number of additional tracks that can be created with VSR is limited only by your available disk space. In addition to the already proven expansion cards including ADAT sync Option card, ADAT Digital I/O card and 4 input expander card EMU are dedicated to improving an already outstanding machine. Recently released is the new DSP card with a 32-bit floating processor for timestretch, pitchshift, gain and compression and soon to be released is the SMPTE time code card allowing 16 Darwins to be linked together and features the best interaction with ADAT seen to date.



## ENSONIQ PARISTM™ 20-bit Multitrack Recording system

PARIS is the most advanced digital audio recording system ever developed. PARIS seamlessly integrates digital audio recording, object-orientated editing, digital mixing with automation, real-time effects processing and MIDI sequencing into an intuitive and flexible environment. PARIS grows to meet your needs with a dedicated control surface and a family of expandable input/output modules.



Powered by ENSONIQ DSP technology on a cross platform PCI card, PARIS delivers a total audio recording solution at a revolutionary price.



## EVENT LAYLA - 20bit Multitrack Recording System

**Record it** - Hook up directly to each of your console's 8 buses. Transfer tracks from a tape based digital recorder for editing. Record your band live without premixing. Layla gives you 8 independent balanced analog inputs - all simultaneously accessible, all outfitted with exceptionally low-noise 20-bit A/D converters. (We even put two aux inputs on the front panel to help you capture those moments of inspiration without needing to fire up your whole rig.)

**Play it** - Forget about having to premix output tracks forever. Layla features 10 independent balanced analog outputs, each one boasting a superior quality DAC, for true 20-bit audio performance. And our exclusive Omnibus™ audio assignment architecture lets you cleanly configure the outputs as aux sends, monitor mixes, discrete track outs, you decide. Or create a 24-bit stereo master mix to send to the digital output.

**Edit it** - Work with total freedom. Edit your music with the precision and flexibility that only random access disk based recording can provide. Layla is compatible with any audio recording editing application that uses standard Microsoft Windows 95 calls - which means Layla works with virtually all of today's most popular programs, including combination MIDI sequencing/digital audio recording packages. Don't yet own recording software? Not to worry. Layla comes complete with it's own powerful, easy to use multi-track audio recording and editing environment, so you can enjoy a no-hat musical experience right out of the box.

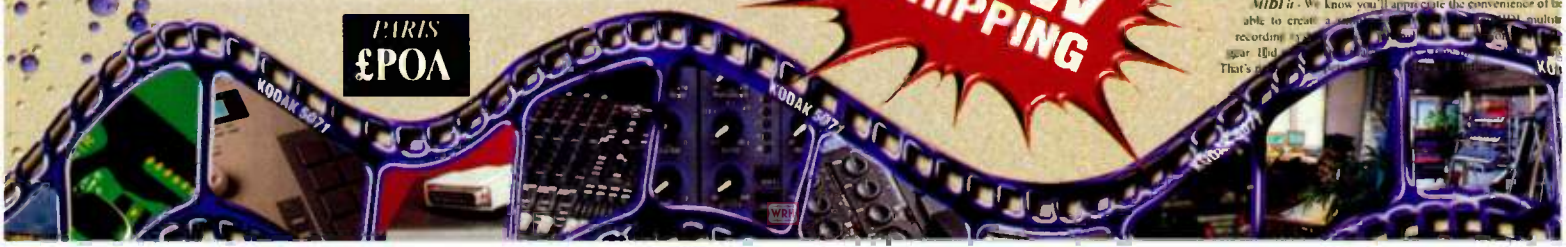
# ENSONIQ

PARIS  
£POA



**Sync it** - Synchronize to picture via SMPTE/MTC Lock to external word clock. Generate sample accurate sync from the master clock out. Layla offers synchronization capabilities that make perfectly at home in a variety of professional environments. You can even synchronize multiple Layla systems, expansion is as simple as plugging in another card.

**MIDI it** - We know you'll appreciate the convenience of being able to create a MIDI file from your recording session. Layla's multi-track recording system can be controlled via MIDI. That's right. Layla can be controlled via MIDI.





# CONNECTIONS

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## Digidesign



ProTools  
 £CALL

If you rely on Pro Tools, Mackie's HUI studio console can boost your productivity and your creativity!  
 Now you can literally get your hands on ProTools digital audio workstation software Mackie

Design's HUI is designed to control and respond to Digidesign's ProTools Version 4.0 and in the near future, DAE compatible software too. HUI lets you mix via a real, tactile control surface complete with motorized faders...rather than with a mouse or a unidirectional fader pack. Perform real-time, hands-on multi-channel fades, mutes; select and adjust sends; create subgroups; and change dynamics. In short; track and mix down just the way you would on a large, automated console, yet with complete bi-directional interaction with ProTools 4.0. HUI will immediately reflect all standard mixing values, functions and pointers. HUI controller architecture supports standard MIDI protocol in either 7-bit or higher resolution 9-bit applications as well as utilizing simple controller and note values. Rear panel I/O includes analog jacks (three stereo audio pairs), a footswitch jack, ADB mouse thru, MIDI in and out and RS422 port for direct computer connections



AUDIOMEDIA III now available call for details.



Up to 40 tracks of digital audio recording, mixing, bussing, EQ and effects processing - all non-destructively in real time on any Power Macintosh without expensive extra hardware inside your mac.  
 Real time effects, including reverb, dynamics processing (compressor, limiter, expander and gate), chorus, echo and more. Real time means non-destructive - you can change or remove them at any time.  
 Connect your sampler to your Mac and drag and drop samples between them. Store all of your samples directly on your Mac. Apply powerful audio processing and DSP to your samples. Digital Performer unites the worlds of sampler-based audio and hard disk recording.  
 Digital Performer 2.1 provides unparalleled integration between your Macintosh hard disk recording capabilities and today's hottest samplers, like the E-4 series from E-mu Systems and many others.

**Foxtex D-40**  
 • True multitrack recording  
 • 1-D-Quadrax recording and playback  
 • Removable Front Panel Remote  
 • Unique Virtual Reels  
 • Cut, Copy, Paste & Mute Editing  
 • 16 or 24 Tracks  
 • Analog & Digital I/O  
 • Flexible Layout Functions

## Foxtex

**Foxtex DMT-2**  
 Some digital synthesizer software is made to do with 12-bit recording, state with compression, some even expect you to accept inferior sample rates. Professionals don't accept their "best customer" to who should pay!  
 The fact of the matter is that 1-D-Quadrax recording demands full linear 16-bit resolution digital to analog conversion at a sample rate of 44.1KHz.  
 A specification which the Foxtex DMT-2 meets with ease. With its own 32-bit RISC CPU, the incredible machine gives 8 tracks of 1-D-Quadrax recording and playback, in real time on external 160 MB hard drive which is appropriate.  
 Next features include 4 track, simultaneous recording, real time, auto and post audio editing with full or individual tracks & real-time 1-D-Quadrax Time Stretch system. In fact, it's necessary features for getting the most out of your system. A handy dual Function keyboard which provides digital editing and pitch changes. Auto locate to ABS and ABS find, auto mix via DAI and individual channel inputs. Yet with maximum simplification it's easy to use, adding new features to the software retained playing "simple" and clear.



**ROLAND VS-680**  
 For anyone who's ever felt the limitations of tape-based multi-track recording, the VS-680 is the product you've been waiting for. Four tracks, trouble-free effects access and MIDI sync problems need no longer be part of your recording process. In the past, the only way to resolve these problems was to spend big bucks on complicated, multi-component systems. So maybe you had to settle for less. Or maybe you waited, hoping that the next big thing would have all the answers. Congratulations - your patience has paid off!

## DYNATEK

STRUCTURED FOR STORAGE  
**CDR 200**  
 £395  
 Dual speed record. Quad speed read.  
 inc. software, cables & discs  
**CDR 400**  
 £595  
 Quad speed read write state of the art technology.  
 (inc cables software & discs)  
**DYNATEK DRIVE PRICES DO NOT INCLUDE VAT.**



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AKAI



## SoundLink DRS

The 12121/O PCI Multi-channel audio interface for Soundlink DRS features 12 inputs and 12 outputs configured as two analog I/O's, an S/PDIF I/O and an eight channel ADAT optical I/O for true multi-channel recording with PC. All I/O's can be used simultaneously for maximum interfacing flexibility.



## Digital Performer 2.1



NOW SHIPPING!

STUNNING NEW PRICE ON 168RC DESK







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## Package Deals

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CAD E200 & Tascam 103 cassette deck  
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- Darwin & Mackie 1604VLZ  
..... **SALE PRICE £2395**
- Darwin & Korg 168RC  
..... **SALE PRICE £2695**
- Darwin/Topaz 24 & stand/Looms/Mbridge  
..... **SALE PRICE £3495**
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- Darwin & Yamaha 02R  
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- Darwin & Mackie SR32.4 & Leads  
..... **SALE PRICE £2995**
- Darwin & Korg Soundlink 168RC  
..... **SALE PRICE £2995**
- AKAI S2000 & EZFlyer with SCSI & 8MB RAM  
..... **SALE PRICE £1199**
- Event 20/20 & Samson Servo 170  
..... **SALE PRICE £549**
- Mass 150 & Tannoy System 600  
..... **SALE PRICE £449**
- Mass 150 & Yamaha NS10  
..... **SALE PRICE £449**

## SOUNDTRACS YAMAHA

**TOPAZ**  
 A dedicated multitrack recording console must provide the following: Superb audio performance, exceptional equalization, versatile monitoring, comprehensive patching and 1st class ergonomics. All are in abundance in the stunning new Topaz Project Studio Console from Soundtracs.

**YAMAHA 03D**  
 If you're ready for a compact, comfortably priced, full-featured digital mixer - one especially made for professional project and post production studios relying on modular digital multitrack recorders such as TASCAM, ADAI, AES EBU and YAMAHA digital formats - then you're ready for the 03D Digital Mixing Console. Nestled between the popular ProMix 01 - famed for bringing affordable digital mixing to the masses - and the award winning, industry standard 02R Digital Recording Console.



channel and that's just a preliminary spec list!

Still the world leader in small mixers the VLZ range includes 1202, 1402, 1604, SR24, SR32 and LM3204.

These consoles offer the highest audio and build quality with easy to use features that take the effort out of superb mixing.

Don't forget the Original Mackie 8-BUS

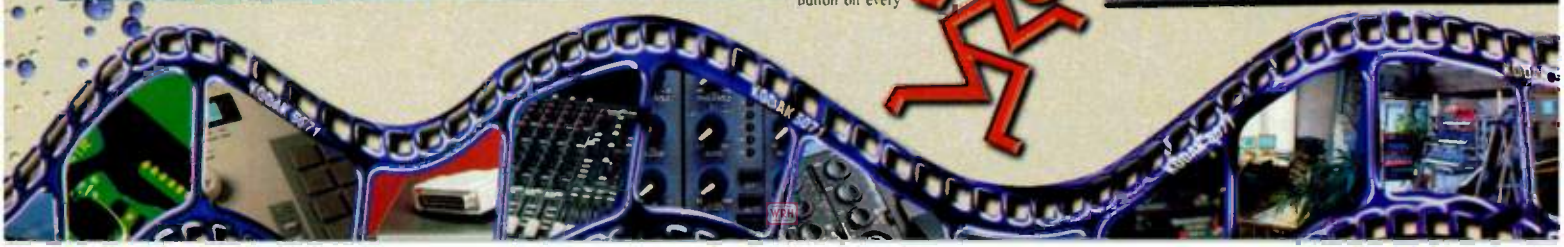
Still one of the leading mixing consoles in the world for reliability, sound quality, ease of use and ergonomics.

### DIGITAL 8-BUS

- 48 true channels for tracking, overdub & mixdown jitter-free, touch-updateable motorized faders
- 12 aux sends per channel.
- 10 fade & mute groups.
- 24-bit output
- 32-bit processing
- Direct assign.
- Dynamic & snapshot recall of all parameters.
- Multiple simultaneous digital effects, dynamics & EQ.
- V-pot virtual rotary controls.
- SVGA monitor output.
- Mouse & keyboard input.
- Built-in hard disk & floppy drive
- Instantly upgradeable DSP effects
- Dedicated transport controls & jog shuttle
- Built-in multifunction meter bridge
- Powerful CPU with 8 megs of memory
- Record-ready button on every

Put this together with our amazing price deals and you've got a serious machine at a serious price.

**CALL FOR DETAILS!**  
**COMPLETE MACKIE RANGE AVAILABLE AT ALL STORES**





# CONNECTIONS

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## PreSonus Audio Electronics

The ACP-8 is 8 high quality compressor/gates housed in a steel 2U rack mount unit. Each compressor allows control of threshold, ratio, attack, release and output gain. Each is individually selectable for hard or soft knee, peak or auto compression. Each gate features threshold, release and attenuation controls. It's all here!

**DCP-8 Now £599**



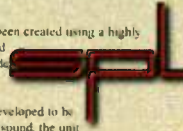
The DCP-8 is an eight channel, digitally controlled analog dynamics processor, plug it into the inserts of your mixer, MIDI it up to your sequencer and it will give you a compressor/limiter, a noise gate, automated fader levels, automated mutes and glitch free real-time control of parameters (even compression ratio) across all eight channels. Settings may be saved as a snapshot into one of the 100 user memories. A DCP-8 environment is available for EMAGIC Logic. PreSonus will make you a custom DCP-8 if you have a specific need that is not addressed in the stock unit, how's that for service!

VC3 Pro Channel  
 The Joemeek 'Channel' philosophy on a budget. This box is stunning! A classic high performance microphone pre-amplifier, Joemeek optical compressor and Joemeek enhancer. The Joemeek VC3 Pro Channel is essential when warming up digital sound, playing live or any function which demands the highest quality signal processing on a budget. The Joemeek VC3 Pro Channel will out-perform many similar boxes costing 3 times the price.

## Joemeek

## VITALIZER

The unrivalled Vitalizer equalization system has been created using a highly complex system of variable, inter-active filters and amplitude controlled phase shifters. These are under the control of a specially designed analogue computer that responds to both the dynamics and frequency content of the input signal. Specially developed to be compatible with the way the human ear perceives sound, the unit ingeniously re-shapes the entire sound spectrum, so it appears louder, more detailed and commercially appealing.



## EFFECTS



Focus unveils the SX-700 Studio Effect Processor, a 1U rack-mount unit that features standard spatial effects like reverb and delay, the latest four-voice Harmonist (intelligent pitch shifter), and other modulation effects, as well as RSS 3-D Effects that can place your sound anywhere in a three-dimensional field. Overall, it puts more spatial processing at your fingertips than a whole slew of dedicated effects. And the SX-700 delivers better performance and a more user-friendly interface than ever before.



## GREEN RANGE

A dual Mic Preamp, parametric EQ and compressor combine to make Focusrite the range to suit all needs. NEW COMPRESSOR/LIMITER & CHANNEL STRIP AVAILABLE.



With such a large range of effects on the market at the present time, it is impossible to display all the effects we currently hold in stock. But you can be sure that if it's a Focusrite EQ, Lexicon reverb, Behringer compression, PreSonus Midigate, Drawmer compressor, ART valve etc, etc then we are the company for you.



E-300 £699

The introduction of the Equitek series microphones signaled the most significant improvement in microphone technology in decades.

The extraordinary transparency resulting from our unique servo design and exceptional flexibility have created a new 'bench mark' for cost and performance.

These mics have received stunning reviews in all pro-audio and hi-tech magazines why not come in and let your ears be the judge!

E-200 £449

CAD

New CAD Valve Mic £1495

E-100 £299



Turn over for superb sale deals





# MUSIC CONNECTIONS

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*parts - ext*

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ROLAND RS510 FX	£595
GEM WS2 WORKSTATION	£200
STUDIOMASTER PROLINE 16/16 GOLD & FOSTEX B16	£1300
TASC AM M1024	£300
TASC AM 488 MKII 8 TRACK	£475
CLAVIA NORD RACK	£580
MAC KIE 18 W 2	£1500
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ROLAND JV-800	£300
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EMU PROTEUS I	£175
AKAI MGI4D	£495
AKAI DR8 2GIG HD	£1795
WEM COPYCAT DELAY	£180
MAC KIE CR1604	£450
ROLAND R5	£250
YAMAHA PRO MIX 1	£850
KORG M1 PLUS	£54
ROLAND MC303	£49
KAWAI K1R	£175
MK-219 1094R	£150

### BRISTOL

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YAMAHA SY55 KEYBOARD	£275
SAMSON MPI 1640 16 CHANNEL DESK	£350
ROLAND JV80 KEYBOARD	£375
FOSTEX 3805 4-TRACK	£350
EMU MORPHEUS	£500
AKAI MPC2000 18MB + FZ DRIVE	£1150
FOSTEX 18 8 TRACK	£400
ROLAND D50 SYNTH	£300
EMU 164 32MB	£1850
TASC AM M2000 24-INPUT DESK	£1450
KORG M1 WORKSTATION (FLIGHT CASE D)	£500

EMU EMULATOR 2 PLUS HD	£699
PROPHET 18 8 VOICE WEIGHTED 76 NOTE ANALOG KEY	£2000
ROLAND JD800	£1000
AKAI MGI4D 12-TRACK	£699

### SOUTHEAMPTON

SOUND RAPI SPIRIT 24 LIVE CONSOLF	£799
AKAI DR4 INC DRIVE & MIDI	£700
AKAI S950 (FULLY EXPANDED)	£699
ROLAND CR8000 - KENTON MIDI	£100
KORG X3 R	£399
ROLAND VS800	£999
NEUMANN UM157	£850
NEUMANN CMV 563 + (M7, M8, M9, MK55)	£2500

### LEEDS

KORG 01 W PRO C W CARD	£895
ROLAND JUNO 1	£250
FOSTEX MIXTAB & FOSTEX DCM100 (MINT)	£299
FOSTEX X26 (MINT)	£129
KORG TRINITY PLUS WITH HDR, FLASH RAM & SCSI	£1795
TOA MRKT - 8 TRACK CASS - DBX & SICK 12+2-2 LOOMS	£590
ROLAND MC50	£249
ROLAND R5	£120
ATARI 1040 - 4 MEG MONITOR EXTRA DRIVE	£249
STERNBERG CUBASE V3 (ATARI)	£99
STERNBERG MIDEV	£199
EMU 1MAX2 KEYBOARD WITH 10MEG INTERNAL DRIVE	£549
FOSTEX 812 MIXER WITH MIDI RETROFIT	£490
ROLAND JUNO 6	£199
ROLAND JUNO 60	£299
MOOG ROUGE	£200
TR303 WITH KENTON MIDI (RED FINISH)	£800
KORG MONOPOLY	£250
YAMAHA TQ5	£100
ROLAND RD500	£699
ALISIS Q56 WITH DANCE TECHNO CARD (MINT)	£599
GEM S2 TURBO WITH FLIGHT CASE	£699
ROLAND JX8P WITH CART	£499
YAMAHA R100	£99
YAMAHA SPX700	£199
ENSONIQ SQ1 PLUS	£299
BOSS SE50	£199

<b>CHelsea</b>	
MIDI TISH PIECE II	£349
FOSTEX R5	£599
STUDIOMASTER 18x16 PROLINE	£599
ROLAND D70	£550
<b>ChELMSford</b>	
ROLAND D50	£399
GEM WX2	£499
ALISIS ADAI XT	£1650
IL COOPER PPS SYNC	£89

**HOT Sale**

**DBX120XP**  
 If it's bass enhancement you need, look no further. This unit makes the bass go right through you. Normally this unit retails for £275. **our price £159.** Hurry limited stocks!

**EMU ESI32 SCSI**  
 For a limited period we can offer this amazing sampler for an **unbelievable £???**

**YAMAHA PRO R3** When Yamaha make a top reverb they really go for it, and the PRO R3 is no exception. We only have two of these units for sale and **at just £699** they won't last long. So if it's top quality reverb you need don't delay (no pun intended).

**ENSONIQ DP PRO**  
 For a limited period we can offer this amazing effects processor for an **unbelievable ~~£1099~~ £699**

**BOSS VT1**  
 This vocal transformer from BOSS is a real steal at just **£199**

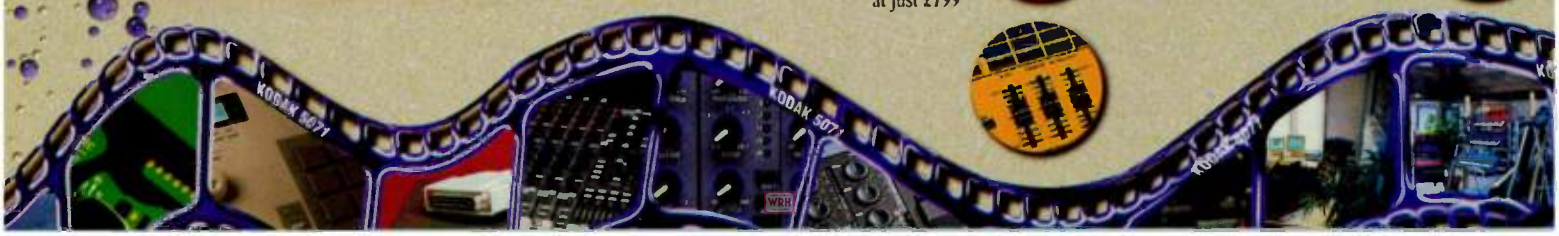


**ROLAND MC303**  
 For a limited period only, we have a small amount of MC303's for sale at an unbelievable **summer price of just £469.** At this price why buy a copy?

**KORG SOUNDLINK 168RC**  
 We must be mad, and you must be mad if you don't buy this. If it's a 16 input desk you're after can you afford to miss this one?

**ENSONIQ MR 61/76**  
 Call us for an unbeatable deal on these keyboards

**ROLAND RAPI10**  
 This PC sound card has an exceptional sampling facility at CD quality. Exceptional value at **£49**







# turn! turn! turn!

## HUGHES & KETTNER TUBE ROTOSPHERE

*The quest for the perfect Leslie speaker simulator continues.*

**NICK MAGNUS** welcomes an all-analogue member to the rotary club...

**Y**our friendly SOS spin doctor welcomes you once again to what has, over recent issues, almost become a regular feature devoted to Hammonds and Leslie cabinets — or rather the growing number of new products designed to emulate them. This time round, the patient set to receive a full medical is the Hughes & Kettner (or H&K) Tube Rotosphere. H&K are better known for their highly respected range of guitar amplification products; the Rotosphere may well be their first product deliberately designed with both guitars *and* keyboards in mind.

The Rotosphere is a floor-standing Leslie cabinet simulator, similar to Korg's G4 (reviewed SOS Sept '94.) Whereas the G4 utilises digital wizardry to provide the rotary simulation and the valve overdrive

effect, the Rotosphere surprisingly boasts analogue signal processing and a real valve — the Tube in its title. The chrome-enamelled, tank-like metal casing oozes machismo, and houses just a few controls — a mere three knobs and three footswitches. Could this imply a frustrating lack of user control, or is it a shining example of well thought-out design based on the 'less is more' principle?

The unit certainly seems built to withstand the most energetic stomping from an engineers' boot. Its only Achilles heel is the front-panel perspex window that reveals the valve glowing inside, but as long as you're not wearing stilettos or running spikes, it should survive. The three knobs are also recessed to avoid accidental damage.

There are no fancy edit menus on this machine — no parameters, no patches. The three knobs provide input level/tube drive, output level, and lower/upper rotor balance. That's it. An LED by the input knob lights to indicate the onset of 'tube saturation' (overdrive), and a pair of flashing red/green LEDs show the current rotor speed, ie. fast, slow or stopped. The three footswitches are for bypass (with LED indicator), fast/slow (with LED indicator) and breaker (or rotor stop). This last switch is non-latching

### pros & cons

#### HUGHES & KETTNER ROTOVERB £249

##### pros

- Amazingly detailed Leslie simulation.
- Accurate rotor separation.
- Built to survive a game of Jumanji.
- Attractively priced.

##### cons

- No MIDI speed control.
- Non-latching breaker switch.

##### summary

The Rotoverb really seems to capture the sound and spirit of a Leslie in great detail. The tube, while not being 100% true to a Leslie preamp, is nevertheless perfectly capable of producing good results in the majority of applications. The addition of MIDI would have been desirable, but is perhaps less likely to bother guitarists than keyboard players. A very desirable piece of kit for any rotophiles.

**SOUND ON SOUND**



► — in other words, the rotors stop only while you keep the switch depressed, and as soon as you take your foot away, the rotor movement recommences. On the back panel, we find mono/stereo inputs and outputs, the guitar/keyboard selector switch, and a jack for a remote bypass/speed footswitch. The unit is powered by its own unique external power supply, which (the manual states quite firmly) is rated to cope with the large current requirements of the valve. So no using that spare Sound Canvas wall-wart, or both it and the Rotosphere may end up in the stratosphere....

## THE DOCTOR WILL SEE YOU NOW...

After a brief warm-up period (during which time the tube saturation LED remains lit) the Rotosphere is ready to boogie. For testing, I prepared a selection of sounds that I would be most likely to submit to the Leslie treatment: Hammond XB2 tones, and a varied selection of samples including guitars (clean and dirty), Wurlitzer EP200 and (a long-time favourite of mine) the old RMI Electrapiano in organ mode. These were all routed to a group send on the desk (with the channel L-R routings muted to remove the original sound), thence to the Rotosphere, and then back to the desk on a pair of channels panned hard left and right.

Well, the sound of the Rotosphere is, quite simply, outstanding. There are a handful of reasonably convincing Leslie simulations on the market, but this one really does pick up on the

details that other units miss out. All the sounds tested exhibited the tonal characteristics you would expect to hear emanating from a real Leslie — in particular the cyclic frequency boosting/damping. If I might indulge in some cringeworthy printed onomatopoeia to illustrate this point, a major feature that typifies a Leslie is the way it goes 'yowweeyowweeyow...' The Rotosphere demonstrates just how dramatically different a rotating speaker sounds from a chorus effect. There is even a distinct cabinet ambience or colouration present, even when the rotors are stationary. The depth and intensity of the effect seems spot on at either the slow or fast speed setting, and the acceleration/deceleration times, whilst being just a tad faster than you might expect if you know original Leslies, are well within the realms of reality.

## GRUNGE FACTOR

The tube overdrive acquits itself very well generally. Ironically, it was perhaps least convincing using Hammond sounds, although only marginally so. Somehow, the distortion that a Leslie preamp confers to a Hammond is, to my ears, smoother and rounder than that of the Rotosphere, but that is not to say the latter does not sound pleasant — it does. The guitar sounds seemed very responsive to a touch of tube distortion, notably electric 12-string (did someone just put on a Beatles CD?). In fact, this was also true of the other sounds I auditioned — the RMI organ sounds and Wurlitzer piano sounded the business too. ►

## TIME TO COMPARE

The Dynacord CLS222 (long since discontinued, reviewed *SOS* December '92) is the one other unit that I felt came closest to capturing the tone and spirit of a Leslie, so comparison became inevitable for this review. The Rotosphere and the CLS have a great deal in common — most notably, the signal processing of both is entirely analogue. Could this be more than mere coincidence? I can almost see the knowing nods out

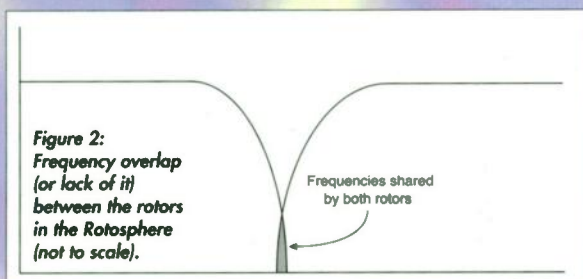
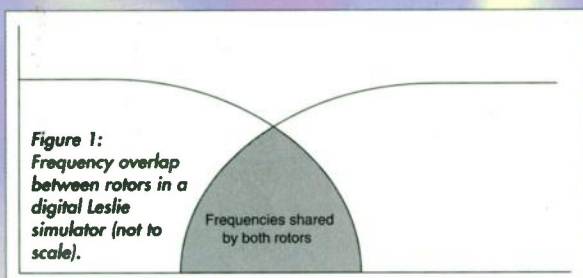
there in Readerland... Both units are also endowed with minimal controls, and this design philosophy is understandable on units like these, which have been created to carry out just one specific task. Assuming you had a full complement of variable parameters, the ideal sound would still reside within a fairly narrow range of those variables. So why not design the unit to sound as good as it could possibly be at the outset? If

it does the job sufficiently well, you won't want to alter anything. This was the design approach with the CLS222, and it seems to have been applied on the Rotosphere as well. A similar point was raised during the review of the Oberheim OB3<sup>2</sup> organ (see *SOS* September '97), on which the lack of detailed patch editing is vindicated by the highly accurate nature of the basic sound.

Overall, I'd venture to say that the Rotosphere is an improvement on the CLS222, for a number of reasons. Here comes the scientific bit — pay attention! The stereo imaging, whilst not as exaggerated as on the CLS, is more 'real world', and the cabinet colouration is more distinct. The Rotosphere also has a slightly brighter top

end, and a wider notch in between the upper and lower rotors' frequencies (see below). The rotational waveshape appears to be more of a 'scalloped' triangle wave as opposed to the CLS222's sinusoidal waveform. The scalloped triangle wave more clearly conveys the impression of the upper horn whirling past a closely positioned mic than a sine wave, making the cyclic frequency motion more apparent. The Rotosphere also has the benefit of the built-in tube drive. The two parameters featured on the CLS222 that are missing from the Rotosphere are fully-variable rotation speed, and stereo width. In the case of the former point, H&K seem to have got the two available speeds set pretty much dead right — and as for the latter point, you can attend to the stereo width just as easily with the pan controls of your mixing desk.

One final important factor shared by the two units which contributes greatly to an authentic tone is the frequency separation between the upper and lower rotors. Most of the digital emulations I've so far encountered suffer from a considerable frequency overlap between the rotors (see Figures 1 and 2). In actual fact, to most resemble a real Leslie, the two rotors should have very little in common tonally, otherwise their shared frequencies can result in unrealistic phase cancellations (the Rotosphere achieves this, by using analogue band-separation filters). The overlap exhibited by the digital simulations is not a problem inherent in digital filters — it is perfectly possible to generate digital band separation filters with 'brick wall' response curves. I would guess that the Rotosphere's designers probably just understand the nature of real Leslie speakers better than their competitors.





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**UMMS AND AHHS**

There is, happily, very little to criticise about the Rotosphere. The points that come to mind are as follows:

- Concerning the non-latching breaker switch; I can see no reason why this should not be a latching one. At present, you must remain rooted to the spot if you want to use the stationary rotor sound for anything more than a few seconds. Although the rotors may have stopped, the effect of standing on the pedal is not the same as a bypass, as the tube and cabinet tone colour remain operational, making the stationary sound perfectly usable in its own right.
- On the review unit, the LED which is supposed to show the fast/slow status wasn't working — although this is actually a redundant indicator anyway, as you can see the rotor speed LEDs blinking on and off at the appropriate speed.
- Lastly, it is a shame there is no built-in MIDI facility to remotely control the speed, breaker and bypass settings, especially as the unit was intentionally built with keyboard players in mind; although of course having even this rudimentary MIDI implementation would have added to the cost. The manual suggests that the Speed/Bypass remote socket can be used in conjunction with a MIDI switcher — if there is a simple and inexpensive dedicated box on the market that fits the bill, I would be grateful for any information.

**CONCLUSION**

The Rotosphere sounds extraordinarily convincing. Although I don't personally subscribe to the anti-digital league (in fact I'm eternally grateful for the wondrous toys that digital technology has made possible), the Rotosphere could surely be one of analogue's prize witnesses on the stand if the case ever came to trial.

The final factor to consider is one of cost. Considering the Dynacord CLS222 reached the rather alarming price of £760 in the final days of its existence (1992/1993), and Korg's G4 went for £299 when new (1994), the Rotosphere represents excellent value at a mere £249. Admittedly, you can pick up a new G4 for around £100 now that it has reached the end of its production run; the decision as to which unit to go for is likely to be based on budget versus the aesthetic requirements of the listener. It's also curious to note that all three of the above-mentioned units, despite being three of the best Leslie simulation devices manufactured so far, have been denied assimilation into the MIDI collective. Thesis, anyone?



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*Spinets, Hammonds, massed choirs? Nope. DEREK JOHNSON takes a trip with a module that does just what it says on the tin.*

If you were hunting for one really great piano sound, you'd probably start by looking at a dedicated piano sound module. A luxury, perhaps, but what better way of ensuring that you get exactly the sound you want? In fact, you'd probably make the choice based solely on the piano sounds, viewing the extra sounds provided by virtually all manufacturers as a nice bonus, but not one that necessarily influenced your buying decision. Such must have been the reasoning behind the MiniGrand, the latest entry from the Oberheim/Viscount alliance that produced the highly regarded OB3<sup>2</sup> organ module (see September's SOS). For this new stereo-sampled, 64-voice polyphonic module simply offers piano sounds: three acoustic and three electric (a total of 8Mb of 44.1kHz, 18-bit samples). Mild customisation is available, in the shape of reverb and chorus effects, EQ and velocity response (savable to six user memories), but there are no distractions from this module's central purpose: pianos.

The manual doesn't explicitly inform the user which instruments have been sampled, so you'll have to make do with knowing that the acoustic piano sounds have been "derived from meticulous sampling of some of the world's best concert grands". A number of interesting features have been implemented: for example, the module manages to simulate sympathetic string vibration — the way

that unplayed strings can ring when you depress the sustain (or, more correctly in piano parlance, 'damper') pedal and play. I haven't heard this on a sample-based module before. Also, the 'clunk' produced by depressing a pedal and the sound produced by the return of the string damper after a key stroke are also faithfully reproduced; the magic words "physical modelling" are mentioned in MiniGrand promotional literature. Hmm... I wonder?

### WORKING WITH WOOD

The MiniGrand's half-width 1U rack package is rather deep, and features a slightly camp *faux* rosewood front panel; it has perhaps been designed to appeal more in the lounge than the studio. Operationally, the module's relative simplicity is reflected in its front panel. Every button is labelled, with integral LEDs to aid visibility. For the most part, each button has but one function. The patch buttons (labelled Piano 1-3 and El Piano 1-3) select the main presets; the Reverb and Chorus buttons enable or disable those effects, and pressing the Memory button lets you choose from six customised sounds (as well as saving your edits), which are accessed by pressing the main patch buttons. Effects are edited with the Effect Type and Parameter buttons, with values changed using the data-entry wheel. The main velocity response curve is selected with its own button (labelled Dyna Curves), as is the three-band EQ, with high, centre and low frequencies selected in sequence by EQ button presses. Should you wish to globally transpose the whole module — up or down 12 semitones — press the Transpose button. Holding this button for two seconds or more also lets you fine-tune the MiniGrand by up to a semitone up or down, in cents.

The last button is labelled MIDI; press this and the first four voice buttons flash and let you alter four MIDI parameters: MIDI receive channel, program change reception and transmission, control change activation, and bulk dump. Interestingly, a General MIDI program change option maps the six available presets to equivalent GM-standard program changes. A three-LED display may seem stingy, but in practice this is perfectly effective, providing logical text abbreviations where necessary. A MIDI activity

# Grand Day Out

OBERHEIM/VISCOUNT MINIGRAND PIANO MODULE





LED is located just under the display.

When it comes to connections, the MiniGrand is slightly better endowed than most modules. Along with the expected stereo pair of jack sockets and trio of MIDI connectors, the module has a pair of footswitch sockets. One is for a normal sustain pedal, while the other operates as either a sostenuto or a 'soft' pedal, depending on the position of the nearby switch. (Sostenuto is a sort of selective sustain, where only the notes being pressed when the pedal is activated are sustained.) All three pedal types can be transmitted over MIDI, which is useful.

Power comes from a 10.5V wall-wart of uncommon dimensions; it's so bulky that some mains blocks I tried couldn't accommodate it as well as other, more modestly proportioned, plugs. I did like the cable lock next to the power socket, though, which keeps the supply from getting yanked out.

### GRAND SOUNDS?

Judging the MiniGrand's sounds is a little tricky, since the manual neglects to inform you exactly what Oberheim/Viscount were trying to achieve. From some American promotional literature, however, I ascertained that Piano 1 aims to emulate a classic European grand, suitable for classical and modern music, Piano 2 a softer grand suitable for jazz, and Piano 3 a sharper sound for rock. The electrics consist of a Rhodes clone plus two FM piano variations. On a subjective level, I found the European grand and rock acoustics to be extremely similar (the rock piano betrays a very slight 'edge'), while the 'jazz' piano is noticeably more muted and mellow. It also struck me that there was a remarkable similarity between one of the MiniGrand's acoustic pianos and the main sound of Alesis' NanoPiano (reviewed back in April). The character was very close indeed, so perhaps a Bösendorfer was one of the instruments sampled by the Oberheim/Viscount team? The electric pianos have an authentic feel, especially when treated with the subtle chorus, flange or tremolo effects. Electric Piano 1 (the Rhodes clone) is quite bright, with bite and some nice velocity-sensitive, percussive, non-harmonic overtones. Electric Pianos 2 and 3 — the FM pianos — are more mellow, with only 3's slightly more aggressive attack (and 2's slight nasal quality) proving they're actually different sounds. In all cases, the module responds well to your playing, and the choice of velocity responses should allow you to set the response to suit your style and keyboard.

### EFFECTS & EQ

The effects are pretty stripped down, with the chorus section comprising two choruses and two flangers, chorus or flanger in tandem with stereo tremolo, stereo tremolo, and mono tremolo. There are essentially four reverb types — small room, medium room, medium hall and large hall — but each is available in two versions. Contrary to the manual's description, I found the two variants to have longer or shorter decays; also at odds with the manual is my experience of the effect parameter which lets you alter the level of 'effect send' to the current reverb. The manual seems to think instead that this button alters one parameter per effect. This may possibly be the case with the chorus family — it seems to be altering either depth or speed — but the effect is

never dramatic. In practice, the chorus family of effects is subtly useful and the reverbs are just fine for adding a little space at source. Also on the plus side, reverb and chorus do respond to their equivalent MIDI controllers (91 and 93).

I found the EQ a little basic, with a tendency to add noise. But three bands is a nice touch. Use sparingly as a corrective tool, I think.

### BELLS & WHISTLES

I mentioned at the outset that the MiniGrand features some novel touches — sympathetic string resonance and pedal clunk. The resonance works well, and helps complete the illusion of a full-size piano in a manner seldom heard on a sampled approximation. I'm not so sure about the pedal 'clunks', since they can be very distracting, particularly in quiet passages. While I'm aware that real pianos, as essentially mechanical devices, do make a certain amount of noise, including them in a digital simulation is perhaps taking realism too far. Taking the other side of the argument for a moment, the clunks are fairly well hidden while you're playing, adding another texture to the illusion. In a full-blown MIDI arrangement, you may never hear them at all except in isolated quiet piano passages, at which point your listener may think you're playing a sensitively miked-up genuine piano.

Less forgivable is the slight halo of hiss, more pronounced on the acoustic piano sounds, produced when a note is played. Equally odd is the distinctly old-fashioned faint digital garbage that appears on the fades of samples — we didn't like it in 1987, and I'd rather not be hearing it now. Samples are otherwise excellent, with loops uniformly smooth and crossover points all but undetectable (I think I spotted two when listening very closely...). This just makes the hiss and gunge problem all the more curious.

### GRAND STAND

With basic piano sounds that are very good indeed and a virtually foolproof user interface, this module is a fine contender for providing the quality piano sounds that your keyboard rig might be missing. The genuine 64-note polyphony means that you can hold down the sustain pedal and play all the notes on the average 61-note synth keyboard and not hear any note stealing. Nice! I'm still very impressed by the sympathetic string effect: it really works well. But there are other issues to consider: the £400 price tag, the similarity of a couple of the patches, and the digital fuzz and hiss discussed earlier. I'm not totally convinced by the pedal clunk simulation, either; an 'off' switch would have been a nice option. But don't take my word for it: consider yourself encouraged to have an audition and ascertain for yourself whether I've overstated these shortcomings. It is, however, truly refreshing to see such a positive example of specialisation.

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### pros & cons

#### OBERHEIM MINIGRAND £400

##### pros

- Set of quality piano sounds.
- 64-voice polyphony.
- String resonance effect is great.
- A doddle to use.
- Pedal sockets at rear.

##### cons

- Power supply a bit bulky.
- Sustain/loud pedal 'clunk' may distract some, particularly in a pop context.
- Some hiss and digital artifacts.

##### summary

The MiniGrand is blessed with an excellent, extremely playable sound; it's just a shame that a product bearing the Oberheim name isn't exemplary in all respects.

**SOUND ON SOUND**

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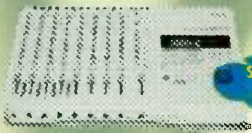


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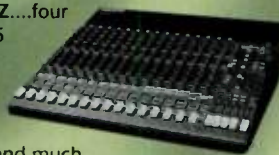
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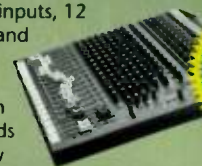
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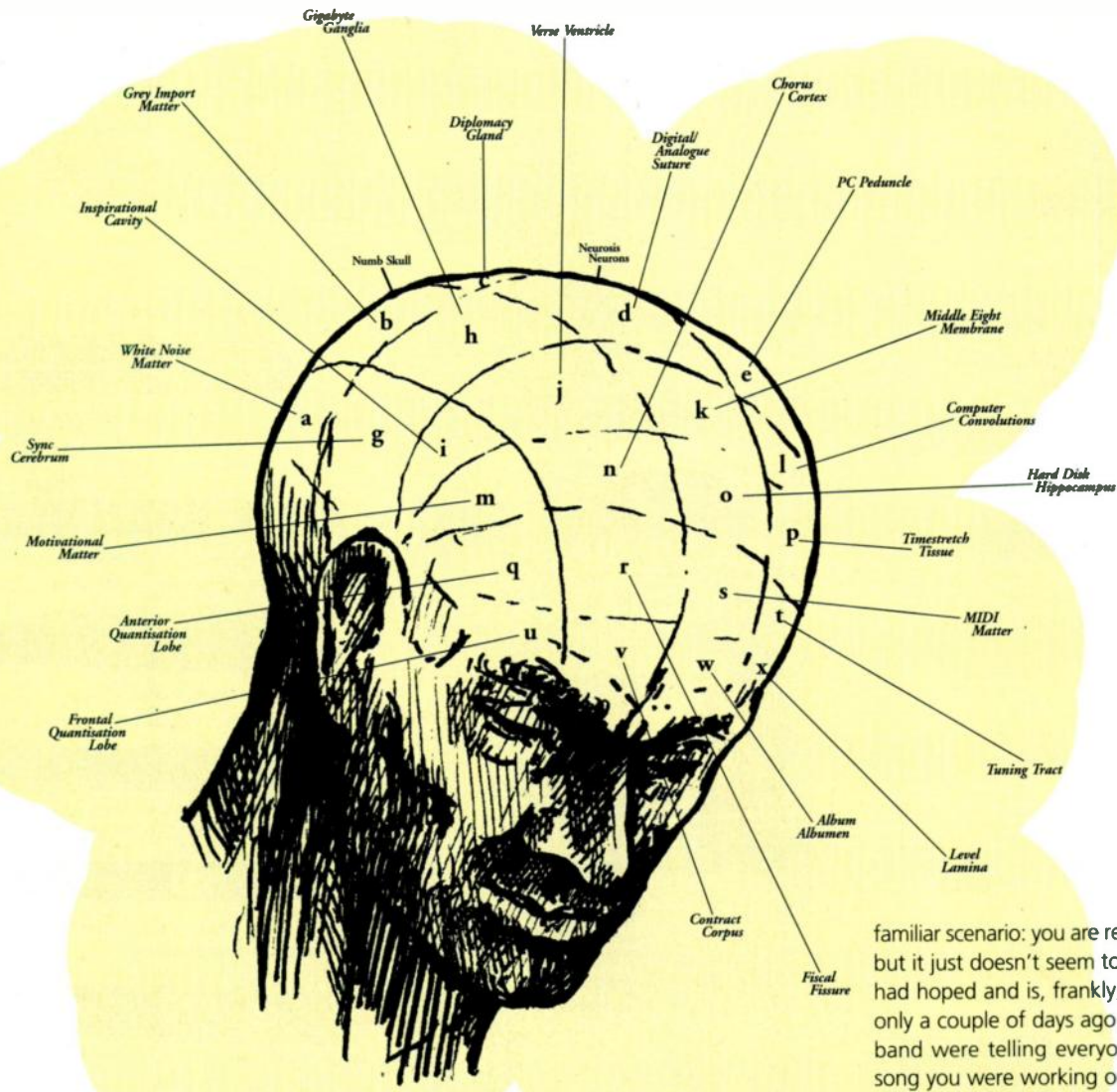


Fig. 3(c) *Encephalon homo studio sapiens — hi-tech hemisphere*

# Mind games

## THE PSYCHOLOGY OF RECORDING

**CHRIS CARTER**  
offers insights into  
motivation and stress in  
the studio and some  
possible solutions.

**T**here are many problematic psychological and physiological aspects to studio work: nerves, personality clashes, drugs, smoking, drinking, RSI, financial worries, fatigue, and of course the age-old question, shag-pile carpet or polished floor? The list is almost endless (and some of these subjects may be covered in future articles), but for now let's just consider two of the most common problems: motivation and stress.

### GOING ROUND IN CIRCLES

A lack of motivation, particularly when you're working in a home-based studio, is a surprisingly common problem. But what causes it? Picture this

familiar scenario: you are recording a song or demo but it just doesn't seem to be working out as you had hoped and is, frankly, going nowhere, when only a couple of days ago you and the rest of the band were telling everyone about this fantastic song you were working on. The lyrics now sound naff, you're still trying to get a groovy bass line and half-decent rhythm, and the melody is beginning to sound tired and tuneless. You feel as if you're locked into a cycle of maximum effort and no return, with the smallest defects taking on gargantuan and irrational significance. The situation can seem even worse when you're working on MIDI-based projects where it's easy to get bogged down with the intricacies and minutiae of a track and you find yourself spending hours and hours endlessly tweaking and fiddling with MIDI information hoping to strike lucky, when in reality you're just going round in ever-decreasing circles.

So what's going on here? Well, after a few days you get over-familiar with the tune or arrangement, boredom sets in, your once positive attitude takes a spiralling dive into lethargy and indifference, and your motivation begins to trail off — you get that 'I just can't be arsed any more' feeling. This is quite common; it is, aptly, called Project Fulfilment Fatigue Syndrome and, once it has a hold, is pretty hard to shake off. So what do you do if you have reached this stage in a project? It's time to consider your options.

For a start, you need to take a step back and look at the bigger picture. When you're getting nowhere, even though you've spent days (or even weeks) sweating blood over something, should you just stop and trash it? Well, sometimes the answer is yes: it may be better to cut your losses and move on to something new. Or you could consider playing what you've done so far to someone not involved in the project, as anyone



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fidelity at work.



# Psychology of Recording

## STRESS RELIEF

- Ease your workload and get plenty of rest: mental and physical exhaustion are major causes of stress.
- Avoid very long sessions, particularly in front of a VDU.
- Bear this in mind that monitoring at high volume can be stressful for some people.
- Remember that positive thinking works wonders.
- If a track isn't working out try to stay calm and reasonable; don't start shouting.
- Keep your gear in good working order — running repairs are a big no-no.
- Cut down your coffee and cola intake, or drink decaffeinated instead.
- Get a massage.
- Small diversions can break a stressful atmosphere but beware of losing motivation.
- Keep a good joke book to hand.

▶ outside this umbrella of doom will most likely hear the track in a completely different light — and often all that's needed is a new perspective. You could try friends, relations, teachers, DJs, producers — really, anyone you feel might give a valid opinion, good or bad. If it's a bad reaction then move on to something new; if it's a good reaction then take on board what they say and try and come back to the piece from a fresh angle.

If you are working solo or don't have anyone you can immediately discuss it with, you could put the song to one side for a couple of weeks and distance yourself from it for a while. Things can sound very different after that long — occasionally worse, but often not as bad as you remember.

## THREE-POINT PLAN

There are usually lots of complex interrelated factors that influence a loss of motivation, but three fairly significant factors are often involved:

- Your aims or goals;
- How well you cope with distractions;
- Your self-discipline.

Let's deal with them in order; first, what are your aims and goals? If you're embarking on a project, what is your ultimate intention? Is making music a hobby and are you just putting together some ideas for your own enjoyment? Or is this meant to be a top-notch demo and your stab at fame? It helps if you have some idea what you are going to do with the finished track; this doesn't have to be overly ambitious, but without some

sort of an objective it's all too easy to run out of steam. What if you've already got your record deal and are still having trouble getting motivated, though? Well, money and finances can be a double-edged sword when it comes to motivation. If you've been given a royalty advance before the obligatory 'contractual' album or single has been delivered (this also applies to remix projects and commissions), and the money has just been frittered away before you've even put anything significant on tape, it can be pretty difficult getting your act into gear. Personally I've always found the carrot of a fee a lot more motivating than payment up front.

What about distractions? If you have a day job, with only your evenings and weekends free to work on your music, just mustering up enough energy and enthusiasm can be a problem. Does your concentration drift, is your mind on something else — your job maybe — or is it just fatigue? If it is, there's not that much you can do apart from taking time off work. But you can at least eliminate obvious trivial distractions: try to ignore the phone and fax, don't answer the door and while you are working keep all TVs, radios and computer games out of sight.

The most serious distractions you are likely to come across, though, are equipment breakdowns and computer crashes and, depending on their severity, these can be pretty stressful too. Major equipment failure is probably the worst thing as far as motivation is concerned, because if your only keyboard, sampler, DAT machine or 8-track is off somewhere being repaired you're placed in a helpless and frustrating situation. By the time you get your gear back (which could be weeks), it can be a major headache trying to pick up the threads of where you were, and getting motivated all over again. So it's vital to keep your gear serviced and in good working order.

When self-discipline is a problem you'll often find distraction in the equation too. You know the feeling: you should be finishing this mix before tomorrow but there's a really good film on TV and you could do with a pint. So you pop down the pub, then watch the film, but it's late and you feel too tired to finish the mix. "Sod it, I'll do it tomorrow." But tomorrow comes and the track doesn't sound as fresh as it did yesterday, you've forgotten some of the mixer and effects settings, and now you want to move onto something new. Moral: don't put off today what you think you can do tomorrow — and keep a blank tape in the video machine.

## STRESS FRACTURES

Ironically, a certain amount of stress can be beneficial as it excites and stimulates the body, and many people work perfectly well in mildly stressful situations. However, as stress levels

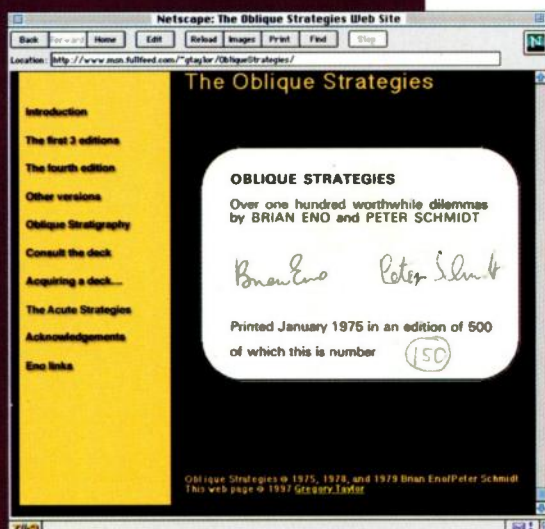
## OBLIQUE STRATEGIES

*Oblique Strategies* is a set of small flash cards written by Brian Eno and Peter Schmidt, released in 1975 as a signed, limited edition of 500. The set includes 100 or so cards containing short and sometimes philosophical or oblique phrases, intended to help musicians when they reach an impasse or dilemma in the writing and recording process. Some of these phrases are self-evident; others are intended to suggest avenues you might otherwise not have thought of. The idea is that you shuffle the pack, then pick one card or more at random. The chosen phrase acts as a catalyst to push you in a different, and hopefully more rewarding, direction. Getting hold of an original set is all but impossible (and expensive). I've had my well-thumbed, battered set for 22 years and still keep it close at hand for most projects (and no, I don't want to sell it!). What you could do is try making a set of your own, using your own criteria and phrases. Alternatively, have a look at the web site [www.msn.fullfeed.com/~gtaylor/ObliqueStrategies/](http://www.msn.fullfeed.com/~gtaylor/ObliqueStrategies/) where oblique stratigraphy is covered in detail.

A short selection of phrases from *Oblique Strategies*:

- Look at the order in which you do things.
- Mute and continue.
- Listen to the quiet voice.
- You don't have to be ashamed of using your own ideas.
- You are an engineer.

- What mistakes did you make last time?
- Take a break.
- Use fewer notes.
- Courage!
- Fill every beat with something.
- Breathe more deeply.
- Don't be afraid of things because they're easy to do.
- Shut the door and listen from outside.
- Accept advice.
- Reverse.
- Do the washing-up.





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# BLUE SYSTEMS

## Soundscape

## Version 2.0

## BLUE SYSTEMS

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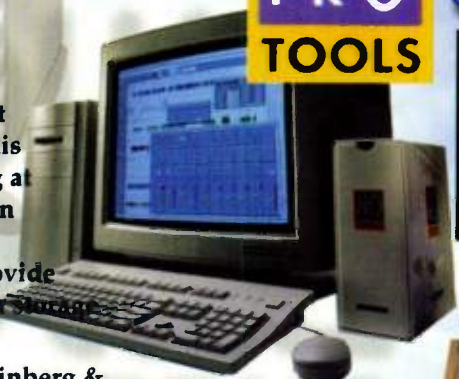


Video Editing PC & MAC

**Protools update:** You may (or may not) have heard that the price on Protools 4 16Trk version has dropped. This is due to the release of the new 24Trk system shipping at the same price as the original 16Trk. The 16Trk version is now only £4110 inc VAT.

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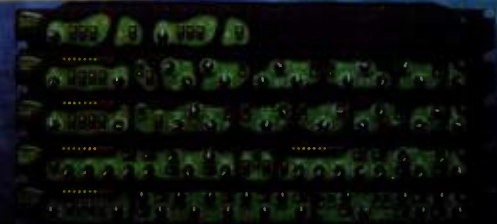


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LONDON



# Psychology of Recording

rise the physical effects become more pronounced. Apart from the obvious signs (shouting and screaming), stress can make an appearance in a number of ways: headaches, irritability, anxiety, palpitations, moodiness, depression and fatigue. But how do you cope with, or even avoid, stress in a studio environment?

While many people reading this may be comfortable in it, a studio environment can be a very intimidating place to a recording novice, and anxiety and nerves, even if hidden, can manifest themselves in any of the above symptoms. If you yourself are in a permanent state of total cool and calmness, consider your colleagues or clients. If you are working with someone new to recording they could well be a bag of nerves, tottering on the brink, ready to snap at the slightest thing. If things do escalate into a stressful situation, try to be as reasonable, considerate and, if necessary, diplomatic as you can. This is particularly important with vocalists, as the voice of a stressed-out singer can disintegrate before your ears in a matter of minutes. When an engineer or producer says "You're singing out of tune", followed by "Is that vibrato getting stronger?" it usually means he's just about to get a kick up the arse. Diplomacy can work wonders: "Let's try that again in a different key", followed by "Would you like a glass of water?" may be a better option. If everybody is getting stressed out — and these things do tend to have a knock-on effect — the situation can only get worse, but if you can keep the atmosphere from boiling over there's always a chance that the session will end happily ever after.

## BUYING YOUR WAY OUT

Ask musicians and home recordists what aspect of recording and studio life they find the most refreshing and motivating and the reply is often buying new gear. There is nothing quite as inspiring and motivating as getting a new keyboard full of fab sounds or an effects unit with tons of devilish new algorithms. Of course, one of the problems of pursuing this transient line of self-help is that shopping for new gear every time you feel at a productive low could work out a mite expensive. Another problem is the stress involved in trying to work out how to operate your brand new pride and joy — which brings you full circle...



## TECHNICAL HITCHES

Stress can also make an appearance when technical problems occur. One faulty MIDI lead in a rats' nest of cables and interfaces can take what seems like forever to track down, and if you've got a studio full of irate (and paying) musicians the situation can get about as strained (and abusive) as you can imagine.

And when I say technical problems I don't just mean a few dodgy leads, although that's bad enough. From a musician's point of view, there's nothing worse than an engineer saying "Sorry, can we try that take again? I forgot to press Record" or "Sorry, I got a bit of reverb spill on the track. Can we try that just one more time?". There are only so many times this sort of thing can happen before stress levels rise and motivation takes a dive. Make sure all your gear and leads are working as they should *before* you start a session, and you could save a lot of problems (and insults) later.

## JUST RELAX

If you are working in your own studio or at home and it's a large project, or one with a particularly intense and heavy workload, plan a series of incentives

## KEEPING MOTIVATED

- Avoid distractions like the plague.
- If you are grinding to a halt, bring in an outside opinion to get a new perspective on things.
- Don't give in to negativity.
- Try to set yourself a deadline, and meet it.
- Don't put off till tomorrow what you can do today.
- Ease your workload, and don't try to do too many projects at once.
- Keep your gear in working order.
- When a serious dilemma occurs use *Oblique Strategies* (see box).
- Take the scattergun approach: use all the above.

and rewards to break up the monotony that often creeps into sustained cycles of writing, recording and mixing. After a long session these could take the form of a trip to the movies, a big nosh-up at a restaurant, a zip off to the beach, or a stroll in the woods or countryside — in fact, any activity not connected with recording. If you are working in a state-of-the-art pro studio with access to swimming pools, tennis courts, games machines, and pool tables these can be a great way of winding down and relieving stress; but beware, they can also become indulgent and a major distraction.

Massage is an excellent stress-reliever — just ask anyone who's tried it. It's especially effective after a long day spent slaving away in a studio and a great way of winding down at the end of a long session. I know of a particularly good masseuse who specialises in visiting studios and record companies, and performs a very effective and relaxing shoulder and neck massage. You could try calling one of the professional visiting masseurs who advertise in Yellow Pages (no, NOT the ones in telephone boxes!). Alternatively, encourage a friend to learn a massage technique, or try some other relaxation routine such as meditation or deep-breathing exercises.

This may sound a bit wacky, but soft lights, a few floor cushions (or comfy chairs) and an aromatherapy oil burner can make quite a difference to some stressed-out situations. When things are getting a little strained, tell everyone to chill out for 15 minutes, light the burner, turn off the music, dim the lights, get comfortable and try to relax for a while. It really can work wonders.

## THE OUTER LIMITS

As you can probably tell by the non-academic tone of this piece, I'm in no way suggesting that it's a definitive study of studio psychology. In fact, all the points raised and examples covered are gleaned from years of personal experience and from discussions with friends and colleagues. Remember, this is not an exact science and what works for one person or situation may be inappropriate or unsuitable for someone else. Half the battle is knowing the type of psychological traps and pitfalls that will catch you; once armed with this information, you can start working out how to avoid them. I hope I've given you a little understanding of the sometimes puzzling, contradictory and intricate mental processes that drive most of us in that unique twilight zone we call 'the studio environment'. Happy recording!

SOS



# INTRODUCING THE HR824 ACTIVE MONITOR.

If you've been trusting the quality of your creative product to passive monitors, there's an astonishing revelation waiting for you. In our opinion, the active, bi-amplified HR824 is the most accurate near-field monitor available — so accurate that it essentially has no "sound" of its own. Rather, Mackie Designs' High Resolution Series™ HR824 is the first small monitor with power response so flat that it can serve as a completely neutral conductor for whatever signal you send it.



Mackie acoustic engineer David Bie uses scanning laser vibrometry to map HR824 tweeter dome vibrations.

Imaging and definition are compromised. The "sweet spot" gets very small.



Fig. C: Uneven fabric dome tweeter motion distorts high frequencies.

Like biamped speakers, wave guides aren't a new concept. But it takes optimized internal electronics

and a systems approach to make them work in near-field applications.

The HR824's wave guide (Fig. B) maximizes dispersion, time aligns the acoustic center of the HF transducer to the LF transducer's center, and avoids enclosure diffraction (notice that the monitor's face is perfectly smooth.) The exponential guide also increases low treble sensitivity, enabling the HF transducer to handle more power and produce flat response at high SPLs.

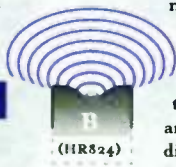


Fig. D: HR824 alloy dome's uniform, accurate piston motion.

## SCIENCE, NOT SNAKE OIL.

Internally bi-amplified, servo-controlled speakers aren't a new concept. But to keep the cost of such monitors reasonable, it's taken advances in measurement instrumentation, transducers, and electronics technology. In developing the HR Series, Mackie Designs sought out the most talented acoustic engineers and then made an enormous commitment to exotic technology. The HR824 is the result of painstaking research and money-is-no-object components, not to mention thousands of hours of listening tests and tens of thousands of dollars in tooling.

## FLAT RESPONSE... ON OR OFF-AXIS.

One of the first things you notice about the HR824 is the gigantic "sweet spot." The detailed sound field stays with you as you move back and forth across the console — and extends far enough behind you that musicians and producers can hear the same accurate playback.

The reason is our proprietary exponential high frequency wave guide. Without it, a monitor speaker tends to project critical high frequencies in a narrow beam (Fig. A) — while creating undesirable edge diffraction as sound waves interact with the edges of the speaker.



HR824 Active Monitors accept balanced or unbalanced 1/4" and XLR inputs. Jacks & removable IEC

power cord face downward so that the speaker can be placed close to rear wall surfaces.

## CLEAN, ARTICULATED BASS.

Seasoned recording engineers can't believe the HR824's controlled low bass extension. They hear low frequency accuracy that simply can't be achieved with passive speakers using external amplifiers. Why?

First, the HR824's FR Series 150-watt bass amplifier is directly coupled in a servo loop to the 8.75-inch mineral-filled polypropylene low frequency transducer.

It constantly monitors the LF unit's motional parameters and applies appropriate control and damping. An oversized magnet structure and extra-long voice coil lets the woofer achieve over 16 mm of cone excursion. Bass notes start and stop instantly, without "tubbiness."

Second, the HR824's low frequency driver is coupled to a pair of aluminum mass-loaded, acoustic-insulated 6.5-inch passive drivers. These ultra-rigid drivers eliminate problems like vent noise, power compression, and low frequency distortion — and couple much more effectively with the control room's air mass. They achieve the equivalent radiating area of a 12-inch woofer cone, allowing the HR824 to deliver FLAT response to 42Hz with a 38Hz, 3dB-down point.

Third, the woofer enclosure is air-displaced with high-density adiabatic foam. It damps internal midrange reflections so they can't bleed back through the LF trans-

ducer cone and reach your ears. The typical problem of small-monitor midrange "boxiness" is eliminated.

## A TRUE PISTONIC HIGH-FREQUENCY RADIATOR.

We scoured the earth for the finest high frequency transducers and then subjected them to rigorous evaluation. One test, scanning laser vibrometry, gives a true picture of surface vibration patterns. Two test results are shown in



The Mackie HR824 Active Monitor.  $\pm 1.5$ dB from 42 to 20kHz.

the upper right hand corner of this ad. Figure C is a conventional fabric dome tweeter in motion. You needn't be an acoustic engineer to see that the dome is NOT behaving as a true piston.

Figure D shows our High Resolution metal alloy dome at the same frequency. It acts as a rigid piston up to 22kHz, delivering pristine, uncolored treble output that reproduces exactly what you're recording.

## INDIVIDUALLY OPTIMIZED.

We precisely match each transducer's actual output via electronic adjustments. During final assembly, each HR824 is carefully hand-trimmed to  $\pm 1.5$ dB, 42Hz-20kHz. As proof, each monitor comes certified with its own serialized, guaranteed frequency response printout.

The HR824's front board has "radiused" edges to further eliminate diffraction; an "H" brace bisects the enclosure for extra rigidity.

## TAILOR THEM TO YOUR SPACE.

Because control rooms come in all shapes, sizes and cubic volumes, each HR824 has a three-position Low Frequency Acoustic Space control. It maintains flat bass response whether you place your monitors away from walls (whole space), against the wall (half space) or in corners (quarter space). A low frequency Roll-Off switch at 80Hz lets you emulate small home stereo speakers or popular small studio monitors.

## CONFRONT REALITY AT YOUR MACKIE DESIGNS DEALER.

We've made some pretty audacious claims in this ad. But hearing is believing. So bring your favorite demo material and put our High Resolution Series monitors through their paces.

If you've never experienced active monitors before, you're going to love the unflinching accuracy of Mackie Designs' HR824s.

If you've priced other 2-way active monitors, you're going to love the HR824's price AND its accuracy.

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# MACKIE™



# Learning process

## WHERE TO USE PROCESSORS AND WHY

*Last month PAUL WHITE covered gates and compressors; this month it's up to enhancers to justify their existence...*

**W**hen Aphex invented the Aural Exciter, some people latched onto it right away, while others thought they could see right through the emperor's new clothes and that conventional equalisers could produce exactly the same results. Now we're all a lot wiser and the principles of sound enhancement are more widely appreciated, with numerous different companies making enhancers that all work on a slightly different basis. There's a tendency for people to

transient detail, either by the use of dynamic equalisation, frequency-dependent phase shift, or, in the case of Aphex, by a mixture of compression, filtering, phase shift and harmonic synthesis. The Aphex approach is particularly useful in adding a plausible high end to source material that has a limited bandwidth, but unless the programme material is badly lacking in high-frequency content, all the popular systems will bring about some subjective improvement in clarity.

The benefits of enhancement are the ability to make a sound stand out in a mix, to make individual instruments and voices seem better separated, and to improve vocal intelligibility; the negative aspects, though, are less well known.

### NOISE

Like compressors, enhancers can be built using the quietest circuitry in the world, but if the input material is noisy, the process itself will still make that noise more obtrusive. Most enhancers attempt to emphasise low-level transient detail, and whether that's done by harmonic synthesis or by compressing the output from a high-pass filter, it inevitably results in some of the high-frequency components of the original waveform being increased in level. Even if the process doesn't significantly increase the peak level of the signal, low-level signals may be made louder, and it's during periods of low-level signal that noise is less likely to be masked. As a significant proportion of background noise is high-frequency hiss, it follows that this too will be made more noticeable by the process. After all, hiss gets enhanced just as effectively as any other high-frequency component of the source signal!

Some manufacturers claim that their enhancement processes don't have a significant effect on background noise; ultimately, though, if the process is successful in lifting low-level, high-frequency detail, it must also lift noise. Often a single-ended noise reduction device working on the dynamic filtering principle will help remove noise during quiet passages, but the only fully satisfactory approach is to make sure that your source material is as quiet as possible, and only use noise removal processes as a last resort.

### SIBILANCE

Sibilance is a problem that every recording engineer dreads — the singer whose every S and T is accompanied by a burst of high-frequency noise. This isn't anybody's fault — it's all down to how an individual's mouth works — but it seems that the better the microphone, the more sibilance

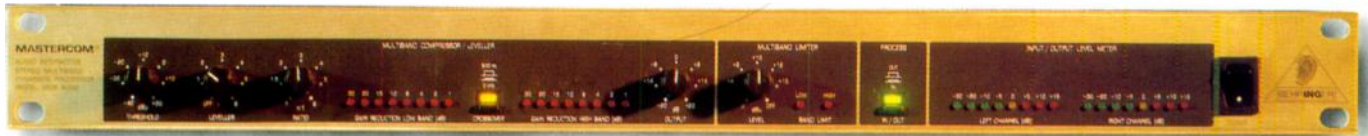


use the term 'exciter' as a generic description for any type of enhancer that brightens the mix, but Aphex would be the first to point out that the trademark belongs to them — at least when it has a capital E. In fact they're probably putting down their Thermos flasks and Hoovers right now and looking for a Biro to write us a stiff letter!

Over the past couple of years, SOS has examined the most popular enhancement systems, and while each manufacturer understandably claims that their system has some advantage over all the others, they're all reasonably effective in making sounds seem brighter, better focused, and more detailed. They do sound different when compared directly, but the purpose of this series is not to pick winners — it's to look at which situations benefit from signal processing and which don't.

Enhancers, on the whole, tend to emphasise





is captured. This is especially true of some capacitor mics, but unfortunately some people tend to equate a very bright vocal sound as being 'more CD-ish' or better produced. What's more, adding effects such as reverb or using heavy compression can make sibilance noticeably worse.

As sibilance is a high-frequency problem, and enhancers are designed to emphasise high-frequency detail, it's hardly surprising that using an enhancer tends to exaggerate sibilance even more. The best place to tackle this problem is back at source, and if you have a mic that's less susceptible to the offending frequencies, try that instead. Don't worry if it's less bright than the original mic: you can use the enhancer to help compensate for that. Changing the position of the singer relative to the mic may help, but in serious cases, you may need to resort to using a de-esser.

I'm not a great fan of de-essing using a standard full-band compressor, as the result of gain reduction is often to make it sound as if the singer has a lisp. However, split-band models, or dedicated de-essers that affect only the required part of the spectrum, can work extremely well. If you need to use a de-essing process, put this

before the enhancer, and don't use more enhancement than you really need.

### CONTRAST

The effect of adding an enhancer is to make the treated sound seem closer and louder, even though its peak level may hardly have changed. The reason this happens is closely associated with the mechanics and psychoacoustics of the human hearing process. There's always a temptation to take the easy option and always put the enhancer on a finished stereo mix, just to add that extra sparkle, but this can be problematic on at least two counts.

The first objection to routinely enhancing stereo mixes is that you lose the enhancer's ability to create front-to-back perspective in a mix. If you process everything, the whole mix seems to move forward, which might sound louder and brighter, but doesn't help you improve the contrast between sounds — and in home-produced music, maintaining clarity and contrast is often one of the most difficult things to achieve.

A better alternative is to use the enhancer while you're mixing. By patching it into a stereo

“Don't use any more processing than is needed, regardless of how much you paid for the box!”

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the PA LINE



## WHERE TO USE PROCESSORS AND WHY

“Hiss gets enhanced just as effectively as any other high-frequency component of the source signal!”

► subgroup, you can route all sounds destined for enhancement via that group and leave alone any sounds that don't need treating. For example, you may feel that enhancing the lead vocal and acoustic guitar makes the mix sound more immediate, and this contrasts nicely with the pad synth parts and fretless bass you've left in the background. Enhancing drums can help clarify a muddled sound, but unless the music is strongly rhythm-based, you have to be careful not to pull the drums too close to the front of the mix, otherwise the lead vocals can get upstaged.

The other problem in enhancing a full mix after you've finished mixing is that the process may change the subjective balance of some of the sounds. If you feel the need to enhance everything, it's best to have the enhancer in circuit as you mix so you can compensate for any apparent balance changes. Working this way can also help you make more appropriate EQ settings, because if a recorded sound is already perfectly equalised, enhancing it will make it sound too bright. Once you're more experienced, you may also be able to combine enhancement and conventional EQ to recreate depth perspective, by making sure that the sounds destined to be at the back are not so topky as those you want to place near the front. Having said that, the worst thing you can do is stick an enhancer on a perfectly good mix just because you have one.

### LISTENING FATIGUE

The human hearing system is a marvellous thing — it's capable of resolving sounds against noisy backgrounds, it can compensate for different room acoustics, and it can even make dreadful transistor

got used to the new, enhanced sound, but the next day, when your ears have recovered, you'll wonder how you ever produced such a dreadful mix.

Another problem inherent in using enhancers is that it's very easy to come up with sounds that are impressive when you first hear them, but once you've listened for a few minutes, you feel irritated or fatigued. I find a lot of modern CDs suffer from being mixed fatiguingly bright; after you've played a few tracks, you just want to turn them off. The trick is to keep bypassing the enhancer to see how much effect you've added, and also to make comparisons against other records that you know are well mixed. Don't use any more processing than is needed, regardless of how much you paid for the box! Fatiguing sound is a particular problem if the original source material includes much in the way of high-frequency distortion, because most enhancement processes emphasise this further. In some cases, the distortion might not even be audible at all until you switch in the enhancer, after which it becomes almost unbearable.

### SUMMARY

Though they're all designed to meet roughly the same needs, every type of enhancer sounds a little different to its competitors, and in some situations one type will work better than another. For example, some of the models use dynamic filtering so that boost is only applied when the input signal exceeds a specific threshold; these are likely to be less prone to noise problems than the type that boost the lowest-level signals the most. It's also true that, while systems based on dynamic equalisation can give very smooth results, harmonic reconstruction as provided by the Apex Exciter range is more successful when the input signal contains little or no information in the frequency range you wish to emphasise.

The watchword when using enhancers has to be moderation. Don't take it as a sign of defeat if a mix or track sounds better without it — sometimes it will. You have to know when to recognise that the material you're processing is fine as it is, which is always a problem when a client brings in a tape and says they want it brighter, more punchy and with more body. What they're really asking for is more of everything, and if you give them it, you'll end up with exactly the same mix but a few decibels louder!

It may also be a mistake to reach for the enhancer before you've first tried a good-quality outboard parametric EQ. Quite often, adding a wide boost centred between 15 and 20kHz will add the necessary shine without affecting the noise level in a very significant way, and, once you've brightened the top, you may also need to balance that with some bottom-end EQ. Contemporary enhancers are sometimes fitted with bass boost facilities of varying sophistication, but often the simplicity of a really good equaliser will sound better. At the end of the day, an enhancer is a powerful and useful audio tool, but it's only one of many tools in the box.

SOS



radios seem listenable. In other words, the hearing system is always adapting what we really hear to make it easier for the brain to extract the information it needs. So if you decide to enhance a track, you'll notice an immediate difference, but after a relatively short time your brain will have compensated to make it sound normal again. Now, turn off the enhancer, and the sound you originally thought was OK will sound dreadfully dull. The danger is that as the session progresses, you'll be tempted to add more and more enhancement, just to keep your brain thinking the device is working, and by the end of the day the original sound might be over-enhanced to an alarming degree. Over time, you've





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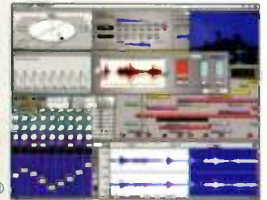
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**Akai S3200XL**

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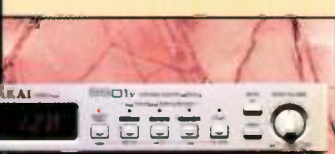
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**PLEASE CRING!**

**16Mb Rom Board**

Turn your EMU Emulator into an instant access synth. The sound ROM adds 16Mb of permanent sample memory to your sampler while all the preset parameters can be adjusted and saved to RAM, creating your own individual presets available instantly when you switch on.

**PLEASE CRING!**



**Emu Orbit**

120 more presets (beat kits, LFO presets); 40 more presets, 28 songs.

**PLEASE CRING!**



**Emu Planet Phatt**

A massive 640 presets, easy to edit with its 32 digital 6-pole resonant filters, loads of realtime control and a Beats mode not to be missed.

**PLEASE CRING!**



**Emu Carnaval**

For anyone serious about percussion or latin based music this module is a must have. Incredible brass and guitar samples and vocal chants. Use the on board beats mode to add a little latin spice to your track.

**PLEASE CRING!**



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Specialists in modern music technology

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86 Mill Road, Cambridge • 01223 316091

562 Brighton Road, South Croydon • 0181 407 8444

230 High Street, Barnet • 0181 440 3440

## Sensational Digital Deals!!



**47% off the Korg Soundlink 168RC!**

- 16 digital inputs and outputs (with optional)
- 8 analogue mic / line inputs (2 with phantom power)
- 3 band EQ (switchable with 'Q' on mid)
- 2 superb internal fx processors
- automation - 100 'scenes', MDA control

Yes, it's true - this fantastic price breakthrough is for real. Until now you couldn't even buy a stereo digital mixer for this price! Now we can supply this incredible 8 Bus digital desk for an amazing...

**£999**

**FREE Dat Recorder and Headphones**



**FREE CD Recorder**



**M.V EXCLUSIVE PACKAGE DEALS (was £1899)**

Adat XT + 168RC

**only £2699**

Fostex D90 + 168RC

**only £2195**

Fostex D160 + 168RC

**only £3599**

### Yamaha 03D

Yet another breakthrough from Yamaha in terms of quality, facilities and price! Up to 26 inputs (18 analogue standard), 18 outputs, 28 dynamics processors, 28 x 4-band fully parametric EQ, 20 bit A/D D/A, motorised faders, mouse input, MIDI machine control, 2 internal FX processors, large integral screen, 4 aux sends, surround sound.

+ FREE Sony DTC A6 Dat recorder

+ FREE Beyer DT100 headphones

**only £2999**

### Yamaha 02R

This monster, launched last year, is still one of the most highly desirable pieces of pro audio hardware around. Up to 40 inputs (24 analogue standard), 40 x 4-band fully parametric EQ, 20 bit A/D D/A, motorised faders, 8 aux sends, large integral screen, optional meter bridge.

+ FREE Panasonic PDR04 CD Recorder

**only £5999**

**EXCLUSIVE!**



### Phonic MM122

- 4 mono channels & 4 stereo channels
- pro quality slider faders • gain control on all channels except 9-10 & 11-12
- high & low shelving EQ's, 10dB • phantom power
- 2 aux sends & 2 stereo aux returns
- pre/post switchable inserts on channels 1&2 and post fader inserts on 3 & 4
- 10" rack mountable

**only £199** plus FREE UM7 mic worth £50



**Behringer Eurodesks and Euroracks at incredible new low prices!!**

Behringer MB0000 Micor Bridge for MD0000 Eurodesk in stock - RRP £299  
Also 'Cybermix' automation software for PC - suitable for any desk with insert points! - RRP £499



**Unbeatable deals on SR Series, 8 Bus Consoles and 12, 14 + 16 Channel VLZ Models**



### Soundcraft Spirit Studio

These superb mixing consoles are available in 3 configurations: 16/8/2, 24/8/2 & 32/8/2 and feature:

- in line design • up to 72 inputs at mixdown (32ch)
- up to 32 discrete tape sends • 8 bus group section and stereo master • fader flip to save repatching
- 6 versatile aux sends • 4 stereo FX returns with EQ
- 4 band EQ (2 sweep mid) • EQ switchable between signal paths • 2 band EQ on each group bus
- PFL, soloing on all channel and monitor inputs etc.

Legendary Soundcraft quality at a fraction of the original price!



### Power Amps

Omniphonics Footprint 70x70x10	RRP £399	Our Price £279
Samson Servo 120 70x70x10	RRP £199	Our Price £149
Samson Servo 170 120x70x10	RRP £279	Our Price £229
Samson Servo 260 260x70x10	RRP £299	Our Price £249

Yamaha, C Audio, Crown, Alcis - Great Prices!  
Absolute Zero's PLUS Samson Servo 120 bundle RRP £349

**£329**

### Monitoring Magic

Unbeatable Deals on monitors and monitoring systems by Yamaha, Alcis, Soundcraft, Tannoy, KRK, JBL etc.



**20% off Alesis Point 7's**

Superb small nearfield monitor, magnificently screened. RRP £249

**only £199**

Samson Servo 170 PLUS Point 7's RRP £478

**only £349**



**Soundcraft Absolute Zeros**

**PLEASE BRING!**



**Absolute 2's - Still a best seller**

**PLEASE BRING!**

**only £249**

**only £199**

**only £149**

**only £99**

**only £49**

**only £29**

**only £19**

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**MV Portastudio Added Value Packages**

From the company that originally conceived the P.P.D. (Portastudio Package Deal), comes the latest in a long line of superior bargain offers!  
Not One but Two Added Value Packages for you to choose from...

**Added Value Package One**  
Retail Value £49.00 Inc VAT

- CD quality Headphones
- Three Maxell 90 chrome tapes
- Head Demagnetiser
- Head Cleaning Kit



- Phone VM87 Mic & Cable
- CD quality Headphones
- Three Maxell 90 chrome tapes
- Head Cleaning Kit



**Portastudio**

**Fostex XR3** The new budget standard

- 16-bit 44.1kHz AD/DA
- 2 x 1/2" stereo inputs
- 2 x 1/2" stereo outputs
- 2 x 1/2" stereo outputs
- 2 x 1/2" stereo outputs
- 2 x 1/2" stereo outputs

**Fostex XR5**

- 16-bit 44.1kHz AD/DA
- 2 x 1/2" stereo inputs
- 2 x 1/2" stereo outputs
- 2 x 1/2" stereo outputs
- 2 x 1/2" stereo outputs
- 2 x 1/2" stereo outputs

**Fostex XR7**

- 16-bit 44.1kHz AD/DA
- 2 x 1/2" stereo inputs
- 2 x 1/2" stereo outputs
- 2 x 1/2" stereo outputs
- 2 x 1/2" stereo outputs
- 2 x 1/2" stereo outputs

**Tascam Porta 03**

- 16-bit 44.1kHz AD/DA
- 2 x 1/2" stereo inputs
- 2 x 1/2" stereo outputs
- 2 x 1/2" stereo outputs
- 2 x 1/2" stereo outputs
- 2 x 1/2" stereo outputs

**Tascam 414**

- 16-bit 44.1kHz AD/DA
- 2 x 1/2" stereo inputs
- 2 x 1/2" stereo outputs
- 2 x 1/2" stereo outputs
- 2 x 1/2" stereo outputs
- 2 x 1/2" stereo outputs

**Tascam 424 Midl**

- 16-bit 44.1kHz AD/DA
- 2 x 1/2" stereo inputs
- 2 x 1/2" stereo outputs
- 2 x 1/2" stereo outputs
- 2 x 1/2" stereo outputs
- 2 x 1/2" stereo outputs

**Yamaha MT50s**

- 16-bit 44.1kHz AD/DA
- 2 x 1/2" stereo inputs
- 2 x 1/2" stereo outputs
- 2 x 1/2" stereo outputs
- 2 x 1/2" stereo outputs
- 2 x 1/2" stereo outputs

**Yamaha MT4X**

- 16-bit 44.1kHz AD/DA
- 2 x 1/2" stereo inputs
- 2 x 1/2" stereo outputs
- 2 x 1/2" stereo outputs
- 2 x 1/2" stereo outputs
- 2 x 1/2" stereo outputs

**Added Value Package Two**  
Retail Value £100.00 Inc VAT

- Phone VM87 Mic & Cable
- CD quality Headphones
- Three Maxell 90 chrome tapes
- Head Cleaning Kit

PLUS... **Added Value Package One** OR **Added Value Package Two**

£229	£249
£315	£335
£429	£449
£179	£199
£329	£349
£429	£469
£279	£299
£379	£399

**Digital Tape Multitracking**



**Alesis ADAT XT**

RRP now only **£1999**

**Tascam DA88**

Call now for the very best deals on these superb products!

**M.V. EXCLUSIVE! PACKAGE DEAL**

ADAT XT plus Soundcraft Spirit Studio 16-8-2 Desk  
our price only **£2699**



**Fostex D80**  
8 Track Hard Disk Recorder

and now the fabulous new...  
**D90 and D160**

featuring: vari-pitch, enhanced synchronisation, ADAT digital interface, 9 virtual reels, SCSI option, balanced I/O option.

D80 plus Soundcraft Spirit Studio 16-8-2 Desk only **£2099**

D90 plus Soundcraft Spirit Studio 16-8-2 Desk only **£2329**

D160 plus Soundcraft Spirit Studio 16-8-2 Desk only **£3499**

**2 FREE Microphones!**



**Roland VS-880 VXPanded**

Announcing the incredible VS-880 VXPanded system expansion kit for VS-880, providing powerful additional functions to this innovative digital studio workstation... A complete mixing console recording with an 'echoed effect' in '8-track' mode, effect insertion for master out, scene change by track program change (message), simulation of playback of tracks in 'master mode' recording, digital output with copy protection, 10 additional effect algorithms, 30 algorithms in total, voice transformer, mix simulator, 14 band vocoder, 10 band graphic eq and vocal canceller plus over 20 powerful features in editing/processing sections.

Price includes 2 FREE Audio Technica studio mics, ATM31A vocal and Pro 9D drum/instrument, worth £250!  
**£1699**



**Fostex DMT8 VL**  
8 tracks of CD quality digital recording for under a grand!

• 540 MB internal hard drive - user upgradeable • 3.5" expansion bay for soon to be released EIDE and SCSI interface options • 16 Bit 44.1kHz, no compression

SCSI option now available **£199**

Plus FREE Music Village portastudio "Added Value Package Two" (excluding tapes and head cleaning kit - You won't be needing those!)



**Yamaha MD4**  
Digital 4 track on Minidisk

- 3 Band EQ
- Mic/Line switch & gain
- Aux send/return
- Instant search/locate
- Cue list system
- Separate track outs
- Large LED screen
- Auto punch in/Rehearsal

Plus FREE Lexicon Alex Digital Reverb only **£785**



**Sony MDM-X4**  
Digital 4 track on Minidisk

- 10 Input 4 Bus input system
- 4 Mic/Line mono inputs
- 1 Stereo input and 2 Stereo return inputs
- PLUS 2 Aux sends
- 3 Band EQ on mono ins
- 2 Band EQ on stereo ins
- M/M/MTC compatible
- Mix-write function - Stereo Bouncing
- Track/section/long edit
- 11 point Locate function
- Undo/Redo
- Jog Shuttle
- Large Display
- Includes 2 FREE Disks

Plus FREE Lexicon Alex Digital Reverb only **£795**



**Tascam 564**  
Digital 4 track on Minidisk

- Sequencer style editing
- 4 Balanced XLR inputs
- Non-destructive track bouncing
- 4 Stereo inputs with 2 Band EQ
- Bounce forward gives 10 tracks before erasing
- 4 Mic/Line inputs with 3 Band EQ
- Individual track outs & S-DFD digital out

Plus FREE Lexicon Alex Digital Reverb only **£1099**



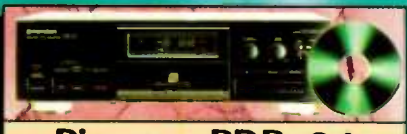
**Tascam DA38**

108 minutes of digital recording time, 44.1kHz and 48kHz sampling rates, superb quality.

UNBELIEVABLE NEW LOW PRICE! **£1999**

**M.V. EXCLUSIVE! PACKAGE DEAL**

DA38 plus Soundcraft Spirit Studio 16-8-2 Desk only **£2949**

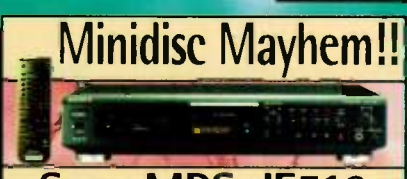


**Pioneer PDR-04**  
CD Recorder

Yes it's true - Now you can master direct to CD, for the price of a budget DAT machine. No computer needed, this is a stand alone unit!

ASTONISHING!! **£499**

PDR-05 Includes sample rate conversion **£599**



**Sony MDS-JE510**

Another coup for the Village buying department - Now you can digitally master on this popular format for an unbelievably low price! Being features such as combine, move and auto-cut, pg. list, digital input, full function remote control.

**£199**

**Sony MZR30**  
Something to fit your pocket - literally! The tiny portable version of Sony's wonderful minidisk technology.  
**£199**



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## Dynamic DAT Deals!

All under  
£1000



Sony DTC A6



Tascam DA20



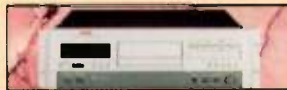
Sony ZE700



Tascam DA30



Panasonic SV-3800



Fostex D5

For the very best deals on DAT machines - Call us now!

## The Russians are coming!



### Nevaton CMC51

The Nevaton CMC 51 is an ultra high quality multi pattern capacitor microphone, designed and individually hand crafted for professionals. Dual diaphragm, pressure gradient capsule, configurable to any one of 4 direction patterns, integral 100dB attenuation pad switch enabling it to handle levels in excess of 120dB. Superb vocal mic but flexible enough to cope with any recording situation. In tests this mic has more than held its own against competition costing up to 3 times its price! (Neumann U87's, U47's etc.)  
Come and hear for yourself

**EXCLUSIVE** Only **£599**  
(Includes **FREE** Boom Stand)



## 37% off Soundcraft Spirit

True Diversity Radio Mic Systems  
DM-01 Handheld (AKG D3700 Capsule)  
or LM-01 Lavalier (Clip-on)

Superb quality radio systems at previously unheard of prices

The Village strikes again! Only **£199**  
Our Price



## Multicore Stagebox

30 metre high quality 20 way balanced stage box. 16 in 16 out with 16 XLR inputs and outputs with 16 in 16 out and 2 serial with outboard bus pass on I/Os.

**£299**



## 4 Way 19" Rackmount DI Box

A quality 19" rack mounted passive DI box with 4 independent inputs plus link to an outboard DI box. 16 in 16 out with 16 in 16 out and 2 serial with outboard bus pass on I/Os.

**£99**

## Computer Systems



### Pinnacle

Enhanced Full-Duplex soundcard

- 16-bit digital audio using AD-converters giving a signal-to-noise ratio of 100dB
- Optional digital VO (SPDF Clock) giving zero generation loss
- Mid sampling optionally upgradable to 48kHz of user service memory
- 2MB Kuzzle RAM on board with digital FX

**£449**

### Korg 12121/0

**RRP £599**

- Now available for Mac and PC
- Free out on ADAT optical format
- Stereo analogue I/O, SPDF, wordclock I/O

### Audiowerk8 by Emagic

2 in 2 out PCI soundcard with digital I/O. Fully compatible with any MacOS or Windows 95 computer.

**RRP £499**

### Masterport

**£599**

Affordable, professional multitrack hard disk recording and editing system for the PC.

- Hardware and software combined in 1 package
- High quality card
- Analogue and Digital I/O & MIDI
- 4 simultaneous I/O capability

### TripleDat

**£1290**

As Masterport system plus real-time effects, CD mastering including PQ coding and coding



### Yamaha DB50XG and SW60 Cards

In stock from only **£99**

### Wavelab 1.6

**RRP £329**

Stereo editing package, now supporting plug-ins and CD writing.

### CD-R Package 1

**£699**

Wavelab 1.6 software, external CD-R drive, 10 track, SCSI card and cables, E2 CD-R software, 10 blank CD-Rs

### CD-R Package 2

**£849**

Same as above but with 40 discs

### Cubase VST PC

**RRP £329**

On demo and trial offer

### Special Bundle Deal

Hurry Limited Stocks!

- Cubase VST for PC with Wavelab 1.6
- Wave AudioMaster
- Saw 6228

**£599**

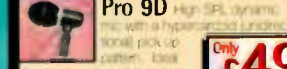


### MOTU Micro Express

- MIDI interface for Macintosh and Windows (3.1 and 95)
- Can connect to both a Mac and a PC at the same time
- 36 MIDI channels
- 4 independent MIDI IN
- 6 independent MIDI OUT
- SMFITE time code (LTC) generator and reader
- Converts LTC to MIDI Time Code
- MTC to sync a Mac, PC or any other device to SMFITE time code
- Supports MIDI Machine Control transport messages
- 16 presets with programmable, battery-backed memory
- Internal Power Supply (no Wall-Wart)

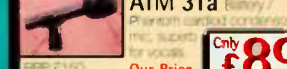
96 MIDI channels for Mac / PC **£299**

## Audio Technica Quality on a budget



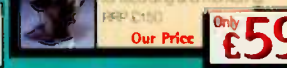
Pro 9D High SPL, dynamic mic with a hypercardioid pattern. Pick-up pattern: Ball

Only **£49**



ATM 31a Battery / Phantom powered condenser mic, superb for vocals

Only **£89**



ATM 910 PRO Professional studio microphone, perfect for recording and monitoring

Only **£59**

## Microphone Madness!

Shure SM58 & SM57 **LOWEST EVER!**  
Octava MK219 **£219** Rode NT2 **EPOA**

Audio Technica ATM 4033 plus 8441 cradle (was £695) **NEW LOW PRICE**

Audio Technica ATM 4050/CM5 (was £995) **NEW LOW PRICE**

Guaranteed lowest prices on all Mics



### AKG Mic Scoop

**£5900** - Exceptional condenser hypercardioid performance microphone which is equally at home in the studio

RRP £245 - **VILLAGE PRICE £149**

**D3700** - Professional dynamic vocal mics

RRP £129 - **VILLAGE PRICE £65**

**C1000S** - Cardiod/Hypercardiod vocal mic

RRP £281 - **VILLAGE PRICE £179**

**C3000** - Cardiod/Hypercardiod, large diaphragm

RRP £363 - **VILLAGE PRICE £249**

**WMS51 HT PLUS** - Handheld diversity radio mic - stunning quality at an amazing price

**FROM ONLY £199**

**3 FOR 2**



### Phonic UM97's

High quality dynamic Mic (SM58 copy)

**£45 each or 3 for just £99**

## Accessories Megadeals

Headphones  
Audio Technica ATH-M50 professional monitor type **£45 £29**  
Audio Technica ATH-M50 professional monitor type **£120 £99**

Power D110 **PLEASE RING**  
Soundcraft Mixer **£25 £20**

Phonic Range D52 - synchronises your then matches to your reference using MIDI - generate and edit all four SMPTE channels then convert to MIDI - **£995 £999**

Quality Mic cables **only £89**  
6 metre Jack - XLR **£6.99** 6 metre XLR - XLR **£7.99**

## Second Hand

Key: Ch=Chadwell · B=Barnet · C=Cambridge · Cr=Croydon

### Mixers

Mackie 1604	£ 550	Ch	Studiomaster Panned Phil 12-2	£ 249	Ch
Mackie M3 12-2	£ 249	Ch	Studiomaster Profile 16-2	£ 399	Ch
Alaris 1622 (16ch 6 auxes)	£ 349	Ch	Cambridge Prema 16-2	£ 349	C
Rane Micro 12-2-2	£ 299	Ch	Seck 18-8-2	£ 199	Ch
Studiomaster P7 32 ch	£ 1999	Ch	Tascam M38	£ 299	Ch
Dahl 1842	£ 399	Ch	Seck 12-8-2	£ 299	Ch
Soundcraft 6000 (36-8, 8 stereo channels)	£ 1999	Ch			

### Keyboards

Yamaha DX7	£ 299	B	Prophet VS	£ 1050	B
Korg M1	£ 599	C	Wong R99	£ 399	B
Korg 01W FD	£ 899	Cr	Roland D20	£ 399	C
Roland JX3P	£ 299	C	Roland A30	£ 249	Ch
Korg Prophecy	£ 599	B	Hammond XB2	£ 849	Cr
Taiwan SX240 Rare analogue	£ 249	Ch	Yamaha (S900)	£ 499	B
Gen S2	£ 499	B	Roland W33	£ 650	B
Yamaha SY85	£ 799	Ch	Gen S2 turbo	£ 899	B
Korg M3	£ 799	C	Roland D50	£ 499	C
			Korg X5D	£ 399	B

### Modules

Yamaha DXB02	£ 399	Ch	Korg E8000	£ 249	Ch
Kawai R1r	£ 199	C	Akai S01	£ 399	Ch
Roland U110	£ 199	Ch	Yamaha MU80	£ 349	B
Roland U220	£ 249	C	Roland D110	£ 249	C
Alaris DMS	£ 249	B	Akai S500	£ 199	Ch
Emulog SQ plus	£ 349	C	Kawai K1r	£ 249	C
Phonic Performance +	£ 199	Ch	Boss D1330	£ 249	Ch
Peavey Spectrum Bass	£ 229	Cr	Yamaha TXR17	£ 199	B
Korg M1r	£ 599	C	Novation BassStation R	£ 329	C

### Drum Machines / Sequencers

Roland CR80	£ 199	Ch	Kawai G80	£ 249	B
Roland MT100	£ 149	Ch	Roland MV 40	£ 425	B
Korg SQ8	£ 99	B	Roland MS100	£ 149	B

### Recording

Tascam 4880	£ 699	B	Digitec4 TSK12	£ 199	B
Phonic Address	£ 199	Ch	Tascam Portia 2	£ 249	Ch
Phonic MX5050	£ 599	Ch	TDA M8T 3-track cass	£ 499	Ch
Phonic Q103 E0	£ 149	Ch	Seck 18-8-2	£ 189	C
Alaris Monitor 2's	£ 449	Ch	Yamaha MT50	£ 149	B
Roland DX800	£ 1200	B	Drammer D121	£ 249	Ch
BSS DPR901 dynamic EQ	£ 499	Ch	Alari M614	£ 449	C
Sansui MR6 6-track cass	£ 349	Ch	Tascam 234 4-track cass	£ 299	Ch
Fostex 4050 remote/sync	£ 299	Ch	Langvin CRBa mic	£ 149	Ch
Studer master Viles Gate	£ 149	Ch	Phonic 4880 remote for 16	£ 299	Ch
Langvin CR3a mic	£ 349	Ch	Drammer DL151	£ 299	Ch









USA



**M**ost techno artists will carry on about getting the most out of their equipment, but Autechre take this ethos almost to the point of absurdity.

I don't say this lightly, but after I was given a guided tour of the entrails of a Casio SK1 home keyboard/sampler, it got me thinking about what lengths you can go to get to know your equipment without contravening a local by-law.

"See this chip here? If you connect any two of these points together, it crosses the samples together. You can get ring modulation, flangers, delays, and all this other timed-based stuff. So we're going to try and get a switch fitted on the back that can move across the points, that way we can adjust it in real-time in a live situation."

It's not like Sean and Rob of Autechre are so skint that they're having to fashion primitive electronic sleep boxes from bits of their neighbour's Skoda and a roll of double-sided tape. Oh no, their studio is replete with covetable kit, it's

graffiti gangs and dabbling in tape splicing, remixing vinyl cuts. Their edits were chunked up with the help of an 'acquired' Roland TR606 drum machine, and spiced up with the help of the beloved Casio SK1 'sampler'.

Their first big break came in 1992 after joining avante garde techno giants, Warp Records, in what would prove to be a partnership of mutual appreciation. Alongside such luminaries as The Black Dog and Aphex Twin, they came to prominence on the seminal *Artificial Intelligence* compilation. Soon after, their debut album, *Incunabula*, entered the UK Indie charts at Number 1.

Despite the best efforts of cynical 2 Unlimited-style sabotage, techno is still an underground movement, but even so, the sonic rules of membership are strict and the purveyors generally adhere to those rules with striking diligence — this is what keeps the nucleus of the movement alive. Autechre are the exception that proves the rule. Their work is quite literally without compare



# techno-logical

AUTECHRE

***Autechre's own take on techno is so far from the mainstream that the duo, Rob Brown and Sean Booth, can scarcely understand why anyone shares their tastes. The fact is that they do, in their thousands. CHRISTOPHER HOLDER heads to Sheffield to work on his studio tan.***

more the boys' obsession with getting their equipment to do precisely what they want it to do. Nothing is spared: Emagic *Logic Audio* has been so heavily customised its barely recognisable, their ageing Ensoniq EPS sampler has had its operating software replaced with something more in the Autechre image, while just about every synth in the studio bears some scars of customisation. Here is a group for whom 'Danger, no serviceable parts inside' reads, 'hack away boys, you might find something interesting'.

[Mental note: avoid buying used gear from any Sheffield number... just in case.]

## GO WITH THE FLOW

Autechre's music, not surprisingly, sounds like a love affair with their equipment. The actual story of how the duo started takes us all the way back to 1987 when Sean and Rob were grooming themselves for the life ahead by running with

(although there are some Aphex Twin overtones, and vice versa), and happily dispenses with conventions such as constant time signatures, resolving chord sequences, and the normal ebb and flow of song structure. This year, Autechre's new LP, *Chiastic Flow*, is a classic example: rich, flowing soundscapes counterpointing spikey, belligerent beats. But when is a departure from what's regular, one departure too many?

Sean: "That's the thing, what's regular?"

Rob: "You can go too far, but then that's for you to decide. We've found ourselves thinking at times that we might have gone too far. But we've always been in our own space — it's hard for us to imagine where that datum or line of reference lies."

Sean: "Maybe it's a curiosity thing as well. In the studio it's a case of 'wouldn't it be interesting if'. You then try it and you find that you like it, and once you've started doing it, then you don't think about any other way of working. You can't help but be single-minded, you get addicted to finding things that you like."

Rob: "Discovery is really important."

Sean: "It's finding something and thinking, 'that's really good actually,' then trying to understand it. It's definitely not about the musical process, we don't know anything about music; we still don't understand what music is really."

## GEAR SHIFT

Sean: "The first stuff we had was a [Roland TR] 606, a [Casio] SK1 and SK5, then a Boss delay unit. Then we got our [Roland MC] 202, a Tascam 244 4-track and a Juno 106. It's grown so slowly that we're totally *au fait* with it all. But you can't forget, especially with the amount of software that



# AUTECHRE

► we've got now, that it's very easy to get into a specific way of working and to forget what it's like to use an analogue synth, to have to deal with 40 controllers at once, for instance."

Rob: "Modern software is so possessive, it draws you in and you stay there with it, you become a bit of a convert to it. I can see that happening to a lot of people around us as well: 'look at this, try that'."

"A couple of months ago we bought the Kenton Pro4, and our old Korg MS20 which we had to

## BROADCASTAWAYS

Rob and Sean had been regular visitors to the Mancunian airwaves for years, transmitting on a late night weekend spot for KISS 102. Fans will be interested to hear of the politics surrounding the show's demise.

Sean: "They kicked us off. I think because the advertisers complained. They phoned Andy who lives in Manchester and did the show most weeks with us: 'It's going really well but we'd like to bring you in and discuss some ideas. You know that one track you played that we talked about? Well it would be great if you could play more music like that. It's supposed to be a chillout show.' So they were giving

Andy this lecture and he walked out...as you do."

Rob: "They'd done a report on listening figures and that show was getting 100% listenership in that slot, and I think the sponsors got well into the idea of all those people listening and wanted to move the show in their own direction. KISS are also franchised out to Yorkshire as well."

Sean: "They said they might book us for that, which we'd consider as long as they don't give us any of that bullshit."

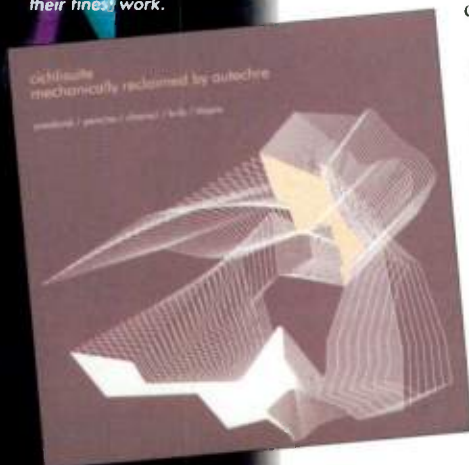
*Do you miss it?*

Sean: "Definitely man, it was a laugh. We were able to take in DATs and shit loads of stuff to play that wouldn't normally leave these four walls."

As they say: keep this frequency clear.



*Incunabula: Autechre's first LP and still regarded as some of their finest work.*



*Cichlisuite: The latest single, some tracks entirely written with the Nord Lead.*

delay on the 4-track because it was out of time with the trigger, was all sorted out. Now we can do anything again with our old gear; it's totally in sync with what we do on the computer. Wild really."

Sean: "It's decent being able to use the [MC]202 sequencer again."

Rob: "Yeah, it's not just slaved to the computer, with MIDI note velocities and all that, you can work within the 202."

Sean: "We could get the same results if we used the sampler but it's just having to use that interface. Some people might think it's a backward step, but it isn't."

Rob: "It forces you to be led into different territory."

*So let's talk sequencers then.*

Sean: "I like the 202 sequencer. It's like playing dominoes or something."

Rob: "It's more like working with Lego I think."

Sean: "As long as you know what you're doing it's like operating any machine. I think. For instance we can sequence patterns well fast on the [Roland TR] 606, and we can do stuff well fast on the [Roland] R8, and they're two totally different drum machines in terms of the way that you program them. They're polar opposites — with the 606 it's all flashing in front of you, while you're working blind with the R8.

"If you're using *Logic* you're not blind to anything, everything is totally visible. Quite often we'll find ourselves turning the monitor off in the studio because that's the only way of telling how much there is sometimes. ►

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# AUTECHRE

## SOME OF THE AUTECHRE HARDWARE

- Roland Juno 106
- Roland MC202
- Roland TR606
- Roland R8
- Ensoniq ASR10
- Ensoniq EPS
- Ensoniq DP2
- Alesis Quadraverb
- Kenton Pro4
- Clavia Nord Lead
- Korg Prophecy
- Casio SK1
- Casio SK5
- Cascom RZ1 sampling drum machine "That's really old school. The sampling quality is crap but it sounds awesome."
- Philips Oscilloscope "We have a lot of problems with high frequencies, so we try and keep an eye on it. We also occasionally write tracks that look good on the oscilloscope. Unfortunately it tends to be really basic rave stuff."
- Yamaha DX11
- Tascam 24 channel mixer "Fat as f\*\*k. We like the range and flexibility of the EQ a lot."
- Korg MS20
- Alesis Point 1 nearfield monitors "We replaced our NS10s with these because we thought our music was suffering."

▶ especially using Logic or Cubase. Meanwhile with the R8, it has a pretty decent sequencer, but no real visual interface."

Rob: "With the R8 it's almost like you have to know the sequence inside out, through having it in there and in your head, rather than being able to quickly refer to it every time you're not quite sure about something. With something like *Logic* you can be totally consumed by the screen. You know what all the dots mean, but after hours of staring, it can lose all significance — you're not listening to the music."

Sean: "We've got a big enough computer to have three or four sequencers, but we use *Logic* over anything else because it's got the environment that we're most comfortable with."

Rob: "As it stands, *Logic* seems to have all the best aspects of all the available sequencers, and we grew up on *Creator* as well, so we just fit into that German thing quite easily."

### MIX UP

*Are there many knocks on the studio door to get the Autechre slant on a single?*

Rob: "We get a few and we tend not to turn anything down. We're well into remixing."

Sean: "That is unless we're spewing with ideas, then we won't go near a remix, because you think, 'why would I waste these great ideas on this cheesy, made-for-Japan remix'. Usually we're not too busy and we have a laugh doing them. You can get a DAT full of anything..."

Rob: "... and from the onset you can picture the remix you're going to do. We did a Jap thing the other month and we knew it would only take a couple of days. Then we've got the Stereolab remix coming up and I can imagine that we'll spend ages on it."

Sean: "We've never made a judgement like, 'we only remix tracks that we like listening to'. In fact we quite like doing tracks that are shit, because you can always make something out of



"We also occasionally write tracks that look good on the oscilloscope. Unfortunately it tends to be really basic rave stuff."

"...we don't know anything about music, we still don't understand what music is really."

them that you like."

An Autechre remix might be remarkable for many things but not for its homage to keeping the original tune in any recognisable form.

Sean: "No, no, our remixes are all from the original, it's *made* from the original. Usually it's all samples of the original track."

Rob: "Although, I see your point, people hear it and think, 'erm...where's it gone?'"

Sean: "Our excuse is, we use the same source material as they do, we just approach the source material in a different way."

Rob: "It's quite rude in a way."

Sean: "No it's not. It's just taking remixing to its logical conclusion — well, not even a conclusion — it's still taking the constituent parts of the tracks and making a new track from those parts. Usually people stick a breakbeat underneath it and that's often seen as more of a remix than us just taking the sounds used in the original track."

Rob: "That's the traditional view: dub it up, stick reverb on the hi-hats or whatever. I reckon some people get offended by our remixes because it's almost like a rude gesture saying, 'we started with the same source material as you, but we've come up with *this*.' People might take that as a personal insult, although I doubt it."

Sean: "I don't think they give a shit!"

Rob: "But you could see how that point could be made. You're not just adding bits and pieces."

Sean: "That's almost the opposite of remixing though, it's not mixing at all is it?"

Rob: "But does that make what we do 'reproduction'?"

Sean: "No, it's a re-interpretation from a certain viewpoint, that's all it is."

## AUTECHRE ON THE NORD LEAD

Sean: "The Nord is f\*\*king tasty, I don't know why you guys don't totally rave about it. Last year it was all Prophecy this, Prophecy that, that's all I read about."

Rob: "I think people underestimated what the Nord could do, and it was quite expensive when it first came out."

*And the polyphony wasn't so great.*

Sean: "There's a couple of tracks on the *Clichisuite* single that are entirely Nord. I think you'd say that our music is well f\*\*king complicated, so how much polyphony do you want?"

Rob: "People assume that the amount of polyphony equals the breadth of your options, but with the Nord you might have a sound that runs for eight seconds and doesn't sound the same more than once."

Sean: "It's so lush having that [pointing at the Nord's control surface], you have no idea. Most of the gear that we like to use gives us a good result because it has this sort of interface."

Rob: "I think the the Nord has been the most inspirational piece of gear that we've worked with, it's pushed us to get all our other gear to try and emulate it."





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## AUTECHRE ON ENSONIQ SAMPLERS

Sean: "We use modified software on the sampler for live work. We found some nerd in America who writes interesting software."

Rob: "We were then able to take the sampler input and convert it to a thru for a start. Then we were able to use the software to write our own effects in the EPS."

Sean: "It's even better than the [newer, more powerful] ASR-10. You can select samples independently from the sequencer, which means that as the sequencer is running you can select your sample and edit it, turning it into a synth really. It's already got a decent OS in there, but it's really easy to modify as well."

Rob: "It's really only the American manufacturers, Ensoniq and Emu, that turn their gear into synths and not just sample playback machines."

Sean: "The EPS is just like using the Prophecy

really. Everybody beats on about how smart the Prophecy is but we've been able to do that with samples for years. Much of the multiple LFO routings and the assigning of controllers to modulate controllers and so on, we can do on the EPS — setting up quite elaborate patches on it really quickly. It's weird that Ensoniq is getting ignored in preference to Akai, which admittedly is a tighter more accurate sampler, but it still lacks a lot of scope for exploration, you can't really do a lot with it. With the EPS and the ASR-10 we're still finding things, like changing aspects of effects that you're not supposed to be able to alter."

*Although when you originally bought the EPS you obviously didn't know what you know now.*

Sean: "No, we bought it because we got a good deal."

Rob: "And it had on-board effects. We thought,

'it's only got two outputs but then it does have effects — f\*\*k it, we've only got this much money'. Before that the only sampler we had was 1.4 seconds worth on our Boss delay, so anything on top of that was a luxury."

Sean: "By necessity we've struck up a good working relationship with our samplers. The only current sampler that we would get, knowing what we know now, is probably the Kurzweil. It's the only thing that I've used that intrigues me."

Rob: "Emus as well, they seem to have a lot to them."

Sean: "Just in terms of the editability if you put a sampler into a synth you know you'll be buying all those synth facilities, whereas if you're just buying a sampler then that can be limiting. I think a lot of manufacturers still see the sampler as being limited in those respects, which is bullshit, considering the amount of DSP chips that they pack in there. There's so much you can potentially do with them."

► I had to intervene before the lads reached for the Roget's and Oxford Concise.

*What about remixing/reproducing/reinterpreting Autechre, what's the policy?*

Sean: "We haven't really given anybody the opportunity."

Rob: "We sometimes get people sending us unsolicited versions of our tracks."

Sean: "To be honest I think it's quite hard for people to separate our tracks to remix them. When we do a remix, most people send us the sounds, the individual tracks or they'll send us individual samples. Our music isn't always that easily separated."

*What about a more conventional approach to remixing an Autechre track. Take 16 bars of a tune that has some conventional club appeal for instance, and have it remixed by David Morales, Todd Terry, Tiny Tim or whoever?*

Sean: "It's certainly something we've contemplated. The only people that we'd want to remix our stuff at the moment would be Stock, Hausen and Walkman. They're the only people I reckon who would remix it in a way that we would be happy with."

But just when I had Sean thinking more conventionally about the remix process, Rob steps in.

anything else, and you can't understand why it's being played, because it's so different. My response to first hearing Warp tracks was, 'I'm into it, so why is everybody dancing to this?' Then we found out that they're from Sheffield. So we have loads of respect for them, where they've come from and where they're going as well."

Sean: "It does go back to being fans of the label. When Frequencies came out, and Test Tone, we were like, 'shit!'. You think that you're the only ones interested in this weird music that you can't put your finger on, and there's this label that's banging loads of it out — hearing exactly the type of stuff that you think is where music should go, and it's all on your doorstep. We're not fans of anything really, but in Warp's case we can almost make an exception — instant respect."

"...having the ideas, that's something you can't learn."

Rob: "Some PR agency sent us this free portable MiniDisc player, that could remix our tracks."

Sean: "Yeah exactly. f\*\*king wicked!"

Rob: "You can just give each bar a different ID mark then press random play, and it's seamless. That way you get a different mix everytime."

Who said MiniDisc players would never catch on?

## PURE AND (NOT SO) SIMPLE

Autechre write very much to their own agenda and are seen in techno circles as being the purist's purists. Superficially, many will note that a purist in this sphere is anyone who can sacrifice all musical content for the sake of showing off what their gear can achieve. This couldn't be further from the truth in the case of Autechre. For them their compositions are about shapes, colours, movement, and the process of coaxing their equipment into more challenging ways of reproducing those pastiches that exist in their collective consciousness.

Rob: "It's interesting looking back on our old stuff. It's mostly pretty amusing, but sometimes you'll find ideas that you're still pursuing heavily now, and you didn't even realise you were pursuing then. That's the real magic in it — knowing you had the ideas all along. We think we know loads about what we're doing, but then you realise you instinctively knew it back then, without having a clue about how you were doing it."

Sean: "We had all the ideas back in 1988, we just didn't have the gear. The only thing that helps us on our way, or accelerates our progress, is being able to assemble things more quickly. In terms of having the ideas, that's something you can't learn."



## WARP FACTOR

Warp are one of the more prominent independent labels in the UK. On their roster you'll find names like Jimi Tenor, LFO and Squarepusher. Autechre have been with the Sheffield-based label for five years now.

Sean: "Warp are cool. They're still solidly into this thing where if they like something they'll stand by it. Warp has this self belief that I don't reckon most labels actually have."

Rob: "I think that was what got us interested in Warp in the first place, they were just such an icon as well."

Sean: "And they were prepared to take chances."

Rob: "From the outside you don't see that, all you hear is new music that's totally different to



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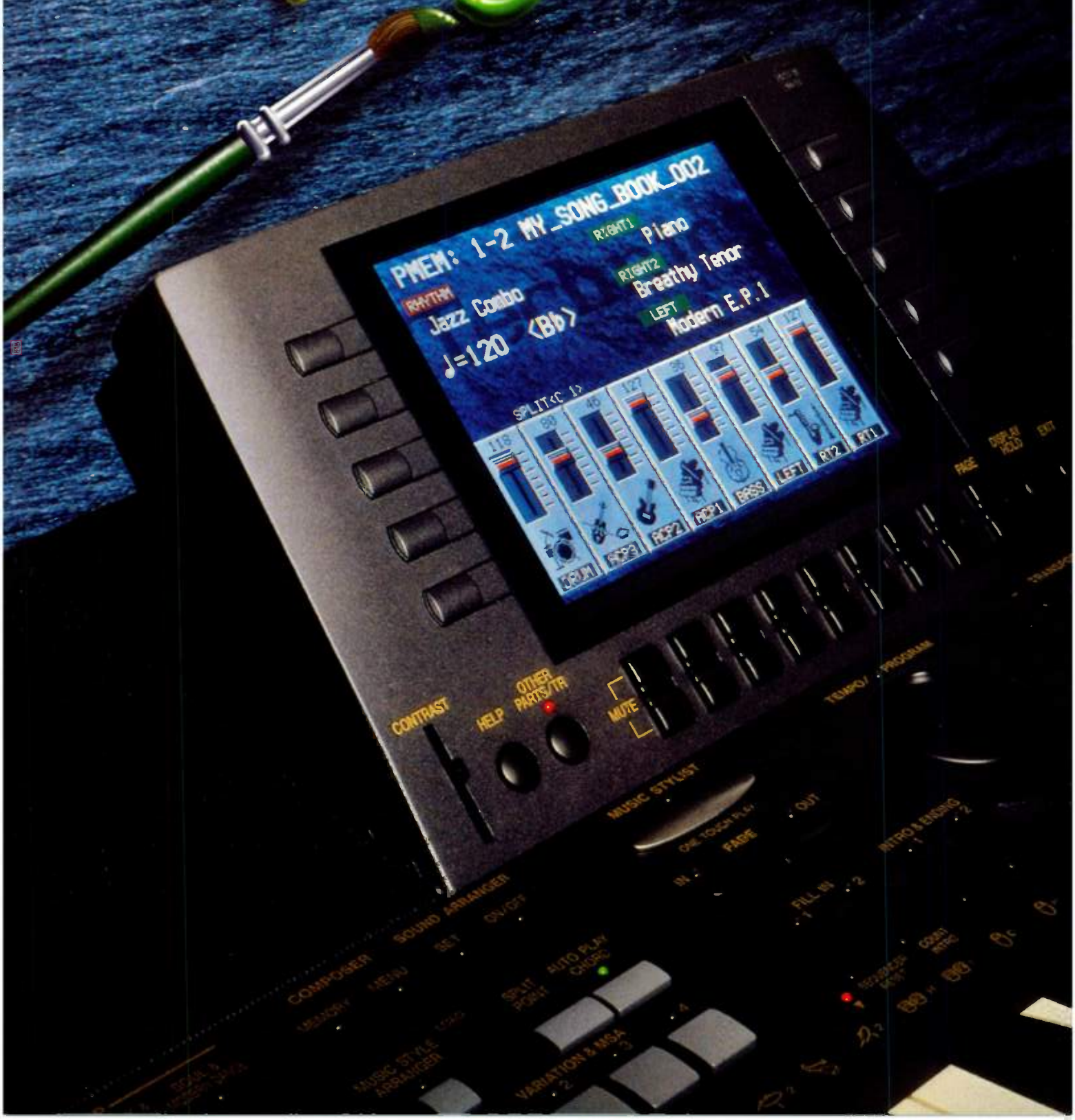
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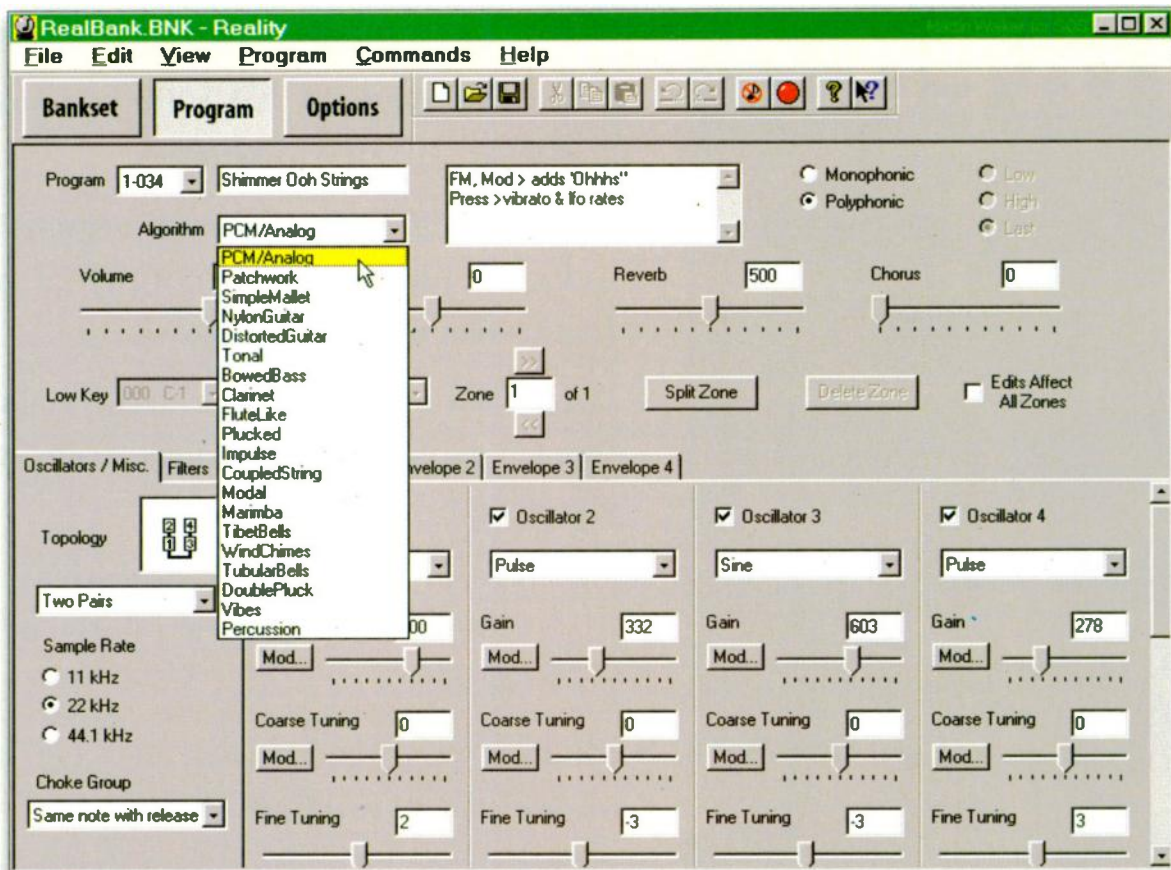


Figure 1: The Program screen shows the amount of flexibility on offer. There are 20 algorithms in the drop-down list, and notice that the scroll bar (bottom right) indicates that of the specific controls for the current algorithm, only about a third are on-screen — there's lots more to play with!

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**T**his took me by surprise. Once I'd installed the Reality software, and plugged in a MIDI keyboard, I lost a number of hours in the twilight zone. There are some gorgeous sounds in here, and it only takes a few seconds to forget that you're actually playing a PC soundcard. I wasn't expecting love at first sound, but that's what happened.

The name Sondius may seem familiar, and if I mention the AWE64 Gold soundcard and WaveSynth/waveguide synthesis, you'll probably remember the connection. Sondius provided the

software technology for Creative Labs to add some basic physical modelling sounds to their latest soundcard, for more realism and expressive playing. I'm sure everyone who bought a Gold card tried these out, and they were certainly significantly better than the equivalent wavetable sounds, but not exactly jaw-dropping, and a bit of a fiddle to use. Well, if you think of those sounds as an appetiser for the real thing, Reality is most definitely the main course.

Reality is a software-based synthesizer (fully 16-part multitimbral and 64-note polyphonic), incorporating Sondius technology, and developed by Seer Systems. This Californian company has Dave Smith as its president (the person behind MIDI), as well as an impressive list of credits. Unlike the first waveguide synthesizer, Reality uses an open-ended system which currently allows waveguide (physical modelling), subtractive (analogue), FM, modal (using a bank of resonating filters), and PCM (sample) techniques, to create a much greater variety of sounds. The open-ended design allows new features and further synthesis methods to be easily added — a vocoder has already been mentioned.

No doubt, at this stage, many people are expecting the usual scenario — create sounds on the computer screen, press the Synthesize button, and then wait several seconds at least while the sound is 'rendered' down to a WAV file, so you can play it via MIDI. Well, you're wrong. Reality is far more powerful than that — everything is created



not only in real time, but with low latency (the time delay between pressing a key and hearing the sound). As soon as I started playing *Reality* sounds, it was just like having another synth module in the rack. There are even reverb and chorus built in!

## WHAT DO YOU NEED?

Seer have worked closely with Creative Labs to enable such low-latency performance, and for this reason *Reality* only currently works with Creative 16-bit soundcards (SoundBlaster 16, 32, AWE32, AWE64 and AWE64 Gold). This is because the *Reality* drivers hook into the Creative audio drivers at a fairly low level. The company are working on many other soundcard options at the moment, and some additional drivers are expected by November. Of the Creative cards, the AWE64 Gold is the recommended option, since this has S/PDIF digital output, which allows higher-quality performance to be achieved by using external D/A converters.

Since the synthesis is performed in real time, a relatively powerful processor is needed — at least a Pentium 133MHz, and preferably faster, and a minimum of 24Mb of RAM. For once, having MMX actually makes a significant difference. The higher the speed of your processor, the more polyphony you are likely to get before you run out of steam. Although *Reality* will run with a Pentium 90, polyphony will be rather limited — and if you have an Intel 266MHz Pentium II, this will generate four times the number of voices as the minimum recommended Pentium 133. You get the idea? Apart from the Intel Pentiums, the AMD K5 and K6 range will work, as will the new Cyrix MMX range, but not the earlier Cyrix 6x86 processors.

The Seer Systems web site has a benchmark page which shows relative performance for a range of processors. As an example, a Pentium 166MHz (non-MMX) will use 5% overhead to play a 44kHz voice using two oscillators and a single filter. If you

set up *Reality* to use up to 80% of processor power (see later for more details on the options), then you will manage 80/5 or 16 simultaneous voices. The same sounds using a Pentium 200 MMX will use 1.8%, giving 24 voices. The maximum polyphony available to *Reality* is 64 voices.

## INSTALLATION

The software comes with a hardware dongle that plugs into the parallel port, and this co-existed quite happily with those already in my machine for Steinberg's *Cubase Score* and the Waves *Native Power Pack*, although my dongle chain is beginning to bend like a banana under its own weight. The software installed quite easily, and I was soon playing away via a MIDI keyboard. Banksets contain a selection of sounds grouped together, and as well as the individual patches for each sound, these can also contain sample data. Although *Reality* sensibly loads up by default the Bankset that you used last session, most of the supplied ones (200Mb in total) reside on the CD-ROM, to save hard disk space. With my ancient double-speed CD-ROM drive, it was 35 seconds before the screen first appeared, which was a bit tedious, especially if I wanted a different bank that session — it would be useful to be able to disable this feature.

Once loaded, the software splits neatly into three main sections, each on a separate page: Bankset, Program, and Options. Bankset shows a scrolling list of available sounds in a particular bank, along with details of the algorithm type and some short text descriptions of how the sound has been constructed. The Options page allows you to set up the sounds in context. Choices include Volume, Transpose and Fine Tune, MIDI settings, Chorus and Reverb (these are global settings that apply to all current sounds), and Key response (adjusting both velocity and

## pros & cons

### SEER SYSTEMS REALITY £349

#### pros

- Wonderful sounds.
- Very flexible architecture.
- 20 different synthesis algorithms, including many physical models.
- Fast real-time performance with up to 64 voices.
- 16-part multitimbral.

#### cons

- Only currently works with Creative Labs soundcards.
- No normal WAV playback ability while running.

#### summary

An extremely impressive, versatile, and creative use of your PC, *Reality* sounds like an expensive rackmount synth module.

**SOUND ON SOUND**

## SAMPLE SOUNDS

Seer provide a total of 200Mb of Banksets, including many drum loops in various styles, synths (Ambient, Basics, Electron, and Organica), as well as Pcmbanks (Drumbase, Folkinst, Gndpiano, Guitars, Keys, Organ, Strings1, Woodbras). Since *Reality* has access to such a variety of synthesis methods, there's no overall characteristic sound: you're just as likely to hear realistic renditions of acoustic instruments as fat analogue synths or metallic and breathy digital tones. If you find a PC with *Reality* installed, get plugged in and try the following from the default Bankset (Realbank.bnk). Most sounds respond to keyboard pressure and the mod wheel for extra expression.

- **FOG VOICES:** Wonderfully ethereal and haunting.
- **CLASSICAL NYLON GUITAR:** just to prove how good the synthesis is.
- **JUPITER FILTERS:** a synth pad with moving filters and overlaid with warbles.
- **HARMONIC HEAVEN:** just the thing to make those Adrian Belew animal guitar noises.
- **ORGABELL:** a believable hybrid of two completely different instruments.
- **LOST IN THE MATRIX:** a tribute to Oberheim's analogue machines, using a total of four oscillators for a rich experience.

If the rest of the Banksets have been transferred from the CD-ROM, try the 9Mb grand piano as well!

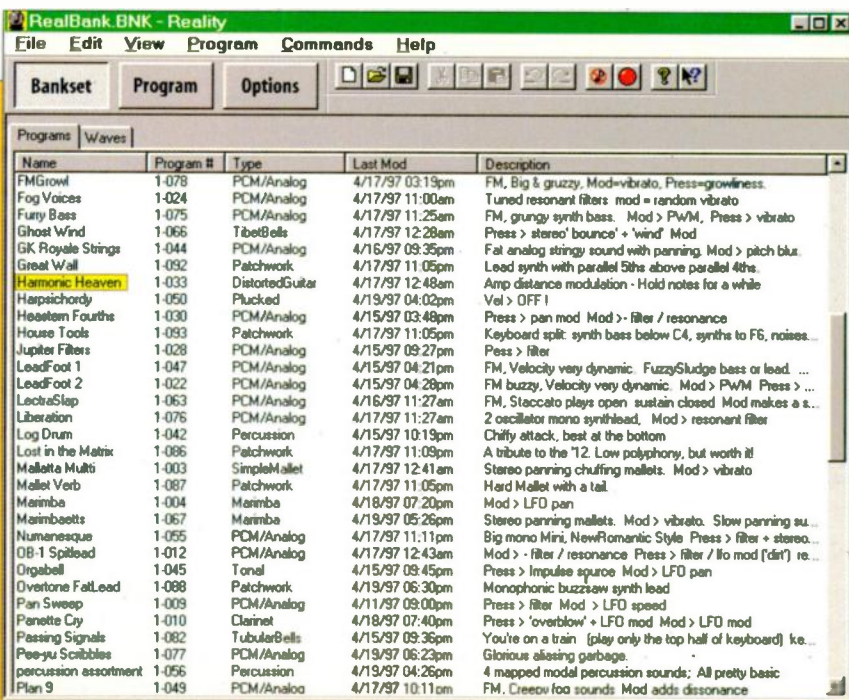


Figure 2: This Bankset screen shows some of the default patches on offer (the highlighted *Harmonic Heaven* is my personal favourite). The Type column shows the synthesis type used in each case. Impressive, eh?



“There are some gorgeous sounds in here, and it only takes a few seconds to forget that you’re actually playing a PC soundcard.”

▶ pressure sensitivity to suit different keyboards, actions, and sounds). Synth performance allows you to tailor *Reality* to your machine and application — Max CPU (20-80%) sets the amount of your processor power that you want to devote to synthesis (if you plan to run a sequencer as well, it might be wise to wind this down a bit), while Max Polyphony (1-64) limits the number of simultaneous voices. Reducing polyphony can result in more consistent performances if your system is tottering on the brink.

Optimise For (Faster Response or More Voices) allows you to lower the latency when playing from a keyboard, for a faster key response, or to allow more power to be diverted to playback, which is more suitable when you’re employing a sequencer. The final section on the Options screen is Capture, and this is a clever way round the current main limitation of the software — that when you’re running it, your normal WAV playback is inoperative. By selecting a Capture file, you can save the entire performance of *Reality* straight to hard disk. Although primarily intended

## SOUND CREATION

The Program page is where all the really creative things happen. As always, it’s easier to start with an existing patch than a blank canvas. The upper half of the page holds general data, such as program number, algorithm type, volume, pan, reverb and chorus levels, choice of monophonic/polyphonic, and control of multiple zones, where several samples have been mapped across the keyboard range. The drop-down list of algorithms starts with PCM/Analogue, and although many of the sounds use this, it’s not the cop-out you might expect (using amazing samples to cover up weak synthesis). In fact, not only can up to four oscillators be used in a single patch, but also their ‘Topology’ (interconnection) can be set to one of four options. The simplest is all four in parallel, for fat analogue synthesis, but the other three are used for FM synthesis: Two Pairs (2 carriers, 2 modulators), Three into One (1 carrier, 3 parallel modulators), and All in Series (1 carrier, 3 cascaded modulators). So, samples can be used as basic sound sources, but also as modulators for FM, which adds far more scope for sound manipulation (as in Yamaha’s SY series).

Nine internal waveforms are also provided: sawtooth, sawtooth2 (with some of the harmonics already rolled off), square, triangle, pulse (with full width adjustment), sine, white noise, red noise, and violet noise. Many of the analogue patches use these alone. Each of the oscillators can have its level and frequency (coarse and fine) set, or controlled from one of the available envelopes, as well as having random pitch added and the velocity response tweaked.

The other distinguishing feature of the PCM/Analogue synthesis algorithm is the provision of filters. Again, up to four can be used (one for each oscillator), although if you don’t need to use a filter you can select Pass Through (no filtering at all) or No Pass (everything filtered, that is all frequencies blocked), which will both keep the processor overhead lower. Available types are low-pass, high-pass, band-pass, notch, and resonator. Of these, low-pass is the most familiar, as it’s present in most analogue synths — the resonance control is lovely, really lifting the harmonics as it sweeps through its frequency range, although the Q can’t be set high enough for the filter to go into self-oscillation. The high-pass and band-pass options are the route to some of the more interesting sounds, and notch is simply the opposite of band-pass, but it’s the final one that intrigues the most. Resonator acts much as a band-pass filter, but attenuation is much more rapid out of the pass band — you can send in white noise, and a breathy note emerges, rather than tuned noise. Since all synthesis is digital, stability is ensured. Thankfully, Seer have allowed wide variation on every control, although some of the gain adjustments need to be made carefully because of this, to prevent possible overload.

The Patchwork algorithm simply allows up to 16 existing patches to be combined into a single unit

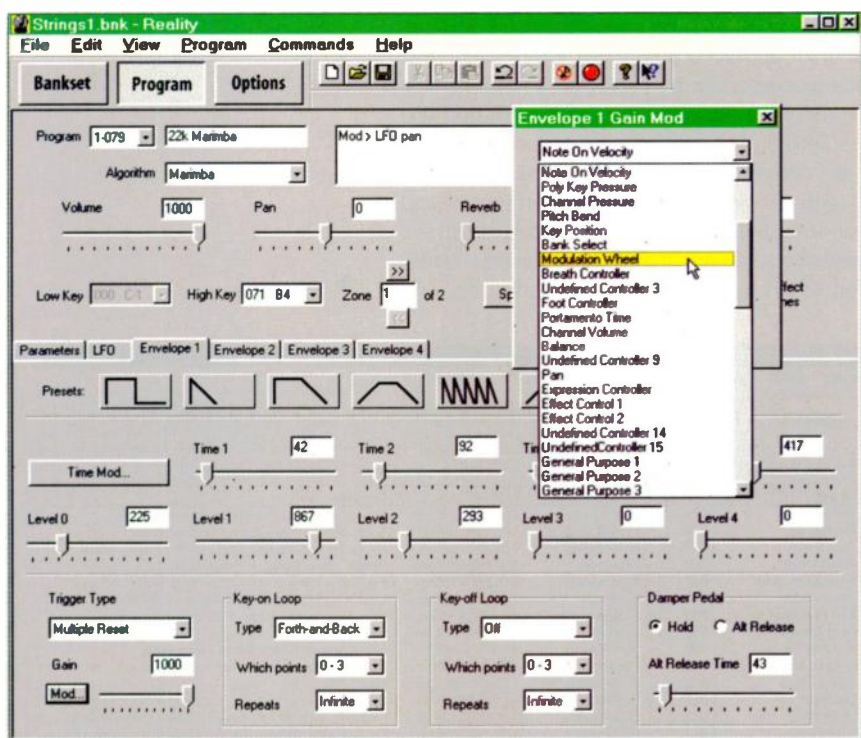


Figure 3: The Envelopes provide a huge variety of options, with a selection of presets to save time. Controlling a particular parameter is easy: just choose from a drop-down list of sources.

to allow direct-to-disk recording, or to produce a ‘sample’ of vast polyphony that subsequently can be used as the basis of a huge single-voice PCM patch, this feature would also allow you to capture an entire *Reality* performance. This could then be incorporated as an audio track into a MIDI+Audio sequencer such as *Cakewalk Audio*, *Logic Audio* or *Cubase*. Then not only will a huge chunk of processor power be released for your real-time EQ and effects, but normal WAV playback returns, so that you can hear the rest of your audio again.



## CURRENT LIMITATIONS

*Reality* will obviously have a wide appeal, particularly for those with external D/A converters. Initially, the only real Creative Labs soundcard option is the AWE64 Gold (because its S/PDIF output lets the full fidelity of the sounds emerge unscathed); in the UK, this can be bought for a street price of only £135. However, the more serious musician interested in HD recording is likely to have bought a much more expensive soundcard for its digital In/Outs and lower noise performance. Thankfully, the boffins at Seer are battling away at this moment to produce drivers for a variety of other soundcards, both consumer and professional. Once

the other soundcard drivers start to become available over the next few months (and judging by the ones mentioned to me, few people will eventually be disappointed), this should sell in much greater quantities.

The main fly in the ointment is that, unlike the waveguide synth provided for the AWE64, *Reality* hijacks the WAV playback portion of the soundcard, which means that you can't simultaneously use the Gold card for HD recording. Although the Capture option would allow you to save a *Reality* performance as a separate WAV file, there is currently no way to use the same soundcard for HD

recording and simultaneous *Reality* synthesis. The only way to achieve this would be to install two soundcards, and anyone who has tried to install multiple soundcards will know the potential problems. During the review, my copy of *Cubase* also refused to play back audio, even when *Reality* wasn't running. Seer quickly provided a solution, and this is to use the *Cubase* Setup MME utility to deactivate the *Reality* MIDI driver inside *Cubase*, so that it doesn't grab WAV file playback. Thankfully, the first (free) update will allow the normal soundcard WAV facilities to be used alongside *Reality*, which neatly solves these problems, and this is expected in weeks rather than months.

(Korg owners will recognise this as a Combination). Each patch can have its own volume, pan, transpose, detune, key region (for splits), velocity range (for velocity layers), reverb and chorus amount. You can put patches in the same key regions for even fatter sounds, at the expense of polyphony. The remaining algorithms use a combination of physical modelling, waveguide technology, and modal synthesis, in various combinations, and have far fewer controls to fiddle with. Each model is capable of a range of sounds, but these tend to be variations on the same theme. The most limited in range are those that are based on actual instruments (such as NylonGuitar and Clarinet), but Modal is more general, and can produce some beautiful bell-like sounds, as well as huge drums. Tonal (using the bank of resonating filters) gives some amazing organ-pipe sounds, although I also managed to achieve steel drums and more bells. Where specific instruments have been modelled, the controls reflect this — for example, the DistortedGuitar algorithm provides controls for Feedback and AmpDistance (which determines what frequency feeds back).

All algorithms have the use of up to four LFOs and four Envelopes, and these can be routed to many destinations. All have a wide range of options, and although I did miss having a graphic envelope with mouse-draggable points, the problem is that there are so many permutations of re-triggering and looping that the envelope shape plotting would be a nightmare to implement — once again, Seer have provided versatility, rather than limiting options. Finally, there's a useful selection of Reverb and Chorus settings, and although these are global (applying to all patches) the amounts can be set for each sound.

## CONCLUSIONS

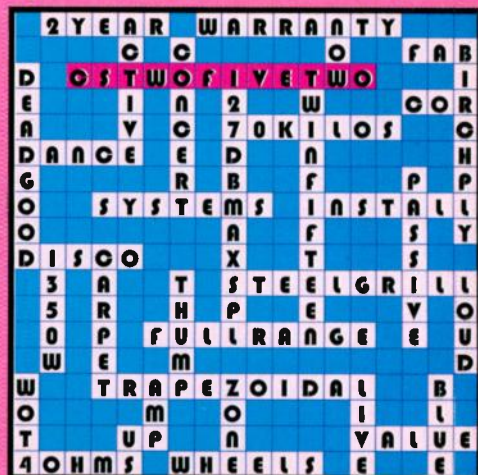
I've already said how much I was impressed by the sounds, and I fully expected that

*Reality* would cost more than the AWE64 Gold soundcard needed to run it. However, at £349, this product has to be viewed in a rather different light. Far from being a clever bit of programming to give soundcard owners new sounds, *Reality* has the quality and scope to be seen as a cheap way of achieving state-of-the-art synthesis — a sort of lateral-thinking approach to designing a new form of synthesizer using an existing computer. Once you view it this way, and you've heard the free audio demo CD, you could be buying *Reality* bundled with the AWE64 Gold card and using it as a stand-alone synthesizer. If you have access to a D/A converter in something like a DAT recorder, the resulting sound quality should stand up against that of any other modern synth, and it's more versatile than many.

Since you can load in drum sounds as samples (Seer provide 27Mb of drum loops as well), *Reality* could feasibly produce every sound in a complete track by itself, without any other equipment. The audio demo CD proves this — it features 27 short tracks recorded direct to CD from the digital output of *Reality*, using no other sources or effects. If you get the chance to hear *Reality* in action, don't miss it — the demo will delight Herbie Hancock fans, pianists and science fiction enthusiasts, but the real thing is even more impressive. I suspect that many people just won't be won over until they get a practical demonstration — just try to think of it as a different way to buy a synthesizer. Hearing is believing!

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# Sound Forge

► to use a value that is less than the current RMS level.

For example, if I've decided that I want to increase the overall gain on a file by 4dB and the current scanned RMS level is -16.6dB, to increase the average loudness by 4dB I'll need to use a value of -12.6dB. This could also be done using the basic **Volume** function, but if you had any peaks above -4dB, they would end up sounding about as pleasant as if they were processed using *Sound Forge's* **Distortion** effect!

## GRAPHIC DYNAMICS

Normalising and compression are often used together in mastering to increase the apparent loudness of a file. A compressor/limiter is a processor which reduces its gain during any loud sections that exceed the specified threshold — you would choose to apply this to a sound file in order to keep the volume level from fluctuating too much over time. *Sound Forge* has added some extra features to this old standby (see Figure 3).

- **Auto Gain Compensate** will boost the entire file to compensate for any gain reduction that may occur, allowing you to increase the overall output of the file and compensate for losses to the lower level signals when you are squeezing the dynamic range.
- If a file includes stereo imaging that you wish to preserve, you'll need to enable the **Sync Stereo Channels** box. This option will automatically balance the left and right channels so you have little or no loss to the stereo imaging.
- By adjusting the **Attack** setting, you can

delay or speed up the onset of compression. The attack dictates how quickly the compressor will react to an over-threshold input level. A slow attack setting will allow more of the original dynamics to be retained.

- The **Release** time determines how quickly the compressor will stop compressing after the dynamics fall below the specified threshold. A faster setting will create a higher average level and a more punchy effect, while a longer release time will sound smoother and less obviously compressed.

## MULTI-BAND DYNAMICS

The **Multi-band Dynamics** feature in *Sound Forge* is essentially a compressor

that only affects certain frequency bands. A very common use for this type of compressor is de-essing and de-popping vocals. When most people sing or speak they tend to have an exaggerated pronunciation which results in plosives (popping) and sibilants (essing). *Sound Forge* includes presets that can reduce the dynamics of the offending sounds to a reasonable level (see Figure 4).

The **Reduce Loud Plosives**, **Reduce Loud Sibilants**, and **Reduce Plosives and Sibilants** presets each act only on frequencies within a certain range, with the Threshold setting determining when the effect will be applied. You need to adjust this parameter until only the Ps and Ss are affected, for if the threshold setting

Figure 4.

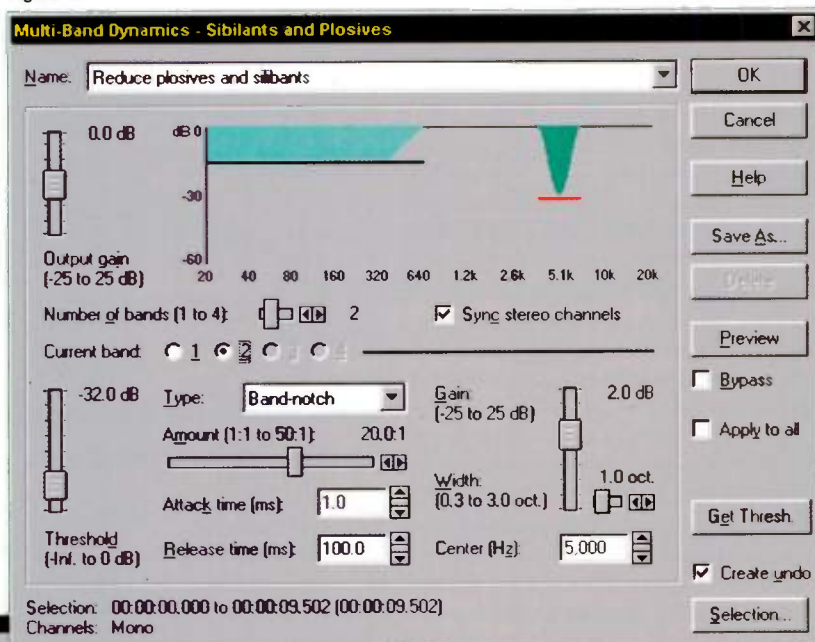
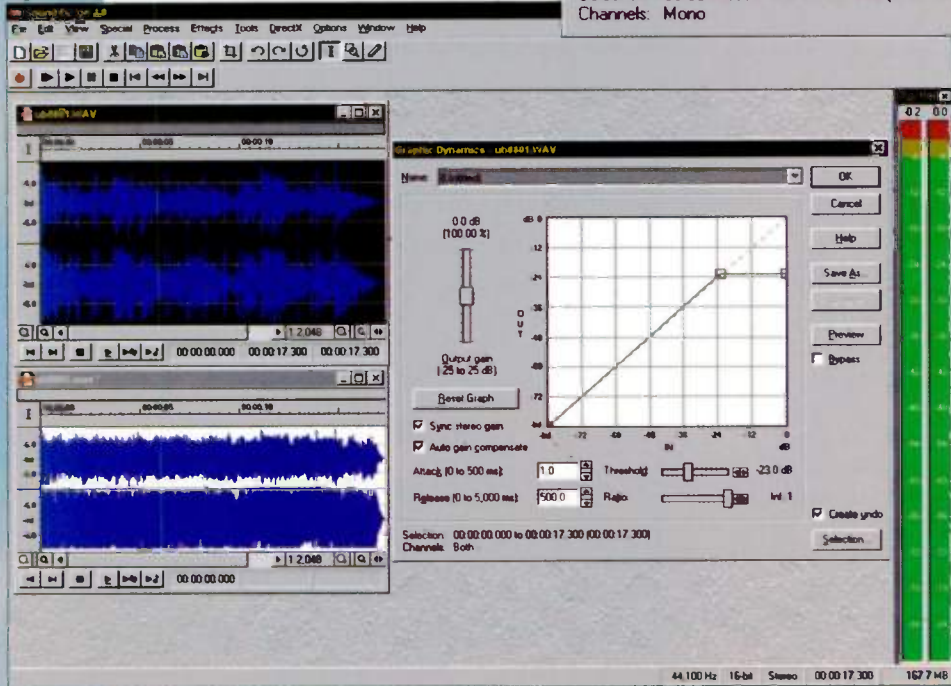


Figure 3.



is too low, there will be unwanted filtering audible on normal signals.

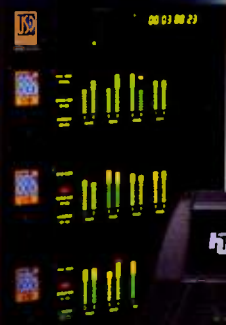
To identify the current threshold level of a particular frequency range, simply highlight the signal you want to affect then click the **Get Threshold** button. This will analyse the current selection to get an estimate of the necessary setting.

**Threshold** level will then be automatically set to 6dB below the peak level found for the current selection. The **Amount** slider will set the compression ratio when a signal raises above or falls below the threshold level. (Remember that with a ratio setting of 2:1 you only gain 1dB of output for every 2dB rise in the input signal above the threshold.)

As of Version 4.0a, *Sound Forge* includes a function called the **Preset Manager**. This allows any presets that you use in *Sound Forge* to be saved and then shared across



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# Sound Forge

- machines. So if you visit another studio that uses *Sound Forge*, or you just want to share your settings with a friend, you can take your presets along with you. These will get saved as \*.SFZ files, so save the \*.SFZ to disk and take them with you.

## SPEEDY SELECTIONS

### • Reselect Last Selection.

To re-select the last selection, press the S key. Press again to unselect the selection.

### • Create New File From Selection.

To create a new copy of the current selection, simply drag it onto an open area of the *Sound Forge* desktop.

### • Vocal Removal.

Another frequently asked question is how to remove vocals from audio that is already mixed down. The honest answer is that we don't recommend using *Sound Forge* for this operation. The best way to do this is to use a vocal eliminator or to purchase the songs without lyrics from a production company. However, if you're curious about the process and you want to try it out, this is how you might go about it. Load a sound file and double-click on the right channel. Under the **Process** menu, select **Invert** and invert the right channel. Again under the **Process** menu, select **Channel Convert** and mix the stereo file to a mono file.

Alternatively, you can use the Channel Converter to perform all three of these steps in one operation (see Figure 5). Basically, what you are trying to do is remove the elements which are at equal level in both channels and which therefore appear in the centre of the soundstage. This is where the lead vocal will almost always be placed, but you may also find that you are taking out some bass and also the kick drum, depending on the type of file.

To save an audio (and video) sequence specified by the **Playlist** to a new file, you

USEFUL KEYBOARD SHORTCUTS

*Sound Forge* abounds with keyboard shortcuts that can make editing a breeze. Here are some that you may not know about.

- **CURSOR MOVEMENT**

<b>PRESS</b>	<b>TO MOVE TO</b>
End	The last sample visible in the waveform display.
Home	The first sample visible in the waveform display.
Control + End	The last sample in the data window.
Control + Home	The first sample in the data window.

- **MOVING AROUND REGIONS, LOOPS OR MARKERS**

<b>PRESS</b>	<b>TO MOVE TO</b>
Control + Left Arrow	The previous region, loop or marker boundary.
Control + Right Arrow	The next region, loop or marker boundary.

- **SELECTING REGIONS WITHIN A FILE**

<b>PRESS</b>	<b>TO SELECT FROM THE CURSOR TO</b>
Shift + Right Arrow	The next screen pixel.
Shift + Left Arrow	The previous screen pixel.
Shift + End	The last sample visible in the waveform display.
Shift + Home	The first sample visible in the waveform display.
Control + Shift + End	The last sample in the data window.
Control + Shift + Home	The first sample in the data window.

- **NAVIGATION AND PLAYBACK**

Up Arrow	Increases time magnification (zooms in closer to data).
Down Arrow	Decreases time magnification (zooms out farther from data).
Shift + Up Arrow	Increases level magnification
Shift + Down Arrow	Decreases level magnification
Control + Up Arrow	Zoom Selection if a selection exists, Zoom In Full if no selection.
Control + Down Arrow	Zoom Normal (zooms to default zoom ratio set in Preferences).

can simply use the **Special/Playlist/Convert To New** option. You can also save the **Regions List** and **Playlist** as separate files (sfl). They can then be opened at any time and with any other file. Use the **Special/Regions List/Open** and **Save As** commands to import and export lists.

## NEAT THINGS FOR THE INTERNET

With the Internet becoming a more and more popular medium of communication, at Sonic Foundry we increasingly get calls about how to author Internet audio files

and questions about how to enhance a web site with Internet streaming technology. *Sound Forge* will encode RealAudio/Media streaming format as well as Microsoft's NetShow audio and video streaming format. Along with the capability to set bit rate transfers, we also have the ability to author Event files that will cycle through your HTML files like a slide show when your audio is playing in the background.

### • Creating A Real Audio Event.

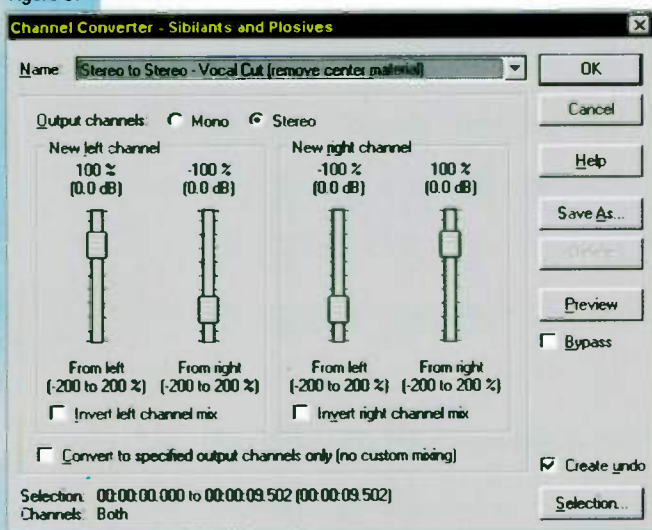
After you have the file you

want to convert to Real Audio open in *Sound Forge*, place a marker or markers where you want the event/events to happen. To embed an event, the marker or region needs to have a label starting with one of the prefixes below followed by a colon:

- **RM URL:** Specifies a URL (web address) to open.
- **RM Title:** Sets the **Title** field in the RealPlayer.
- **RM Author:** Sets the **Author** field in the RealPlayer.
- **RM Copyright:** Sets the **Copyright** field in the RealPlayer.

For example, if you create a marker with the label **RM URL: http://www.sonicfoundry.com**, the RealPlayer would open the Sonic Foundry home page at the marker's location in the file during playback. You can just as easily open specific web pages. For example, **RM URL: http://www.sonicfoundry.com/realaudio.html** would open the realaudio.html page on Sonic Foundry's web site. Once the markers are labelled the next step is to save the file as a RealAudio event file. The process for this is **Select File/Save As** and select **Real Media** as the file type. This will bring up the **RealAudio/Media** save options. Check **Create Event File From Marker And Region Labels**, select the transfer rate you want to use and click OK. Remember to include the full URL and not just the HTML file name if your files are located in different directories on the server.

Figure 5.





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- Clavia Nord Lead 2
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- EMU ES132/ESI4000
- Hammond XM-1
- Kawai K5000S
- Kawai K5000W
- Korg Prophecy (last few left at £699)
- Korg Trinity Plus
- Korg Z1
- Roland JP8000
- Roland JV1080/2080
- Roland XP10/XP50/XP80
- Yamaha A3000
- Yamaha ANIX
- Yamaha CS1X
- Waldorf Pulse/Pulse Plus
- Waldorf Microwave II

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Emu Emulator II.....	£599
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# card tricks

## OPTIMISING PC SOUND CARD AUDIO PERFORMANCE

*Modern PC soundcards can deliver excellent audio performance, but are sometimes held back by the computer itself. MARTIN WALKER shows you how to squeeze out the last drop of performance.*

Over the last few years, I've been monitoring the sound quality achieved by typical soundcards in my various PCs. One of the trickiest areas for soundcard manufacturers is the audio degradation that can be caused by the card picking up stray signals from the rest of the PC. This means that in a benchtest setup, a good audio specification may be achieved that's unattainable in the real world — ie. when the same soundcard is used inside *your* PC. For this reason, quoted soundcard specs are always likely to be 'best case' results (see the 'But That's What It Said In The Spec!' box). There are ways of minimising this degradation — keeping the soundcard well away from video cards, hard disk drives and their controllers can certainly help, and so can making sure that the soundcard is optimally set up for your signal levels.

Sadly, computer soundcards are impossible to

audition until they have been installed, and so much recommendation occurs by word of mouth between owners. The Internet is a good way to come across the unexpurgated comments of users, but again, since results vary from PC from PC, even with the same soundcard, it's a case of 'the proof of the pudding...'. Even so, there are various things you can do to obtain maximum performance from any soundcard. Not all the following tips and techniques will improve your particular combination of soundcard and PC, but most of them involve little effort, and so are well worth trying.

### ON THE LEVEL

Many people record to a soundcard in a bit of a hit-and-miss way — just plugging in a signal to the line input, pushing up the line input level control until the signal peaks hovers about 0dB, and then pressing Record. However, to achieve the lowest noise with your soundcard, you need to set it up a bit more carefully. First of all, always disable (or de-select) the mic input if possible, and failing that pull its input level control down to zero. Soundcard mic circuitry will produce far more noise inside a PC than any mic preamp in an external mixer. Apart from the line input that you will use, any other recording inputs provided (such as CD Audio or the MIDI output from the card) should also be disabled, to remove their noise contributions. If your Mixer ▶

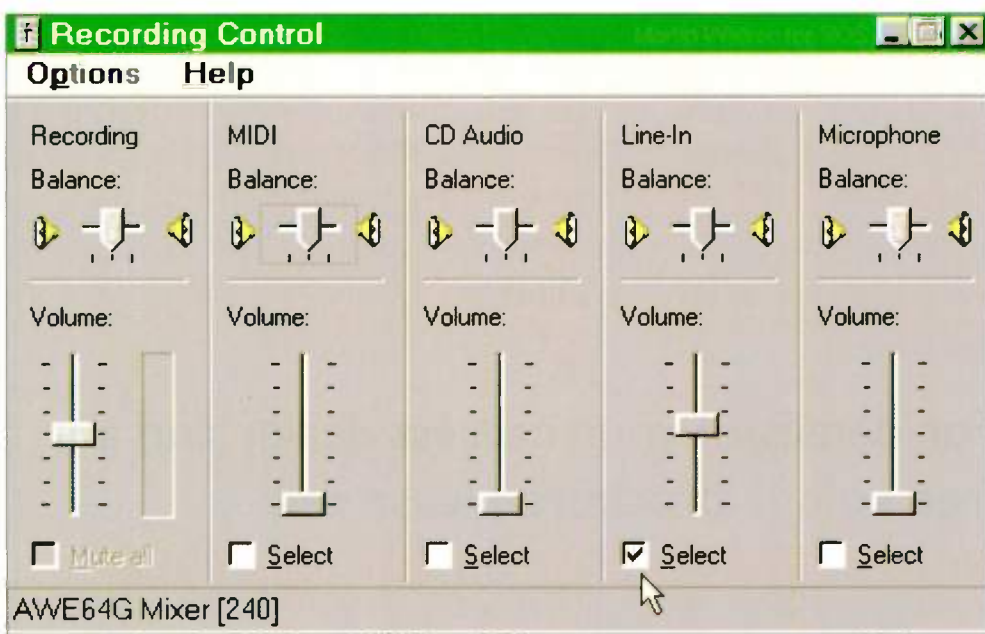


Figure 1: These were the settings I used to get the lowest recording noise from an AWE64 Gold soundcard. Notice that only the line input is selected, and that the volume level has ended up fairly low (and the input signal level fairly high). See the 'Real-World Figures' box for more details of how to tweak these settings.



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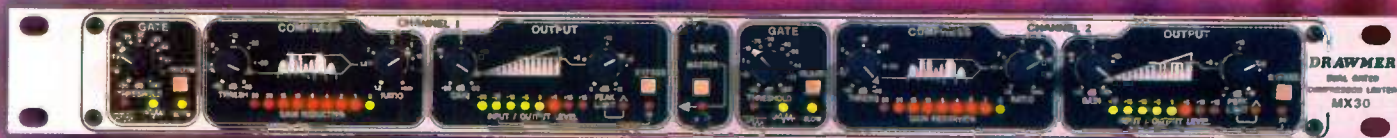
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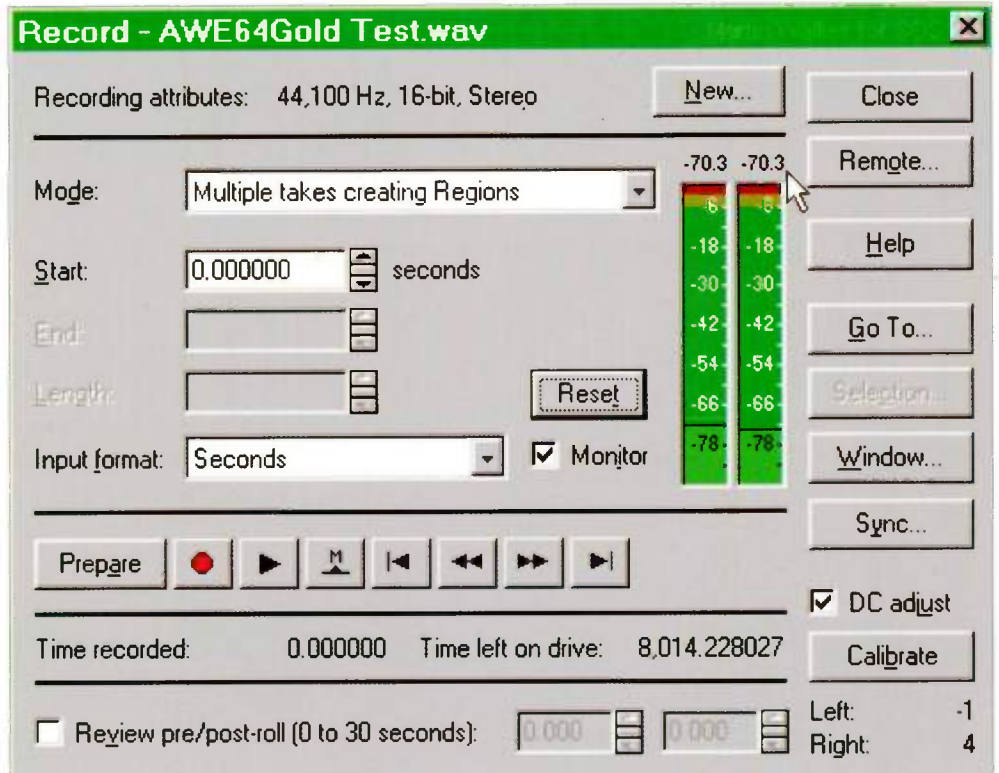


Figure 2: Sound Forge is one of many WAV editors that feature an accurate level meter. Go into Record mode and click on the Monitor box, and the noise level will be revealed when there is no input signal. Here the AWE64 Gold soundcard is showing about 70dB signal/noise ratio. Notice also that the 'DC adjust' box has been ticked. See the main text for further details.

- ▶ applet (the small control panel with audio sliders) has input gain controls, then set these to unity (x1), and rely on your mixer to boost signals, since the lower the gain inside the PC, the lower the noise is likely to be as well.

Since a soundcard is effectively a digital recorder, the best way to optimise levels should be similar to what it is for DAT recorders — selecting a normal operating level to give you an amount of headroom suitable for the type of music you are recording (see 'Setting DAT Record Levels' in the January '95 issue for more details). Unfortunately, you can't always send the full output of a mixer into the line input of the soundcard, since many

cards will be designed for the lower 'consumer' level of -10dBv. The power supply voltages on the soundcard are much lower than those of typical mixers, so sending 'healthy' mixer output levels to the soundcard is likely to overload the initial stage of the soundcard, however low you set its input level control. If you go to the other extreme, and turn the soundcard input level control to maximum, reducing the input signal level to compensate, you'll probably find that the background noise from the soundcard circuitry goes up a bit as well (see Figure 1).

To optimise recording levels, you'll need to send a few different levels to the soundcard, with its input

### REAL-WORLD FIGURES

PC soundcards are in a hostile environment — they sit in a sea of digital signals which inevitably degrade performance to some extent. For this reason, the theoretical figures published by manufacturers are unlikely to be achieved in practice. This is not anybody's fault, just a simple fact of life. In the real world, soundcard noise figures will vary to some extent when measured in different PCs.

To give you an idea of real-world figures, I measured s/n ratios in my machine with several soundcards. Once the soundcard has had its levels and mixer settings optimised (see the first part of this article), all you need to do is enter Record Monitor mode in your

WAV file editor, so that the level meter is flickering at a low level in the absence of a music signal. This level (relative to the maximum 0dB level before clipping) is the s/n ratio of the recording side of the card in your machine. If you have any options in your editor for the automatic calibration of DC offset, make sure these are active first. WaveLab seems to do this automatically, but in Sound Forge, you click on the DC Adjust box (see Figure 2) to remove any constant offset automatically during recording. Press the Calibrate button to set this up, before reading the signal/noise ratio.

With an AWE32 Plug & Play soundcard, the meter hovered at about

-68dB in each channel. This then is the signal-to-noise ratio for the card (in my PC). With an AWE64 Gold, the noise dropped slightly, to -70dB. Both of these figures are perfectly adequate for general-purpose recording, and a lot better than with the microphone input left on (this measured about -61dB on the AWE64 Gold). To put these figures into perspective, an elderly Gravis Ultrasound card measured -55dB, a Sound Galaxy Basic 16 card measured -57dB, and the MaxiSound 64 (reviewed in the February '97 issue) measured -72dB.

Creative Labs did expect a rather better measurement than this for their Gold card, and were very helpful, insisting on lending me another Gold card to try. However, this measured -65dB (in my system), which rather

suggests that there may be significant variation even between items from the same manufacturer. Indeed, a recent report in a PC magazine measured both AWE Gold and Gravis Ultrasound Plug & Play Pro at -65dB, but the Guillemot MaxiSound 64 at -42dB! Luckily, I visited Paul White a couple of days before finishing this feature, and took the opportunity to measure his AWE64 Gold card as well. The one in his machine measured a very healthy -80dB, which is much more in line with Creative Labs' own typical measurements, but I don't yet know whether it was his card or his PC that improved things. It just goes to show how variable the real-world results are, and why it's impossible to choose a soundcard solely on published specs.



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## OPTIMISING PC SOUND CARD AUDIO PERFORMANCE

► level adjusted in each case so that the PC shows as close to 0dB recording level as you can set, without ever running into clipping. Most modern WAV editors, including Steinberg's *WaveLab* and Sonic Foundry's *Sound Forge*, have accurate metering systems that will help in setting levels, rather than a pretty simulated LED display without numbered markings (see Figures 2 and 3). Record a few seconds of a 1kHz sine wave (either using the line-up oscillator provided on many mixers, or a synth playing B natural two octaves above middle C). Start with 0VU showing on the mixer meter, record a few seconds of this tone at just under 0dB on your soundcard level meter, and then play it back, listening for distortion. If this sounds OK, increase the mixer to +3VU, then +6VU, reducing the input level control on your soundcard in each case, and then listen again. Using a small Spirit Folio desk with the mixer output meter reading +6VU, I found there was fairly obvious distortion from an AWE32 on the sine wave when I played the soundcard recording (despite the soundcard's meter never running into clipping). I found that I could get as high as +3dB VU (showing on the mixer meter). Since the 0dB VU reading on most mixers emerges at +4dBu from the output sockets, this output level is actually +7dBu, or about 1.75V RMS (about 5V peak to peak).

Once you've found this level, and set the soundcard input level control to suit, you'll have probably got the optimum setting from the noise point of view. For playback, you'll probably get the lowest sample playback noise when only the wave volume control is pushed up. Any on-board MIDI units, such as wavetable synths (or, heaven forbid, two-operator FM synths!) should have their mixer levels pulled down, unless you need their musical contributions in the mix.

These procedures may improve the noise by 10dB or more over your current settings, depending on the design of the card. Certainly,

“The ultimate solution is to give up — not to sell your computer and buy a guitar, but to remove the audio circuitry from the inside of the PC altogether.”

AWE32 and Gravis Ultrasound cards showed a significant improvement, although the AWE64 Gold seems to have its input level control before the rest of the circuitry, as its noise stayed exactly the same, whatever the setting of its input level control. In this case, higher mixer levels can be easily achieved without overloading the card, and this does make it easier to line up with a mixer.

### GETTING WIRED

Another area in which people often experience problems is when they wire up the output from their soundcard to an external mixer. Since the PC is already earthed to the mains supply, an additional earth path via the input of a mixer produces an earth loop — as soon as you plug in the soundcard, you'll hear a noticeable hum. Unfortunately, due to the huge number of digital signals flying around inside the PC, you are also likely to hear other sounds (admittedly at fairly low levels), such as warbling, whines, or regular ticking sounds, mostly associated with processor or hard disk activity. In some cases, the background sound will be as if every one of the notes is sounding simultaneously, a bit like an electronic beehive. You'll have to accept some of these sounds, unless you buy a more expensive soundcard that features more comprehensive shielding. However, much of this grunge may be the result of the earth loop, and can be greatly reduced if you have a mixer with balanced line inputs of the TRS (Tip Ring Sleeve) variety. Many modern mixers feature these, from the tiny Spirit Folio range upwards, and by making up a special lead from PC to mixer, you can remove the effects of the earth loop. In essence, you need to make up an unbalanced to balanced cable, so that first, the earth loop is broken, and second, any interference picked up along the cable itself is cancelled out by the balanced connection at the mixer end.

You need to make up a special cable for each soundcard output channel, using 2-core plus screen cable (the sort sold for balanced mic use is fine). At the mixer end, each channel will need a stereo jack plug, with one core of the cable connected to the tip, and the other to the ring, with the screen

### BUT THAT'S WHAT IT SAID IN THE SPEC!

Let's lay one myth to rest once and for all. If you see the words 'CD quality' associated with any product, all this means is that it uses 16 bits of information at a sample rate of 44.1kHz. This doesn't automatically give good audio quality, and indeed these two words are quite often quoted instead of a proper spec. I do appreciate the problems that face soundcard manufacturers in particular, since test figures may vary significantly from machine to machine, so published figures can be either 'best case' (possibly achievable only in benchtest conditions) or 'typical'. Marketing departments are notorious for 'embroidering' the facts — a claimed 90dB s/n ratio for a soundcard may become 70-80dB in the real world, although it may still be possible that 90dB is occasionally reached.

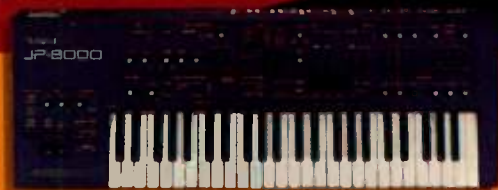
Now that digital I/O is appearing on higher-end soundcards, very impressive figures for noise are starting to be quoted. It's important to keep these in perspective. If you see 120dB quoted for an S/PDIF digital output, this is the theoretical 20-bit value ( $20 \times 6 = 120$ ). You will always get a

significant improvement in fidelity by using such outputs because you're bypassing the soundcard's D/A converters. If you use the digital output, and plug into a higher-quality external converter (in your DAT recorder, for instance) your signals are likely to sound cleaner and quieter, but the actual noise levels will be determined by the weakest link in the chain. Despite the 120dB capability for the digital output, if you are recording using the soundcard's A/D converters, and these give 80dB signal/noise ratio, then this is your overall system figure.

Another thing to watch out for is what exactly is included in the circuit to achieve a particular figure. For instance, a soundcard frequency response of 15Hz to 50kHz ( $\pm 1$ dB) sounds very good, and indeed it is, but with a sampling frequency of 44.1kHz, the top-end response cannot theoretically go above about 20kHz. In this case, the quoted figure is probably for the electronics alone, without sampling being taken into account. Again, the figure itself is accurate, but can be misleading if you take it out of context.



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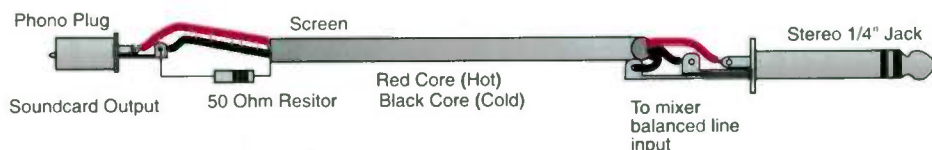


Figure 4: Here is a suitable lead for use between the output of one channel from the AWE64 Gold card and a mixer with balanced line inputs. You will need two such leads. Wiring up your leads like this should get rid of a lot of hum and background grunge.

- ▶ you to remove it by 'drawing in' the waveform at this point (see Figure 5), and if it's a stray one-off anomaly, this is the easiest solution.

For consistent problems during record or playback, the problem could, unfortunately, be caused by many things — a slow hard drive, badly written Windows soundcard or graphics drivers, or problems with full duplex operation (recording simultaneously with playback of previously recorded material). Many of the timing-related problems can be helped by intelligent use of software buffers. These simply store up a portion of the audio signal in advance, so that if any component of your PC decides to do something else for a moment (such as the hard drive lurching to a completely different spot on the drive to continue reading a fragmented file), there's enough prepared audio in the buffer to allow it to 'catch up' before an audible gap or stuttering occurs. The size of these buffers is very dependant on the software, your soundcard, hard drive and so on, and most applications that feature audio recording and playback will have various options for their buffers. Since each application has its own ways of dealing with such problems, you

should refer to the manual and help file for further information if you run into problems, although, in general, with a reasonably powerful machine, the default settings will probably be fine.

On the hardware side, most soundcards still use DMA (Direct Memory Access) to move audio signals to and from the hard drive, although this does tie up a significant amount of your processor time. Each design of card will require a certain size of buffer for this DMA, to optimise the flow of data. Most modern software will provide a way to set up the correct DMA buffer size automatically — *Cakewalk* uses a 'Wave Profiler' to determine the settings required, and Steinberg's *Cubase* provides the 'Detect DMA Blocksize'. Thankfully, these adjustments only need to be made once, unless you install a new soundcard.

### GOING DIGITAL

Since most soundcard audio problems are caused by audio signals inside the PC, one way to sidestep the issue is to go digital — use external A/D (analogue to digital) and D/A (digital back to analogue) converters, and leave only the digital signals inside the PC. The cheapest option is to buy an AWE64 Gold card, which comes complete with an S/PDIF (Sony Philips Digital InterFace) socket. While this allows only digital output, any pre-recorded WAV files, such as those from CD-ROMs, or created by software synthesis, will emerge in full 16-bit digital glory, and a potential 96dB signal/noise ratio. To hear the improvement, you need to plug this digital Out into a co-axial digital input. Most DAT recorders feature these, although those that only have the optical type will be unsuitable. Once it's all connected up, switch the input of your DAT machine from the normal Analogue to 'Co-axial' or 'Digital'. Then enter Record-Pause mode (most models will let you do this without having a tape inserted). You'll then be able to monitor the output of the D/A converters via the normal DAT output sockets.

You can also buy stand-alone D/A converters, and although there are rackmounting devices available primarily for studio use, with amazing audio specifications, the most cost-effective solution for stereo is to buy a mass-market hi-fi type (see my 'Hi-Fi Tweaks' feature in the August issue for more details on this).

To get further improvements, you need a soundcard digital input as well, so that you can record using external A/D converters too. More and more soundcards are becoming available with full

### GOING UPMARKET

Upmarket soundcards can introduce more expensive shielding, which helps keep the hostile digital environment away from the sensitive audio circuitry. It might even be feasible to totally enclose a soundcard inside a metal case, with only the edge connector protruding. However, even then, stray signals might get in through the power supply or data lines, and you'd probably need an empty card slot on either side of the soundcard to fit it in! The ultimate solution is to give up — not to sell your computer and buy a guitar (although I secretly suspect that many musicians might be sorely tempted), but to remove the audio circuitry from the inside of the PC altogether. Packages are appearing with the 'central nervous system' on a card inside the PC, and all the converters (which change the digital signals to and from analogue) in external boxes. Published audio specs are then much more likely to be 'just what it says on the box'.

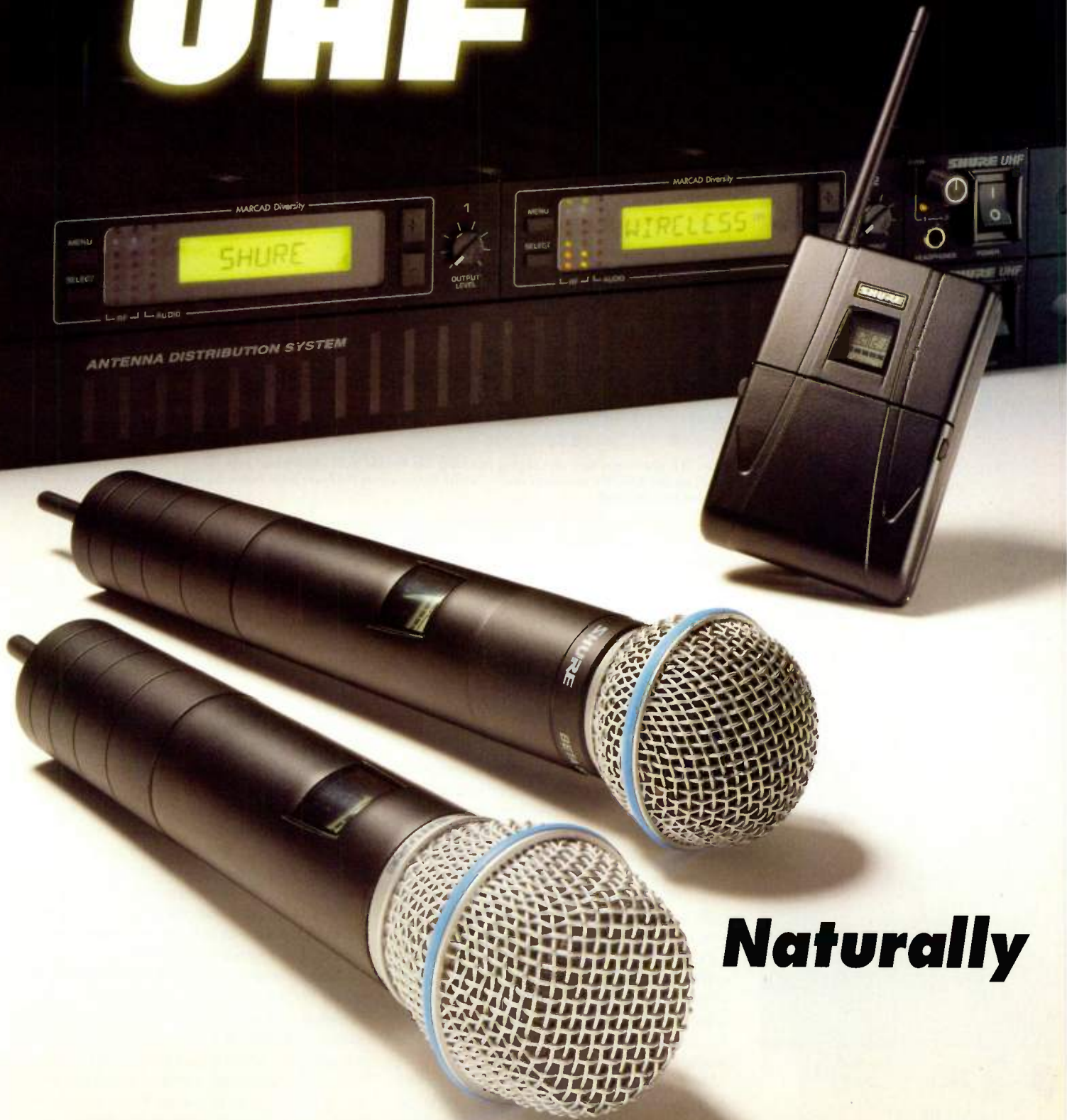
Once the audio circuitry is placed in its own little box, the digital interface left inside the PC can get on with what it does best — moving and manipulating large quantities of digital data. With the slow but sure movement from the ISA buss (8MHz) over to the PCI one (normally 33MHz), the possibilities keep on growing, as

more data can be moved at a faster rate than before. In addition, if some intelligence is put on board the digital interface, it's possible for the computer's main processor to send a command, and then leave the digital card to carry on by itself. This is how 'Buss Mastering' works with hard drives, and its inclusion in many SCSI devices tended in the past to make them faster than EIDE ones. Placing some intelligence, in the form of a DSP (Digital Signal Processor) chip, on a soundcard can give it a similar performance boost — for instance, the Turtle Beach Fiji and Pinnacle cards both use an industry-standard Motorola 56002 DSP chip, and this gives them lots of extra processing power.

Although 'Buss Mastering' audio removes much of the workload from your computer's main processor when you're shifting digital audio signals about, a DSP can provide far more capabilities than this. You can also let it get on with lots of other goodies such as EQ and effects, while the main computer processor concentrates on running the remainder of your software. This can result in a much more open-ended system, allowing you to expand in several directions, as your needs and budget dictate. For an example of such an external DSP-based system, take a look at my review of Soundscape's SSSHDR1+, which starts on page 178 of this issue.



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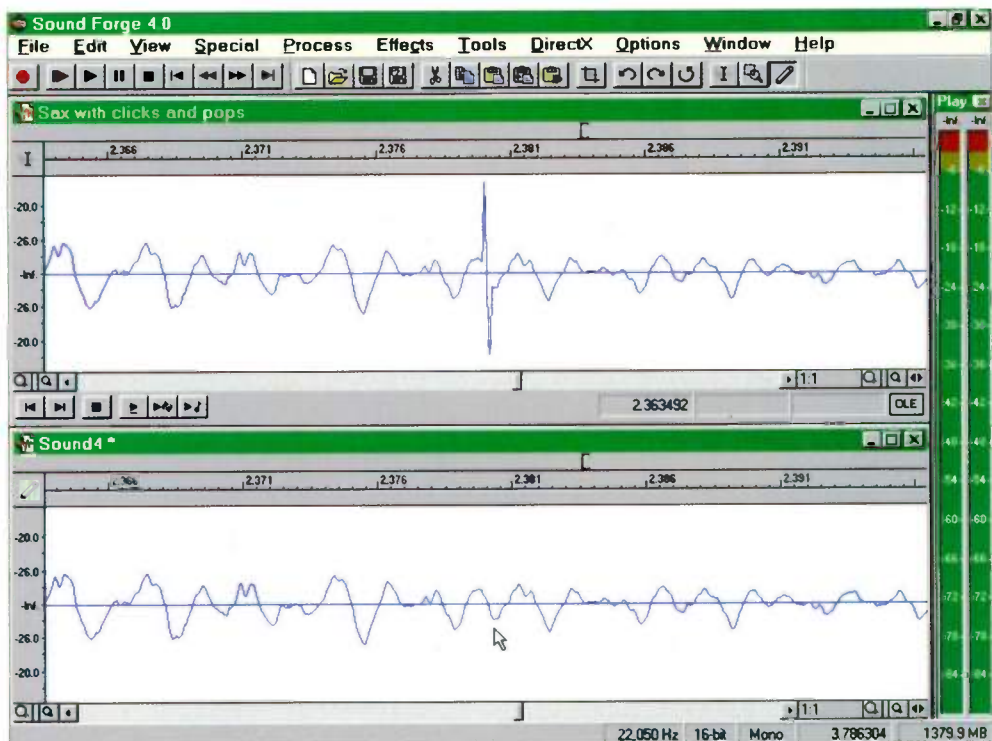


Figure 5: If you have a stray click in your recording, like the one in the upper trace, most editors have a pencil tool, which allows you to 'draw' the waveform where the click has occurred. The lower trace shows the same waveform after the click has been removed.

“Despite having a 120dB capability for the digital output, if you are recording using the soundcard's A/D converters, and these give 80dB signal/noise ratio, then this is your overall system figure.”

▶ digital I/O, although these are normally considerably more expensive than consumer types. This looks set to change — just before I finished writing this, a press release from Et Cetera informed me that the new Maxisound Home Studio Pro 64 card was available. Although I haven't yet seen it in the flesh, it combines a full duplex stereo soundcard (with all the usual frills and extras) and both S/PDIF input and output, at the very reasonable price of £249.

### THE FUTURE

There's a whole clutch of multi-channel soundcards appearing, and SOS hopes to be reviewing some more of these over the next few months. The main thing to watch out for is the driver implementation. If you're using a MIDI+Audio package, such as *Cakewalk*, *Cubase* or *Emagic Logic*, you can use any stereo soundcard with standard drivers, and the eight or more audio channels are mixed in real-time to emerge through this single stereo output. If you buy a soundcard with four hardware channels or more, the most efficient way to implement the driver is as a special multitrack driver. However, unless the sequencing package specifically supports this special hardware driver, you may still only be able to access the first two channels.

For instance, *Cubase VST* for Windows supports multi-channel cards such as (among others) the Korg 1212 as well as the forthcoming cards from Event Electronics; whereas *Emagic's Audiowerk8* card (which works very nicely with *Logic Audio*) currently still needs a special driver to be used fully with *Cubase VST*, and PC *Cubase* users can currently only access two Ins and two Outs. As both software and hardware get more complex, and achieve more

and more at lower and lower prices, these initial incompatibilities are bound to occur.

Musicians are demanding more and more hardware and software channels. The main reason for increasing the number of hardware channels has always been to enable EQ and effects to be added to each sound separately. As real-time EQ and effects are already available from *Cakewalk Pro Audio v6*, and *Cubase VST v3.5* for PC, and from the new version 3.0 of *Logic Audio* (expected to be shipping by the time you read this in mid-October), I suspect that many people may find themselves content with fewer hardware channels than they expected. After all, if you can EQ and add effects to eight or more software channels (assuming that your PC has enough processing power), you effectively have mix automation. With four or eight hardware channels, I can see many musicians using two channels for the main stereo mix, and the rest as effect sends to an outboard rack, rather than separating each track in the traditional manner.

Although many people are fully expecting more power for less money, it seems likely that, as software packages achieve what until recently would have needed a bank of extra hardware, the technical 'carrots' dangled before us will result in our spending more overall, rather than less. PCs will need to be upgraded more regularly to have enough power to achieve what the software promises, and the number of hard drives and their sizes will also expand significantly, simply because applications like *Cubase VST* for Windows will open our eyes to yet more tantalising possibilities. And, of course, the bigger the hard drives, the more there will be to back up. *C'est la vie!* **SOS**





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# PATCH

## LINKING SYNTH SOUNDS TO MUSIC SEQUENCES

# WORK

*Associating sounds with MIDI datafiles is not difficult, but does require some initial setting up. If your sequences never seem to sound the same as they did last time, MARTIN WALKER may have the answers.*

The amount a particular synth gets used often depends on how easy it is to choose a particular sound — when you're sequencing, the last thing you want to do is get up, walk across to your synth rack and squint into a tiny LCD window. Apart from the inconvenience, you want your ears firmly between the monitor speakers, and unless you have arranged your studio around your sound sources, rather than the mixer, then you can never be at the optimum position when changing sounds. Of course, the easiest way round this is to get someone else to change the sounds, while you listen from your comfy seat in front of the mixing desk.

Thankfully, MIDI makes this process a lot easier, since Program Change messages can be sent from

virtually all modern sequencers, so that auditioning 128 different sounds per synth is easy, and with Bank Select the possibilities are far greater. Some enterprising individuals even catalogue into their sequencer the names of each sound on their synths, so that they can select from a drop-down list, rather than an unmeaningful 'Sound 43'. What puts many people off is the amount of time it can take to enter the names in the first place, and the potential problems after editing some of the sounds. 'Sound 43' may well end up completely different a month later, which rather defeats the object. The answer is to use the dreaded SysEx commands, and actually get the appropriate sound data out of the synth (a SysEx dump), so that it can be stored elsewhere (preferably with the sequence data, so that the two never get separated). Then, whenever you load up a particular piece of music, the SysEx data can be sent back to the synth in question, ensuring that every sound is exactly as you left it. The word 'SysEx' puts many musicians off, but it needn't be a complex procedure — once you work out how to do it the first time, subsequent operations are only a button press away. Time for action!

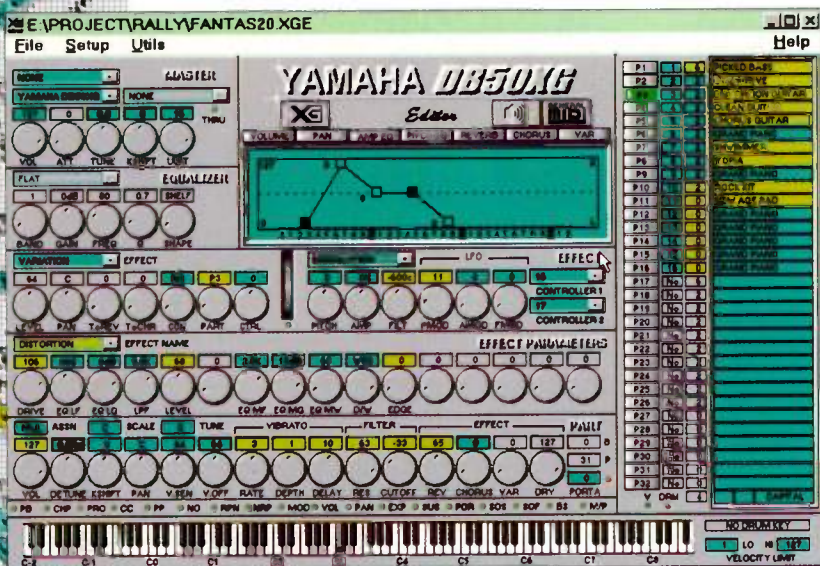
### PROGRAM CHANGES

The simplest way to ensure that the correct sounds are in place before you play a particular sequence is to use Program Changes. Yes, I know that I've just pointed out the pitfalls of this approach, but not all your MIDI sources get edited. Some synths may only be filled with presets, and even though I do create and edit some of the patches on my effects units, I don't load and save banks of effects — there's nearly always the same bank of 128 sounds sitting there. For this type of MIDI device, I put an extra track in each sequence, with the appropriate MIDI channel Program Change number entered using the List Editor. This way, every time a sequence starts, the appropriate effect is selected. As long as you allow a short pause afterwards before any notes are played, to ensure that the effect has 'settled down' and will not cause an audible glitch, this certainly beats having to remember which reverb or flange setting you used last time. You can even change effects (or their settings) mid-song, and most effect units still won't produce audible glitches during the changeover, as long as there's no audio passing through at the time.

The advantage of sending a Program Change message is that only the MIDI In of the device in question needs to be connected to the MIDI Out from your sequencer, unlike a SysEx command, which normally needs two-way communication.

### THE GOLDEN HANDSHAKE

There are two possible methods of sending and receiving patch data — open loop and closed loop (handshaking). The simplest method is open loop, which is one-way communication, and totally blind. The patch data is squirted down the MIDI cable towards the appropriate synth, but there's no way of knowing whether the cables are currently connected to the correct synth, or whether any bytes of data got corrupted en route. If there are any mishaps, the sounds may not be updated at all,



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**Key audio**  
systems



## Linking synth sounds to music sequences



*Mark Of The Unicorn's MIDI Timepiece AV must be the ultimate in patch automation, with all MIDI routing taken care of using its integral patchbay.*

▶ or if there are stray or corrupted bytes, in some cases the synth may even crash, and require switching off and on again before any of the front-panel controls respond at all. Corruption of this sort can occur because of intermittent MIDI leads, insufficient buffering on the MIDI interface (which basically falls over when asked to accept a large bank of data in one swallow), or sending the SysEx data faster than the receiving synth can cope with (which is more likely with older synths).

The problem with the open-loop approach is that the sender gets no information from the other end to tell it whether any problems occurred. For this reason, two-way communication is needed for many synths, to ensure reliability. Since each end can communicate with the other, this is known as 'closed loop', and if any errors occur, the far end can send a request for the appropriate data to be re-sent.

The larger the amount of data to be sent, the more important it

acknowledgement from the other end to say that it's ready for some more data. This ensures that the two ends never get out of sync with each other. Another advantage of closed-loop transfers is that they are often faster. This is because, although there are extra handshaking messages flying back and forth, the actual data can be sent at a high rate, since any problems will quickly be flagged by the other end and the appropriate chunks of data re-transmitted. Open-loop transfers have no such reassurances, so many manufacturers incorporate delays between each chunk of data sent, to try to ensure that the other end always has time to deal with one chunk of data before the next one starts to arrive.

Often, the most reliable open-loop transfers are those between specific rather than generic devices: for instance, a computer editor for a Yamaha DB50XG daughterboard will be very reliable with a computer editor specifically designed for it, such as the XGedit package, because it knows the correct speed to use with this one device, which will ensure reliable transfers every time. Generic editors and librarians (see later) have to work with a huge variety of synths, and this gives far more scope for problems, so the closed-loop approach is more appropriate.

### MANUAL ROUTING

Many people automatically think that a MIDI patchbay will be needed to send SysEx data to a number of connected synths, but this need not be the case. Musicians with eight synths also often believe that they need an 8 In, 8 Out MIDI interface. Again, this is not the case — you need an output for each connected MIDI device (unless you plan to split the 16 channels of a single MIDI Out between two or more synths), but you only need enough MIDI inputs on your interface to cope with the maximum number of simultaneous players to be recorded. Even a single MIDI In could theoretically cope with 16 performances, one on each incoming MIDI channel, as long as they were correctly merged, although it would be sensible to split this over several inputs to cope with the huge amount of data.

All you need for SysEx data is a way to send and receive MIDI to each synth in turn — not to every one simultaneously. For open-loop sends, you only need a single connection between the MIDI Out of the sending device, and the MIDI In of the receiving one. Since you need this connection for normal sequencing use, no extra MIDI cables are needed to send open-loop SysEx dumps to any MIDI device. However, if you want to receive a dump from the synth, you need an additional MIDI cable from the MIDI Out of the



*Opcode's 64X is a 4-port, 64-channel MIDI interface with SMPTE sync as well as a patchbay; unusually, it's suitable for use with either PCs or Macs.*

is to be able to use closed-loop dumps, and this is why, even if an option for both methods exists, the closed-loop approach is always recommended. Closed-loop transfers employ 'handshaking': after each chunk of data is sent, the sender waits for an

### CATALOGUE YOUR SOUNDS

Although saving sounds with a sequence is the main thrust of this workshop, it's worth pointing out the additional benefits of creating and using a complete library of sounds, using either a specific or universal librarian program. If you take the trouble to load in each of the previously saved banks of sounds for a particular synth into a library, to produce a complete collection of hundreds or even thousands, then it's usually possible to describe each sound by tagging it with a keyword such as 'guitar', 'bell', 'slow attack', 'metallic' and so on. Lists of suggested keywords are normally provided, although you can often create your own, if you prefer to categorise things in a more personal way.

Once you've waded through your sound collection to attach these tags (and it's

perfectly possible to do a few hundred in an hour once you get going), you can quickly home in on suitable sounds for a particular track, simply by performing a search through your entire database for the appropriate category. If you want string sounds, for instance, a search for 'strings' should show you every string sound in your collection within a second or two. Often, each sound can be allocated more than one keyword, so you might search for 'guitar, metallic', or 'choir, breathy'.

For a professional, time is money, and if you can find half a dozen suitable sounds from a collection of thousands, and all within a few seconds, you'll either save some money, or have more time to spend making music. In addition, when your track is perfected, you can still save the actual sounds you used as a small bank associated with your sequence.



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## Linking synth sounds to music sequences

- ▶ synth to the MIDI In of your storage device (normally this will be your computer, although some devices allow you to save data onto an external hard drive). For closed-loop operation, both cables need to be in place simultaneously.

The simplest way to connect your synths for data dumps is to use a MIDI switch box, connecting the MIDI Outs from each synth or keyboard to the 'inputs' of the switch, and the MIDI In of your computer to the switch box 'output'. As long as each synth or keyboard also has its MIDI In connected to the sequencer in the normal way, you can then turn the switch to each position and send or receive dumps with no problems. Suitable switching boxes are available from various manufacturers; Philip Rees devices (such as the 5S five-way switch, and the 9S nine-way switch) are probably the best known. You need as many 'ways' as you have synths, so that each can have its own switch position. So if, for example, you have a total of eight keyboards and MIDI modules, you would need a 1 In, 8 Out MIDI interface, and a 1 In, 8 Out MIDI switching box. If you are handy with a soldering iron, you could even make your own, and there are web sites only too happy to tell you how — see the 'On The Internet' box.

### AUTOMATION

Unfortunately, if you have more than two or three synths, the manual approach becomes tedious. The MIDI patchbay provides the same functionality, but each position of the 'switch' can be set up as a MIDI patch. Since most patchbays themselves respond to MIDI Program Changes, it's simply a



Deltron's Brighteye MIDI connector provides visual evidence of a MIDI signal: use the female version to test MIDI leads, and the male version to test MIDI data, for instance at the MIDI Out or MIDI Thru of your synth.

matter of sending the appropriate Program Change number for each synth, to set up the patchbay connections correctly, and then sending the actual patch data. Suitable MIDI patchbays are available from Midiman (the Winman 4x4/S and Portman 4x4/S), Mark Of The Unicorn (the MIDI Timepiece AV), and Opcode (the Studio 64x) and MusicQuest (MIDI Engine 8 port/SE) — see the August '97 issue of SOS for further details of these, and a complete roundup of PC MIDI interfaces.

An additional benefit of most of these patchbays is that they have MIDI activity LEDs, which flash in response to any data passing through a particular MIDI In or Out. This can be a godsend if (as inevitably happens) you find one day that no sound emerges from one of your synths. Watching the activity LEDs, along with a mobile indicator such as Deltron's Brighteye (or a home-built equivalent) temporarily plugged into the synth end of the cables, should quickly enable you to track down the source of the problem.

### GOING TO THE LIBRARY

Once you have sorted out a way to send SysEx data easily to all your synths that require it, you need a program to actually do the sending and receiving. A software librarian program can combine both functions, and provide the missing link — a means of receiving all the sounds currently in your synths on your computer hard disk, and then sending them back when you next want to play your current masterpiece. Although a few synths require you to press a combination of front-panel buttons to initiate the procedure, most allow the librarian to send a command that starts everything automatically, which will be unique to each make and model of MIDI device.

Although there are various librarians specific to a certain model of synth, if you have more than two or three of the beasts, a generic or universal librarian is more useful. This will incorporate a selection of 'drivers', each specific to a particular

### ON THE INTERNET

If you want to indulge in a little DIY, or find shareware synth editor and librarians, the Net is an excellent resource — here are a few sites that I found during a brief foray:

The Synth Zone has a huge selection of MIDI technical links ([www.synthzone.com/miditech.htm](http://www.synthzone.com/miditech.htm)), and this is a good place to start if you want to find any MIDI information.

The MIDI Editor Homepage ([perso.magic.fr/ilebot/welcome.htm](http://perso.magic.fr/ilebot/welcome.htm)) advertises MIDI Editor 1.2, a shareware universal editor and librarian, with a demo version available for download, and this already supports about 50 synths, and allows user-defined dumps as well. I didn't have enough time to look at it in detail, and you will need a little SysEx knowledge, but it's a neat

program, and excellent value at 200 French francs for the full registered version.

The Hardware Web ([nctnico.op.het.net/Index.htm](http://nctnico.op.het.net/Index.htm)) contains a number of useful DIY projects, including the schematic for a basic MIDI switcher, if you

are handy with a soldering iron.

The Philip Rees site ([www.philrees.co.uk/](http://www.philrees.co.uk/)) not only shows his excellent MIDI accessory products, but also has examples showing how to connect up MIDI systems using them.

The Synth Zone web site.





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## Linking synth sounds to music sequences

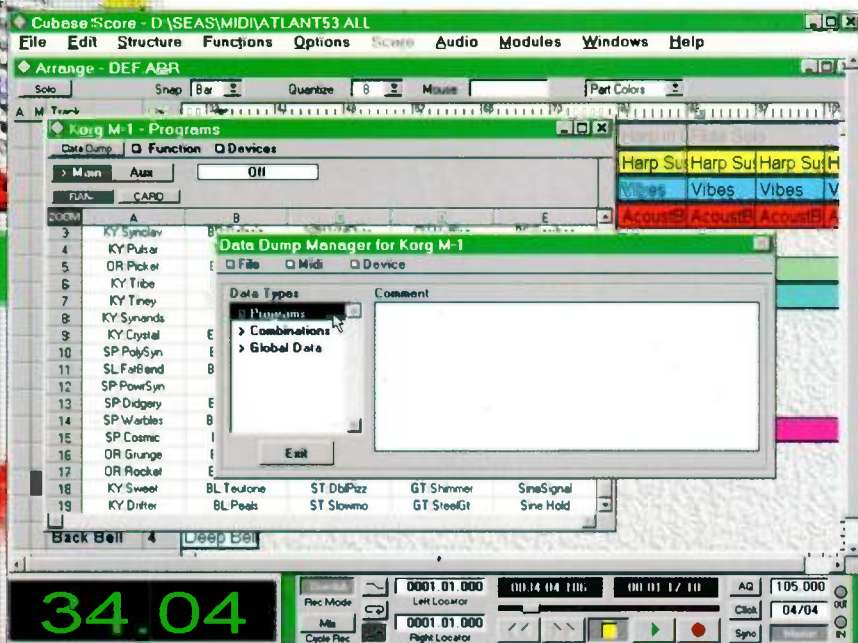
► synth. You let the librarian know what MIDI equipment you have connected by choosing a driver for each device, normally from a scrolling list, or by loading small driver files directly. This is where some people come unstuck — good librarians have a huge selection of drivers for specific synths, but can never cope with every possible model on the market (see the 'Universal Sound Editors' box).

Although standalone librarians are available, many

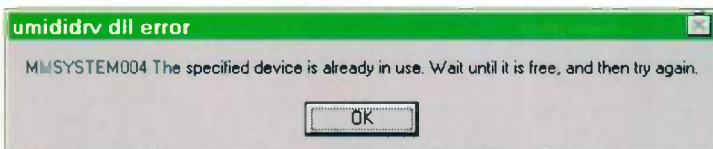
is that you get a full-screen editing environment, with graphic displays of envelopes, sliders, knobs, buttons, waveforms, routing, and so on. In addition, computer editors often incorporate morphing or randomising features, so that it's simple to create variations or blends of existing sounds — this is something that computers do well.

To provide these editing facilities, a huge amount of information is needed about the synth in question, so that every control that is normally available within its little front-panel LCD display can be modified and updated from the computer. This relies on the synth manufacturer making available every detail of the SysEx messages required. If SysEx messages are available for each discrete control, then only a few bytes need be downloaded to the synth after each edit. Many synths do not have this facility, and so the complete patch data dump for a particular sound must be sent after each edit — which could well involve several hundred bytes of data. If this is the case, it is less likely that you will be able to edit your sounds in real time with a sequencer playing in the background, as glitches may occur (see the 'Existing In Harmony' section).

There are also choices to be made about how the information is updated. It's often possible for the computer editor to initially request the complete status of the synth, so that the initial computer display is the same as the synth. If this is not possible, it's best to download a complete bank of sound data from the computer, so that the computer and synth are 'in sync'. Altering the position of any virtual knob or button in the computer editor will send its updated setting to the synth, so that the computer and synth data then remain 'in sync'. However, it's unlikely that



*The Cubase Studio Module allows you to gather the sounds associated with a particular song, so that you can always get back to them, whatever sound editing you may have done in the meantime. Because its drivers can extract the actual names of each sound from the data, it can make setting up far easier.*



*If your MIDI drivers don't have multi-client capabilities, you will get a message like this one if you try to open up a second application when another is already running.*

modern sequencers incorporate a means of saving patch data belonging to a particular song. Steinberg's Cubase has the Studio module (see above), which allows you to load and save sound dumps to and from many MIDI devices, whose patch names can be extracted for use in the Arrange page. Choosing your sounds from names in a list is much less hit and miss than selecting a number from 0 to 127. Even if your sequencer doesn't allow the names to be extracted, some will have a means to type them in directly as a list (a one-off procedure, you hope). However, nearly all modern sequencers have some sort of facility to load and save SysEx data banks, without having to understand their content, so that the sound data can be associated with a song.

### CREATIVE EDITING

The next step up from the librarian is the editor, and, as its name suggests, this allows you to change your sound data. The beauty of using the computer

manually editing the synth from its own front panel will update the computer editor, so once you start editing from the computer, it's best to perform all editing from there, to avoid banks of edited sounds saved to the computer hard disk not reflecting the actual data in the synth.

Choosing between a synth-specific and a universal editor is a rather more tricky decision. Editors designed only for one particular synth tend to be more elegant, since their screen display can be specially designed to suit. In contrast, the universal editor has to come up with a set of standard knobs, sliders and buttons that can be used to produce generic screen displays to suit every possible synth. Much depends on the elegance of the general design, and you may find some universal editors that don't support every parameter of the synth in question, simply because they cannot possibly cope with the idiosyncrasies of every synth manufacturer. Even if they do, the



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## Linking synth sounds to music sequences

► average synth display consists of many 'pages' displayed in a comparatively small front-panel window. The computer equivalent may actually end up slower to use, because it's often quicker to press a few buttons on the synth to get to another page than it is to grab the mouse and scroll to a different place on a large virtual screen.

The beauty of the universal editor is that once you've learned to use it, its interface looks similar for every one of your synths, and you only need to buy it once, whereas each device-specific editor will require a modicum of extra learning, and more money to get it in the first place.

### EXISTING IN HARMONY

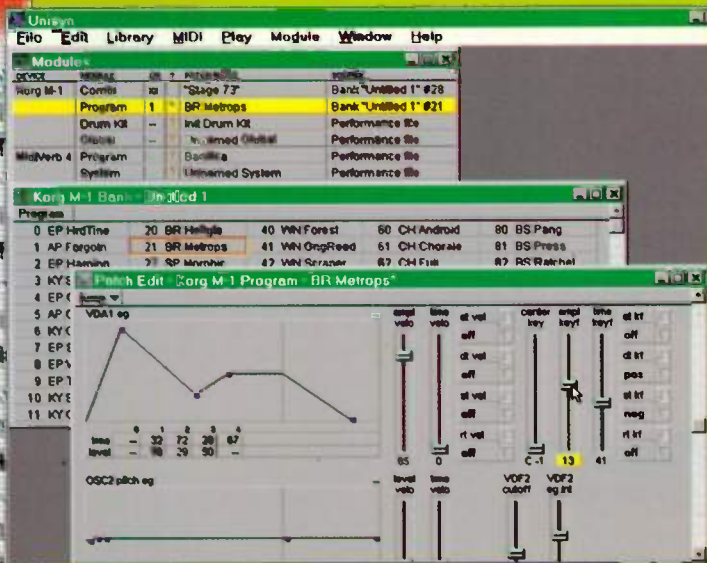
As I explained earlier, the majority of large SysEx dumps need handshaking for reliability. This does make it more difficult to operate an editor in tandem with a sequencer, since both applications will require both MIDI In and Out of the device in question. Although it's easy to play back a sequence while auditioning different sounds, by sending Program Changes from within the sequencer, modifying more specific parameters, such as Decay Time or Reverb Amount, requires the facilities of the editor. It is normally possible to send open-loop data of this kind quite easily, using a multi-client output driver, as this will merge the two streams of MIDI data before

“For a professional, time is money, and if you can find half a dozen suitable sounds from a collection of thousands, and all within a few seconds, you'll either save some money, or have more time to spend making music.”

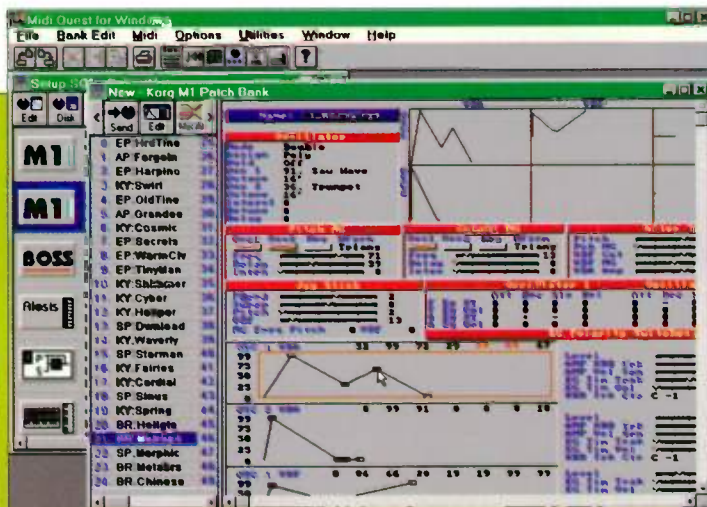
## UNIVERSAL SOUND EDITORS

If you want to indulge in a little global economy, with a universal editor/librarian, *Unisyn* from Mark Of The Unicorn is available for both Mac and PC (and derived from *X-Or*, which originally appeared on the Atari). One of the main competitors for *Unisyn* is

*Midi Quest*, from Sound Quest (or is it the other way round?). This provides much the same facilities, and is available for Windows 95, Mac, Amiga and Atari. Other contenders include Opcode's *Galaxy* (Mac only), and Emagic's *Sound Diver* (Mac and PC).



*Unisyn* from MOTU is available for both Mac and PC, and provides a wide range of editing and library facilities, for a huge range of MIDI devices.



*Midi Quest* is available for PC, Mac, Amiga and Atari, and judging by the *Sound Quest* web site, if there is no profile for one of your synths, another user may just provide one for you.

All these packages are extremely comprehensive, and have largely equivalent specifications.

However, the main selling feature of any universal editor/librarian is the number of MIDI devices that it supports, and all of these packages offer over 200. The huge lists of synths may look comprehensive, but if some of your particular models are not mentioned, there are no guarantees that they will be supported in the future. *Midi Quest* does have the slight advantage of providing a way for users to create profiles for the basic loading and saving of banks, if you have access

to the appropriate SysEx data and don't mind a few frustrating evenings.

Before buying, check that your devices are not only supported by the librarian, but by the editor as well, or you will only be able to send and receive complete dumps, rather than modify individual patches. *Galaxy* was originally only a librarian, and has fewer editors available than the others. Even if the names of each patch can be viewed by the librarian, this doesn't necessarily mean that you can send individual patches by themselves — this may again require specific editor support.



## FURTHER INFORMATION

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**A** SCV London, 6-24 Southgate Road,  
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**F** 01462 814010.

**E** 100415.2665@compuserve.com

**W** www.motu.com

*Midi Quest* Editor/Librarian

**A** Turnkey, 114 Charing Cross Road, London  
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**T** 0171 379 5148.

**F** 0171 379 0093.

**E** support@squest.com

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*Emagic SoundDiver* Editor/Librarian

**A** Sound Technology, Letchworth Point,  
Letchworth, Hertfordshire SG6 1ND.

**T** 01462 480000.

**F** 01462 480800.

**E** soundtechnology@compuserve.com

**W** www.emagic.de/

sending them on to the synth. This is fine for those devices that use only the open-loop approach (you can edit any parameter of the Yamaha DB50XG using *XGedit* and a multi-client MIDI Output driver).

Multi-client drivers are becoming more common, but some have just multi-client outputs, and no inputs, so only open-loop SysEx can be sent. If you have a device that needs closed-loop SysEx transfers, software merging is not normally possible — it would be like expecting to browse the Internet using a telephone party line: everything would get mixed up. Furthermore, when you're sending larger data dumps, a checksum may be used to check the integrity of the data received — the individual values of the bytes in each packet of downloaded data will be added together in a specific way to produce a unique number, and the synth checks the incoming number against the result of its own internal calculation — if there's any discrepancy the synth will request a repeat send of the packet in question.

However, although sending a complete bank of synth data normally requires a closed loop, the individual SysEx messages sent to update one specific control may well still be open loop. This means that the sequencer and editor will often coexist happily, as long as you send the whole bank of data first, and then only tweak controls while the sequencer is doing its bit. Again, this is something you need to try with your own equipment.

If you want to update specific synth controls, such as filter frequency or

resonance, during playback, and record these manual changes as part of your overall performance, you will need a different multi-client driver setup, so that the output from the editor can be recorded by the sequencer (for more details, see my feature 'Making The Most Of Daughterboards' in the February '97 issue).

### THE FINAL SEND

Thankfully, setting up your MIDI system to allow centralised SysEx dumps is something that normally only needs to be done once. As long as you buy a MIDI interface with sufficient room for a few more synths, to be added at a later date, or on a temporary basis when you hire or borrow other equipment, your existing wiring will cope without having to be manually repatched to resemble Spaghetti Junction. You may find that, after taking the plunge and getting everything sorted out, you re-discover the beauty of an older synth, simply because it's far easier to set up and control than before. Let's face it, I'm sure we all reach for the easiest option when looking for a suitable sound for the music in hand — if all you have to do is load a bank of sounds and press a single button to send one to a particular synth, you'll do it. And don't forget, even if you don't contemplate sending banks in all directions, if any of those little batteries inside your synths run down, you'll lose the data currently stored there. How long would it take to re-program all those personalised sounds? Bank them for posterity.

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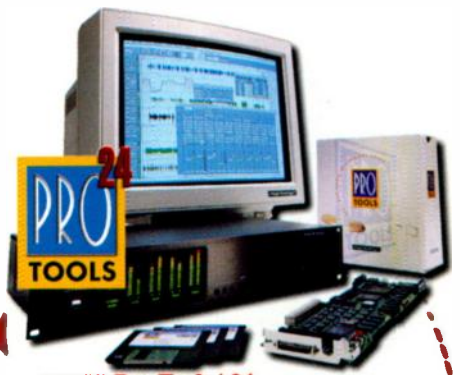
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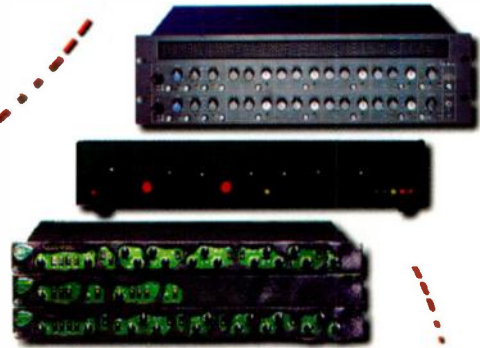
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# it's about time...

MARK OF THE UNICORN  
DIGITAL TIMEPIECE  
UNIVERSAL SMPTE/  
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SYNCHRONISER

*Three years since it was first announced, MOTU's Digital Timepiece is here at last. Bristling with features, it aims to become the one-stop solution for the digital project studio's AV sync needs. MIKE COLLINS explains how to get clock-wise...*

**A**re you using a Pro Tools system along with an ADAT or a Tascam DA88 or 38? Maybe you're putting music to video using Emagic *Logic Audio* or Mark Of The Unicorn's *Digital Performer*? Have you recently bought a Yamaha O2R or O3D, or are you perhaps planning to get the new Mackie digital desk? Until now, you've probably been running a MIDI sequencer locked to a SMPTE code coming from an audio or video tape machine, and all you needed was a SMPTE/MIDI converter. But now you're going to need a new sync box that will keep your digital audio devices all running in step with each other and in step with any SMPTE coming from analogue audio or video machines.

Mark Of The Unicorn's Digital Timepiece (DTP for short) has been a long time coming. It was first announced at least three years ago and shown at various audio exhibitions — where several criticisms of the original design were made, along with some positive suggestions for improvements and additions. Wisely, it was held back until all the suggestions for additional features could be incorporated: the first production units finally showed up in the shops just a short while ago.

## IN CONTROL

MOTU are known for their MIDI Timepiece and other popular MIDI interfaces, as well as their *Digital Performer* software for the Macintosh (my

favourite MIDI sequencer). You might be thinking that you need a Mac to control the DTP — but, fortunately, this isn't the case. All the basic settings can be made using buttons on the front panel; however, you do need to use the supplied *ClockWorks* software for the Macintosh if you want to access all the advanced control features (MOTU plan a PC version eventually, but none is available yet). For instance, *ClockWorks* lets you set the DTP to feed the output of your VCR through the DTP to your video monitor and overlay SMPTE on screen, so that you can see where you are, timing-wise.

You can also display status information about the DTP settings you are using, which can be very helpful at times, and you can display your own text messages on screen — such as the name of the client or the project.

For anyone putting music to video, the features on offer are superb. The Digital Timepiece can generate and slave to every variety of SMPTE timecode, including LTC, VITC and MTC, and it supports both 44.1kHz and 48kHz sampling rates. It also offers 0.1% pull-up and pull-down at both sample rates — an essential feature for anyone working with film cues that have been temporarily transferred to NTSC video for music scoring or audio post-production, as it allows you to avoid sync problems arising from the 0.1% speed difference between the film transfer rate of 30fps and the NTSC video playback rate of 29.97fps. This is not so common here in the UK, where video is normally in PAL 25fps format, but can be important if you need to cover all eventualities while working to picture. The DTP also supports the Sony 9-pin machine control format, so you can slave a Sony 9-pin compatible video deck to the DTP or vice versa. This way you can control the video deck, along with all of your other gear, from any MMC-compatible computer software or hardware controller.

Anyone thinking of using an ADAT or Tascam DA88/38 is going to love the Digital Timepiece. You can hook up a chain of ADATs and Tascam units and control all of these using the DTP's MIDI Machine Control (MMC) transport and record functions. Using the *ClockWorks* software, you can even program SMPTE timecode offsets for a single ADAT within a chain of ADATs, or program individual track offsets for ADATs or DA88s. So you won't need to shell out for an expensive Alesis BRC or Tascam RC848 unless you really need the





using, say, *Logic Audio* with an Audiomedia card, your sequences would be likely to drift over time because there was no way to resolve the Audiomedia card's clock to external timecode. There has always been a software option in *Logic Audio* and the other MIDI + Audio sequencers that adds or removes samples as needed to stay in sync with external timecode, but this degrades the audio quality. Another method was to chop the longer audio regions into many short regions which would then be re-triggered before drift became too noticeable. Neither of these was an ideal way to work, and now you don't need to make these compromises, if you use the Digital Timepiece.

advanced functions available on these, and are prepared to pay for the privilege.

### CLOCKING OUT

The DTP can also output wordclock to devices such as Yamaha digital mixers, Sonic Solutions digital audio workstations, professional DAT or CD players, and digital outboard equipment. Digidesign use a non-standard wordclock running at 256 times the speed of the standard clock used by everyone else (probably to encourage people to buy Digidesign synchronisers), but fortunately, the DTP offers x256 wordclock input and output for use with Pro Tools systems. And you can also synchronise to the clock signals within an S/PDIF audio feed, or generate and output a dock signal via S/PDIF — particularly handy if you're using Audiomedia cards, which don't have separate wordclock sync inputs. Previously, if you were

“The DTP has the functions of at least three separate boxes in one unit — a master clock source, a machine control synchroniser, and a SMPTE/MTC synchroniser.”



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## A WALK ALONG THE FRONT

At the left side of the front panel there are eight pairs of status LEDs, which are there to confirm that communication is occurring between the Digital Timepiece and any devices connected to it. A couple of buttons with associated LEDs at the centre of the panel control the SMPTE functions, letting you set the frame rate or start striping code. Over to the right you get a button to set the sample rate and another to set the timebase, with LEDs to indicate your choices. The Timebase section is where you choose which components of your system are the timebase master and the timecode or address master. For example, working to picture, you might choose video blackburst house sync as your timebase master and LTC from your VCR as the address master.

To select the timebase and timecode address source, you simply press the Source button repeatedly. You can select Internal, MTC, LTC or VITC or Sony 9-pin timecode address sources, and the timebase can be internal or derived from the video input, ADAT, DA88, S/PDIF, wordclock, wordclock x 256, or from either of the two control track addresses.

At the far right of the front panel, next to the power switch, there's a pushbutton for S/PDIF Thru. The Digital Timepiece has S/PDIF input and output, and can slave to the clock within an incoming S/PDIF audio signal, as well as outputting an S/PDIF signal to which a connected device can slave. Sometimes you might want to pass audio through this connection, to copy audio from a CD to a DAT, for instance, so this

button is provided to route the input through to the output as required — without your having to swap cables.

The front panel also has a quarter-inch phone jack for an Alesis LRC or compatible controller.

The rear panel has three pairs of BNC connectors for video, wordclock and Digidesign superclock input and output; a pair of phono connectors for S/PDIF in and out; a pair of ADAT 9-pin Sync In and Sync Out sockets; a pair of DA88 15-pin Sync In and Sync Out sockets; a Sony 9-pin video sync connection; a pair of quarter-inch jacks for SMPTE input and output; two pairs of MIDI In and Out sockets; an RS422 jack for the optional direct connection to a Macintosh computer; and two additional DIN sockets for MOTU's proprietary Control Track protocol — which lets you synchronise two Digital Timepieces.

## WORKING TO PICTURE

I get lots of calls from composers working to picture who are not totally sure about the best way to set everything up to sync to video. To make this clear, it's worth considering the three primary components involved in a synchronisation system for video, digital audio and MIDI equipment. First of all, a rock-solid clock source or 'timebase' is needed for all your digital audio devices to synchronise their clocks to. All digital devices have an internal clock, but professional models and many consumer models can sync to an external clock. Video devices normally sync to a video 'black burst' or 'house sync' signal supplied from a very high-quality video sync pulse generator. Ideally, you should always use a video 'house sync' signal connected to the Digital Timepiece's Video input as the timebase master for your system, because this will provide the most stable clock source to use as your timebase — and you will also get the fastest possible lock-up times when the DTP is using external video sync. Secondly, a timecode address is required to identify where you are within the piece you're working on. This may be derived internally from the DTP or externally from Sony 9-pin, MTC, LTC or VITC sources. Finally, Transport Control (ideally MIDI Machine Control or Sony 9-pin machine control) is required to allow you to play, stop, rewind and cue all the devices in your system from whichever of these devices is acting as the master controller.

So, with the Digital Timepiece at the hub, you can set your system up to control your video deck along with a whole rack of ADATs and any other MIDI Machine Control-compatible devices, using the transport controls of a MIDI sequencer running on your computer. The timebase master is either the DTP or house sync; the sequencer is the Transport master, sending MMC commands to the DTP, which in turn controls everything else. In this scenario, your video deck needs to be able to slave to SMPTE timecode sent by the DTP, or it needs to support Sony 9-pin machine control or MIDI Machine Control. If your VCR has none of these features, you will never be able to slave it to

the DTP: you'll have to use the VCR as both transport and address master — using its transport controls to control everything else in your system and sending LTC or VITC to the DTP to let all your devices know where they should be positionally.

One thing to watch out for is that when cueing to a SMPTE location several minutes away using 9-pin control, the DTP will only wind the video forward at twice normal speed — which is nowhere near fast enough. I ended up manually cueing to the approximate position rather than waiting for the DTP to take me there automatically. It would be nice if MOTU could sort this one out.

There are two final points I'd like to make about working with the DTP. Firstly, if you are working to picture using the Digital Timepiece, it's advisable to use a professional VCR with Sony 9-pin or MIDI Machine Control capabilities, rather than a consumer VHS machine. Also, working with Pro Tools is not quite as convenient as working with the MIDI + Audio sequencers, because Pro Tools doesn't support MMC! Digidesign need to get their act together here, but in the meantime Pro Tools users can switch to MOTU's *ClockWorks* software to initiate MMC commands if they don't mind the slight inconvenience.

## VERDICT

The Digital Timepiece works with a wide combination of digital recording hardware and outboard, as well as MIDI + Audio software and video recorders. What more can you say? It's the near-ideal sync box to use in a digitally-minded project studio, especially if you're working with video.

SOS

### pros & cons

#### MOTU DIGITAL TIMEPIECE

£1049

#### pros

- Has the functions of at least three separate boxes in one unit — a master clock source, a machine control synchroniser, and a SMPTE/MTC synchroniser.
- Can be used with Pro Tools, ADAT, Tascam, and the 02R, but also synchronises consumer DAT machines, Audiomedia cards, and similar devices.

#### cons

- Only one sync output of each type, so you may need a distribution amplifier, unless you're happy to daisy-chain wordclock signals.
- Cueing to SMPTE locations is slow (2x speed only) with a video deck slaved via the DTP using 9-pin control.

#### summary

Ideal for the project studio, the DTP works with any combination of a MIDI sequencer, Pro Tools, ADAT or Tascam, plus the new digital mixers and outboard. It's especially suited to working to picture, as it supports all the frame rates including pull-up and pull-down, and has Sony 9-pin control as well. This could be the only sync box you'll ever need!

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# MultiStory

## MULTI-EFFECTS EXPLAINED

Part 5: PAUL WHITE concludes his series with an exhortation to *unleash your creativity...*

**T**oday's choice of multi-effects units is bewildering, and they come at all prices from less than £100 to a couple of grand or more, but most of the confusion can be dispelled by thinking about what you really want to do with the unit once you've bought it. In most studio situations, effects are used during mixdown rather than when recording, not just so that you can change things at the last minute, but also because recording with a stereo effect takes up two tracks rather than one. Sometimes a track shortage or a mid-project bounce will force you to commit to an effect, but most of the time, they'll be used for the final mix. What you have to work out is — what do you need when you're mixing?

Whatever else you need, it's certain you'll want at least one really good reverb to use on vocals, and perhaps on the drums too. Ideally, two different reverbs are a good idea because your vocals may need a different treatment to your drums. While reverb is invariably a part of a multi-effects unit's repertoire, the other effects aren't going to do you much good if you need to use the reverb on its own. There are two main choices, the first of which is to buy a separate, dedicated reverb processor to handle your reverb requirements, then use a multi-effects unit for treating keyboards, guitars and so on.

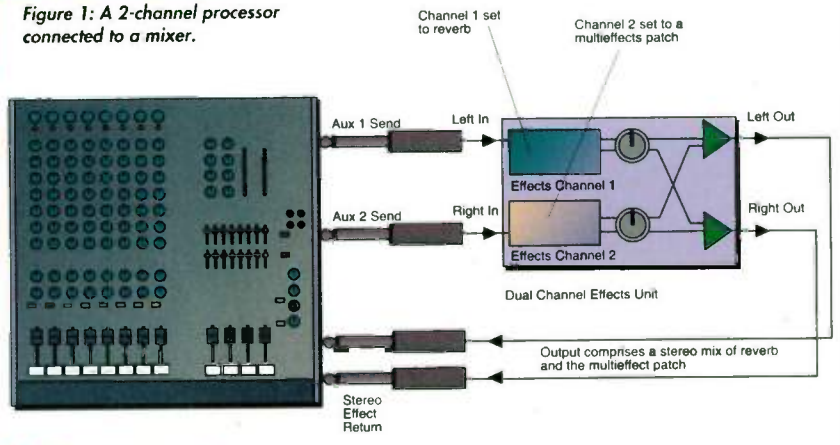
The second option is to buy a multi-effects unit that can be configured as two or more different effects. Most of these allow you to feed one effect via the left input and the other via the right input, which is fine as most stereo effects are created from

a mono source. The left and right effect channels then do their stuff in stereo, and the two stereo outputs are combined at the main outputs to be fed back into the mix via a single stereo return. Providing you don't want to EQ or otherwise process the effect outputs in different ways, this doesn't actually lose you any flexibility, and it saves on effects returns. Figure 1 shows a 2-channel processor set up in this way. Some processors can function as up to four individual effects units with four discrete inputs.

If you choose the multichannel multi-effects route, it pays to be aware that these devices share out their processing power between the different effects in different ways: you may find that once your dream multi-effect is set up in one channel, you don't have enough power to drive a really good reverb algorithm in the other. While you can get away with a crude reverb as part of a multi-effects patch, for use on vocals or drums you need the nicest-sounding reverb going. Unless your effects processor has enough power for the job, you'll probably reach the stage where either the reverb or the multi-effects has to be compromised.

Another consideration with this type of effect is how you patch it into your system. Reverb is almost always fed direct from a post-fade aux send, but when you're using multi-effects on just a single track, it's sometimes better to patch them into the channel insert point so as to avoid mix buss noise. Clearly, if you have a conventional dual-channel effects box, you can only use it one way or the other, not both. Should you want this kind of flexibility, you'll need to make sure you buy a unit that has multiple stereo outs rather than shared outs, so that you're not limited in how you patch things together. Of course, it may be that the expense of going down this route means it's just as affordable to buy a dedicated reverb plus a more conservative multi-effects processor.

Figure 1: A 2-channel processor connected to a mixer.



### PATCHES

Effects patches can take a long time to create, and because they're held in battery-powered internal RAM memory, they can occasionally get corrupted by power surges, or fail altogether if the battery dies on you. These internal batteries last around five years on average, but when they do fail, there's no warning — one day the unit is fine, the next the display comes up with Chinese restaurant menu characters and your user patches have gone forever. ROM-based factory patches will of course remain, but who only uses those?

You probably already know that I'm going to recommend that you back up your patch edits by doing a SysEx dump into a sequencer or MIDI data



filer, but how many of you have actually done it? Even if you're one of the minority who doesn't work with sequencers, the chances are that you'll know somebody who has one and who will let you create a safety copy. Restoring the patches is usually as simple as playing the sequence back into the effects unit, and it only takes a few seconds.

SysEx dumps also provide a means of getting third-party patches into your machine, so if you have friends who use the same model effects unit as you, an hour or two spent swapping patches could be quite productive. Of course you can't load patches from a different make or model of unit, even if they appear to use the same basic parameters, because the System Exclusive commands, as the name suggests, are exclusive to that one machine.

If you're interested in getting hold of more patches, your first port of call should be the manufacturer or distributor, where the product specialist should be able to put you in touch with any user groups that exist. There's also a high probability that the product specialist will have their own stash of useful patches, and if you can get on the right side of them, they might be prepared to swap a few with you — catch them in a *really* good mood and they might just send you a disk full. More professional effects processors can use a plug-in card system for storing patches, and with units such as Lexicon's PCM80, the price of a card buys you not just a new bank of patches, but sometimes even completely new algorithms that give effects you could never have got before.

A popular hunting ground for virtually free

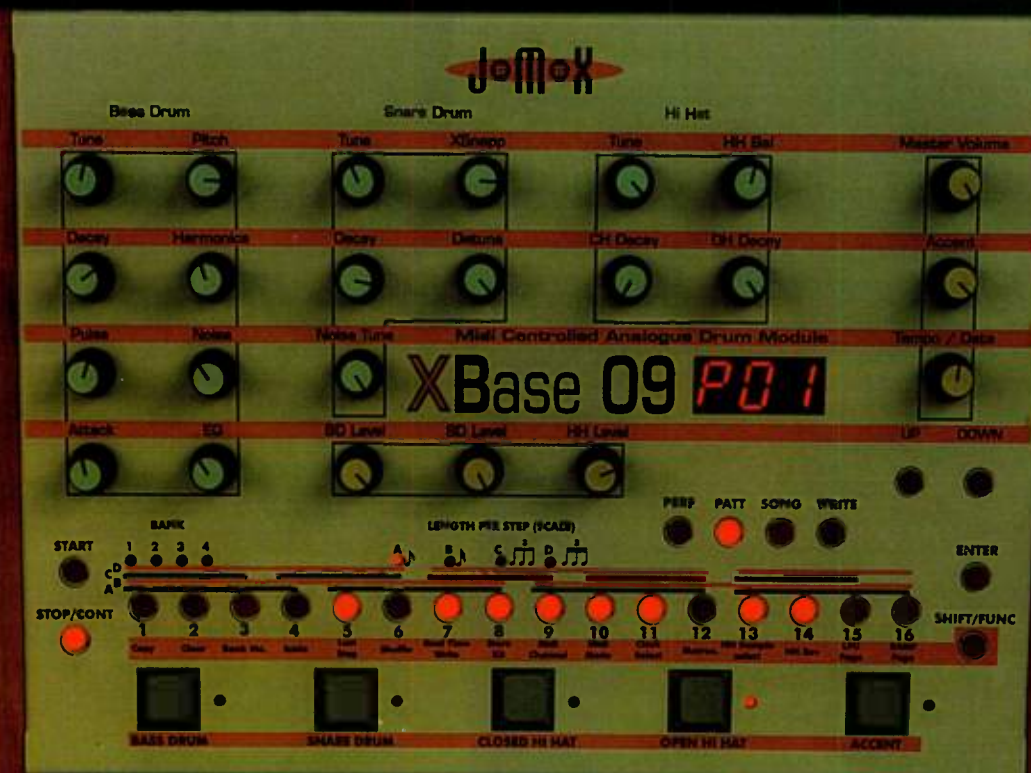
patches is the Internet, where special-interest groups often set up libraries of useful stuff, including patches, that you can download for your own use. If you can get the data onto disk in a PC-friendly format, Ataris will read it directly and Macs should be able to read it if they have either recent system software or a utility such as *PC Exchange* or *AccessPC*. Last but not least, use the *SOS* free ads to let fellow readers know that you have patches to swap — most people would like to get more flexibility from their machines, so you should have no trouble getting a response.

### SUMMARY

During this short series, I've covered both the building blocks of multi-effects, and the ways in which they can be combined. While there's no need to feel guilty about using the factory patches if they do what you want, the chances are that you'll be able to come up with something more appropriate to your own needs if you're prepared to spend a little time experimenting. If you're brave, you can jump right in and start creating new effects from scratch, but you'll be surprised how much can be achieved simply by editing the main parameters of some of the presets, then saving the results. The obvious things to try are changing delay and reverb decay time, and changing the relative levels of the different components of the effect. These edits can be made in moments, yet by doing them you can transform an OK patch into something that's exactly right for your application.

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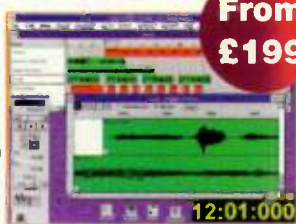
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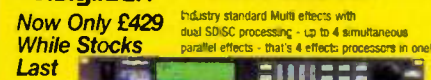
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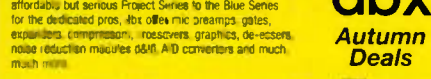
Industry standard Multi effects with dual SDISC processing - up to 4 simultaneous parallel effects - that's 4 effects processors in one!



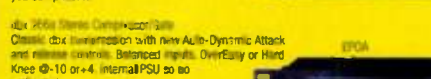
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# Taken as Red

## TSC NASHVILLE MAC CLONE MUSIC WORKSTATION

**PAUL WHITE checks over TSC's latest Mac-clone-based music studio package and sees red.**

**Y**ou may wonder why I'm reviewing a computer, and a bright red one at that, in a music technology magazine, but I have two very good reasons. Firstly, Nashville is a Mac OS system optimised for music applications, and for the past few months we've dedicated so much coverage to PC system support that some readers might get the impression that we in some way endorse it as the computer of choice for music. The reality is that we dedicate so much space to PC support because PCs need that much support! Secondly, there's a tendency to think that Macs are much more expensive than PCs, but the price difference is far less than you might think, especially when you buy a bundled system like this one.

Single-sourced systems are something I've always promoted, because if you buy all the equipment from one supplier, there's nobody for them to pass the buck to if something doesn't work. Despite all our warnings, we still get a large number of calls from buyers (mainly of PCs) who have spent a lot of money on a machine that apparently meets the specifications of their software and hardware, only to find that something doesn't work, because the processor is the wrong type, the BIOS is biased, the standard chip set isn't quite as standard as it should be, or the motherboard was assembled when there was a Y in the day. If the computer will run *Microsoft Office*, the vendor will proclaim it a working PC, and if you turn to the software or soundcard manufacturer, they will point out that this is exactly the same version of *Q-Magic-Walk-32* that is performing flawlessly on 100,000 other systems worldwide. To put it in technical terms, you are seriously stuffed!

Even if the hardware is working perfectly, you may still find it impossible to get your combination of components running until you've sat up for at least three nights scouring Martin Walker's PC articles to find the right check box to tick in the corner of some cryptically named driver extension buried five layers deep in an inscrutable Windows hierarchy, then hidden behind the bat in the Auto Exec file. To turn it back on, you have to learn DOS, use The Force to find your way around the keyboard when the screen inexplicably goes black, shake powdered rhino horn over the disk drive while wearing woad and a grass skirt, then tap the

processor chip three times with a skull on a stick...

Now this doesn't mean that Macs don't have problems — I won't even re-enter the argument by claiming that Mac problems are usually easier to sort out — but if you must make music on a computer, buying a Mac system with all the necessary software and hardware already installed should make the process as painless as possible, especially if you're moving up from an Atari, which owes more to the Mac interface than it does to Windows 95.

### LESS STRAIN TO NASHVILLE

The Nashville is not an Apple product but a clone manufactured in the UK by Computer Warehouse

#### pros & cons

#### TSC NASHVILLE £3171

##### pros

- Comes complete with relevant music software, Korg 1212 I/O card and CD-ROM burner.
- Dual hard drives keep the audio files separate from program files.
- Everything is pre-installed so that even the novice can make progress fairly quickly.
- You don't have to have it in red!
- Two-year parts and five-year labour warranty.

##### cons

- Better system documentation would have been welcome.
- That awful colour.

##### summary

A cost-effective, one-stop solution to equipping a desktop music studio. The computer may be red, but it could help your bank statement stay black.

**SOUND ON SOUND**

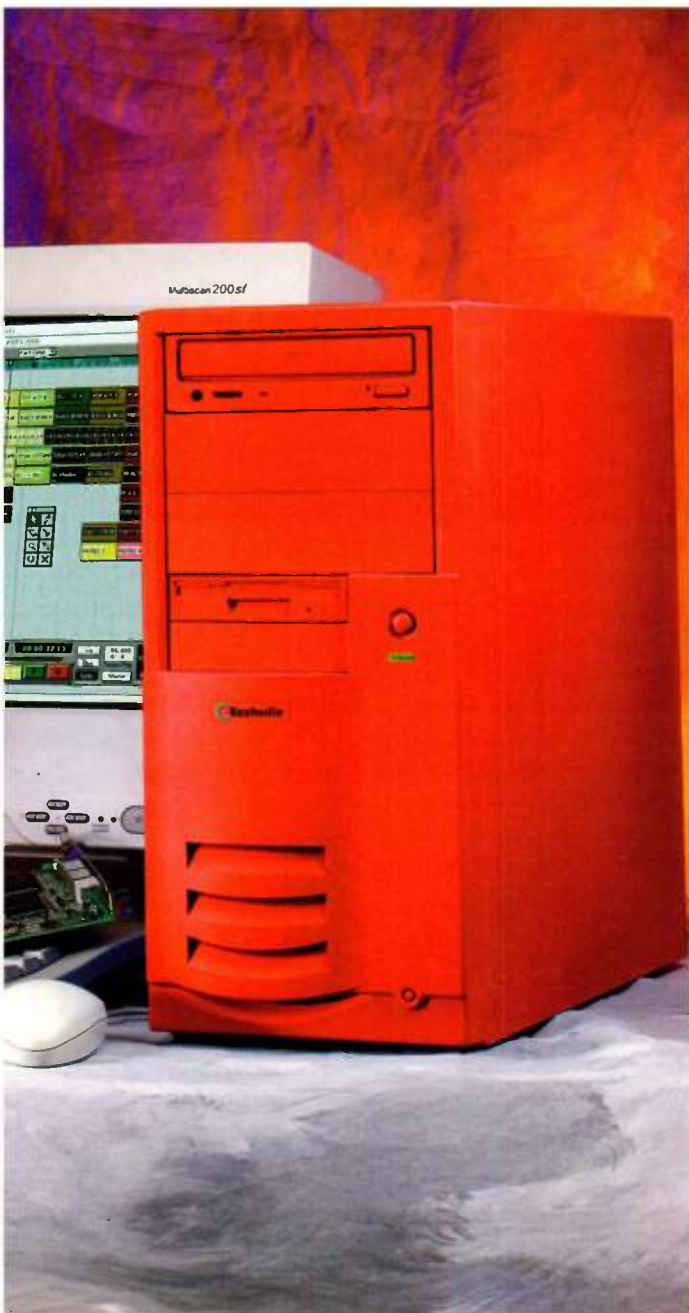




— those people who send out catalogues with the beaming face of what looks uncannily like a used car salesman cloned from past-its-sell-by-date Bob Monkhouse DNA in every page corner. The reason Nashville is being touted as a music system is that it comes complete with Korg's 1212 PCI digital I/O card and Steinberg's *Cubase VST* pre-installed or, if you prefer it, Emagic's *Logic Audio* with Audiowerk8; you get dual internal hard drives so you can keep audio files separate from your applications (Mac-speak for programs); there's a 16-speed CD-ROM drive and, for good measure, an integral CD-ROM burner with Astarte's *Toast CD-ROM Pro* software so you can make your own audio CDs and CD-ROMs. With the current low cost of CD-R blanks, this is also an excellent way to back up audio files after a project is finished. For more mundane tasks, you get a copy of *Claris Works 4* (one of the friendlier suites of business software) and a copy of *mTropolis* multimedia software so you can create a really nice presentation for your bank manager next time you want to upgrade. The system comes complete with keyboard and mouse but, as with most computers, you have to buy the monitor separately.

### TOWER OF POWER

At the heart of the Nashville system is the CPU tower powered by a 200MHz PowerPC 604e processor. Though this is no longer the fastest Mac system on the market, it's still very fast, and, to the best of my knowledge, the 604e is still the top-of-the-line PowerPC processor. With 256K of level 2 cache and 2Mb of video SGRAM fitted as standard, the Nashville has five PCI slots, one of which is



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# TSC Nashville Mac Clone

- ▶ occupied by the Korg 1212 (or Audiowerk8) PCI card. There's inbuilt support for SVGA monitors up to 21 inches with no need for a Mac adaptor, but one omission that irritates me is the lack of a power outlet to feed the monitor. Most Macs have an EC socket to power the monitor, so that when you shut down the computer, the monitor is powered down at the same time. My own Power Computing clone also suffers from this thoughtless omission.

The maximum RAM this machine can accommodate is 160Mb — which doesn't break any records, but it's more than enough for any musical task I can think of right now. Out of the box, Nashville comes with 64Mb of RAM installed, which is about the same as the RAM in all my Macs added together! Hard disk space isn't in short supply either, with a Quantum Fireball 2.1Gb drive as the main drive and a second Quantum Fireball 3.2Gb drive available for the storage of audio files. While the Quantum Fireball 3.2Gb isn't exactly the fastest drive around any more, it seems quite happy delivering eight tracks of simultaneous audio, and there's enough space on the larger drive to hold around 10 track hours of 44.1kHz audio.

It may not have escaped your notice that the computer is red — very red. I can assure you that no matter how red it looks in the photograph, it seems much redder in real life, and the beige mouse and keyboard that come with it just serve to emphasise the magnitude of the redness. Apparently the red casework is a limited edition, and you may be relieved to know that a standard beige version is available as an alternative.

The total cost of this package is £3171, and on top of that you need a monitor — ideally a 17-inch model or larger. Around £3500 should buy you a complete system with a decent-sized monitor. If that seems a lot of money, it's about the same as I originally paid for my Mac SE30 around 10 years ago, when I was earning around half what I do now. The SE30 had a built-in 9-inch mono screen, a 40Mb hard drive, and 4Mb of RAM, and could just about beat an Atari ST on speed from a standing start. At the time, a 1Gb hard drive cost around £4000. Three and a half grand may seem like a lot of money to shell out in one hit, but you really do get a very comprehensive music recording system that needs only a MIDI interface, a synth or two and a monitoring system to complete the picture. You'll also need a mic and a mic preamp of some kind for traditional audio recording, but with Nashville you can take your music all the way from original idea to finished CD. When you take away the cost of the software, the Korg card and the hard drives, the computer is virtually free — so how well does this bargain system stand up to its claim of being an out-of-the-box music solution?

## OPEN THE BOX

It doesn't take more than five minutes to unpack everything and plug in the relevant cables, and a nice touch is the inclusion of a Computer Warehouse *Getting Started* handbook to guide the unfamiliar

through the ritual of getting a Mac going for the first time. Pressing the keyboard start button elicits the familiar musical chime and within a short space of time, the screen is alive with — TSC advertising graphics. Once loading is complete, you see a TSC logo in a window, which you need to close manually to get rid of, and the grey screen background is tastefully embossed with a matrix of CW logos. All this can be changed later if you don't like it.

All the software is pre-installed and there are complete sets of disks and manuals for *Cubase VST*, *Toast*, and the Korg 1212 card, as well as breakout leads for the card. However, the business and presentation software has no master disks and no manuals, so you'll need to back it up yourself, and rely on the on-line help to figure out how to work it. More seriously, I couldn't find a system software disk, but this must surely be an oversight [*TSC say yes, it was*], as all the other clones I've had from CW/TSC have come with operating system CD-ROMs. There were also no spec or other details for the CD-ROM drive or CD burner, and it's important to know the details for the latter if you intend to use it with different software, as not all drives are equally well supported. It would also be nice to know how fast it can read and write without having to refer back to the ad, which reveals the burner unit as a Sony mechanism capable of double-speed burning and up to 12x reading, and the regular CD-ROM drive as being a nippy 16x drive. Come to think of it, they don't even tell you which of the two slots is the regular CD-ROM drive and which the CD

“If you buy all the equipment from one supplier, there's nobody for them to pass the buck to if something doesn't work.”

burner. I discovered that the lower slot is the CD burner and requires a caddy for disk insertion (I thought caddies went out with double-speed CD-ROM drives?). Why am I not surprised that a caddy wasn't included! [*TSC tell me it should have been.*]

This habit of not including master disks and proper information with bundled software is very irritating and should be clearly stated in the ads. Some of the software is password-protected, so don't throw away all the bits of paper that come in the accessories box, otherwise you might





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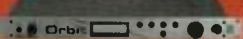
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## TSC Nashville Mac Clone

- ▶ discard the magic numbers that let you access your software for the first time. On a more positive note, there is a copy of the excellent book *Mac OS 7.6 For Dummies* included in the kit and I intend to read it thoroughly before this computer goes back to TSC.

*Cubase VST* is provided on CD-ROM, but to guard against illicit copying, you still have to authorise your hard drive to run the program from a master floppy disk. I really hate disk-based installs as it's too easy to lose an install or damage the disk, but I concede that manufacturers have to protect their rights some way.

Functionally the system works fine, and I'm pleased to report that the fan and hard-drive noise is lower than on most Mac clones. You still wouldn't record vocals sitting at the keyboard, but you might get away with it if you stand at the other side of the room. The mouse that comes with the system has two buttons, which is confusing for a Mac user, who generally only has a single rodential appendage to deal with. In fact it works out rather well as the right button is configured as a click and hold function, so you don't have to keep holding the button down when exploring menus or dragging things. Clicking again 'unholds' the mouse.

I checked out the CD-ROM burner, which works perfectly well (I happened to have a caddy for one of my own antique drives), if a little slowly at only double speed. However, to get one bundled in as part of such an attractively priced system is still impressive, so it would be churlish to moan. *Toast* can be used to create CD-ROM backups of material stored on the hard drive, and also to compile audio CDs where the individual tracks have been saved as AIFF or SDII files. However, it compiles in track-at-once rather than disk-at-once mode, so the finished result, though perfectly playable on a regular CD player, is not ideal for use as a PQ-coded master for CD production. Some disc pressing companies apparently have software that will allow them to duplicate from these disks, but unless the duplicators are specifically equipped to deal with them, the switching on and off of the laser between tracks may cause errors that are audible on the final pressing as clicks. The manufacturers of *Toast* should have a new package called *Jam* available shortly, and this will provide a better set of dedicated audio CD tools for making PQ-encoded masters. We'll be featuring a spread on *Jam* as soon as it lands on our table.

### SUMMARY

It's not my intention to cover the software or hardware bundled with the Nashville, as all the musically relevant elements have been covered in depth in *SOS* in recent months. (For a full review of *Cubase VST* for the Mac, see the July '96 *SOS*. Korg's 1212 card was scrutinised in our July '97 issue; *Toast* last popped up in Mike Collins' article on burning your own CDs in March '97.) The real question is whether the Nashville is a practical desktop audio system, whether it's good value, and whether it is as

complete as it might at first appear to be. On the whole, it creates a very good impression, though I'm not sure I could live with the red version. A couple of the bundled components, such as the CD-R drive and the Quantum Fireball 3.2Gb drive, are a little long in the tooth, and consequently not quite as nimble as more up-to-date components, but they still do the job in hand admirably well. Everything comes properly installed and ready to run (though

“You get a very comprehensive music recording system that needs only a MIDI interface, a synth or two and a monitoring system to complete the picture.”

you have to authorise the software on first running it), and my only gripes are the lack of a CD caddy, the absence of master disks and manuals for the office/multimedia software, and the need for a little more in the way of general system information.

I feel that some care has been taken to keep the system reasonably quiet, the basic computer is very powerful, and all the music-related accessories are thoughtfully chosen. Having the option of *Logic Audio* and *Audiowerk8* is also sensible, as the imminent *Logic Audio 3.0* offers a similar virtual studio environment to *Cubase VST*, complete with effects and signal processing. ADAT users will also be glad of the 1212's ADAT interface, though everyone else will have to make do with routing everything via a single stereo output. If you haven't already been sold down the PC route by the argument 'Well, I'll be able to play games on it too' (and see how long your system keeps working if you do!), the Nashville goes a long way towards equipping the desktop studio at a very competitive price.

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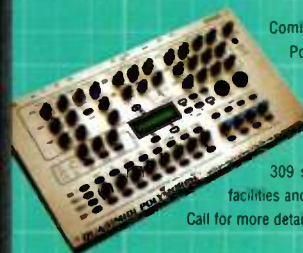
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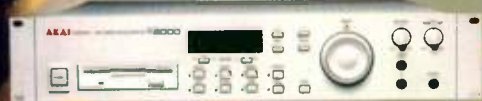
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**Y**amaha have again waded into the GM module market with — *Hang on, wasn't this reviewed a couple of months back?* No, no, no, pay attention, that was the MU90R. *But it looks, feels and smells exactly the same, and it can't be an upgrade, given that the MU90R was only just released. Correct. So what the heck is it?* If you'll let me finish...

Calling the MU100R a GM module is like calling a Ferrari a 'good little runner': it doesn't begin to explain what's on offer. There are even more sounds available than on the MU90R, more drum programs, and more effects and, most interestingly, the MU100R has an integrated VL tone generator utilising Yamaha's sophisticated (and processor-intensive) Virtual Acoustic Synthesis system, as found on the likes of their VL70m tone module.

via its serial interface, so there's no need to fit a MIDI interface; a Host Select switch allows you to switch between Mac and PC protocols. The only thing left to mention on the back panel is the cable clip, a very welcome inclusion — if manufacturers are going to lumber us with external power supplies, the least they can reasonably do is fit a clip to stop accidental unplugging of the flimsy cable.

### INSIDE OUT

Inside, the MU100R is a 64-note polyphonic, 32-part multitimbral sound module, compatible with General MIDI and Yamaha's own expanded version of GM, XG-MIDI. The internal architecture of the module breaks up the memory of the sounds into 200 more sophisticated patches called Performances, with the remainder of the space devoted to the host of other GM and XG sounds.

I don't own a MU90R, but I remember enough about it to recall being pleasantly surprised by the consistently excellent sound quality, and there certainly hasn't been any degradation in the presets. Everything shimmers, wibbles, groans, bristles and parps when appropriate, and the sounds have a usable transparency that makes them cry out to be stuck in your mix somewhere.

The Performance patches employ up to four of the XG/GM presets and are consequently more complex and impressive. Surprisingly, not many of the patches use all four of the available parts; mostly it's

# TONE OF FUN?

## YAMAHA MU100R TONE GENERATOR

*Yamaha have taken their MU90R, wired in a VL tone generator and put a three-part harmoniser in the effects section. The result is the MU100R. CHRISTOPHER HOLDER gets virtual.*



### STACKS ON

If you put an MU100R on top of a MU90R you would be hard pressed to spot any difference, save the pink lettering that boldly states MU100R. Elsewhere things are looking very familiar. So familiar, in fact, that I'm going to give you the dreaded 'refer to' cop out. In our May '97 issue, there appeared an incisive, hard-hitting, take-no-prisoners, appraisal of the MU90R, written (coincidentally enough) by myself. My opinion of the user interface still holds true; it's been well thought out, even if it is a tad fiddly. The main screen is large and informative, with the main parameters in front of you for easy adjustment. Reverb, Pan, Chorus, Volume and Transpose are among the welcome 'home page' inclusions. The fiddly element is the tiny buttons, which require the sort of digital nimbleness normally only found on underworld figures called 'Fingers'.

Around the back of the unit the landscape also remains the same. The left and right outputs are joined by two individual outs; two MIDI Ins, an Out and a Thru round off the usual suspects. Like a lot of current GM modules, the MU100R gives you the ability to connect straight to your computer terminal

just one or two on display, which seems a waste. My favourites? Well, I like some of the choices for the split keyboard patches, such as the Two Flutish patch, which combines a haunting sine-wave patch with one of the more expressive pan flute emulations you'll come across. Some of the rave effects are fantastic, if you've been commissioned to write music for a chat-line commercial: Fancy Pad lives up to its name, and the analogue recreations are creditable. Most of the sounds are nicely responsive to your modulation wheel, not just giving you the stock tremolo effect, but sometimes filter effects and other surprises. What I remember mentioning in the MU90R review, and still holds true here, is my disappointment in not having the Performance sounds available in multitimbral mode. I know that the sounds are more complex and often rely on the individual manipulation of the effects, but this would have been nice, especially given that Yamaha's competitors have done it. Even if it meant having an option that halved the multitimbrality to 16 parts to achieve this, it would be worth it.

The effects section is incredibly well specified. Yamaha, in my view, have few peers in supplying top-class effects for very little money, and the



MU100R bears testament to this in volumes. There's the equivalent of least two stereo effects units in the MU100R: you have 12 different reverb types at your disposal, as well as 15 chorus effects, and 70 different Variation effects, all assignable to a part from the home page — no digging through multiple edit windows here. On top of that, two insert effects can be swung into action. Simply assign an insert effect to the part that requires it and scroll through the 43 different available options to give the sound the edge it needs — apply a rotary speaker to your organ, distort your guitar sound or flange your analogue lead without messing with any other elements of your mix.

Most of this, of course, you'll remember from the MU90R review. Let's take a look at what makes the MU100R worthy of its new serial number.

### SUPERMODELLING

The most obvious souping-up of the MU100R is the inclusion of a monophonic VL tone generator. This uses physical modelling synthesis, which of course is the flavour of the month, with the success of the Clavia Nord Lead and Korg's Prophecy, and the release of the new Korg Z1. Yamaha kicked off this revolution with the outlandishly priced VL1, and then followed it up with the scaled-down budget version, the VL7. But even the VL7 was a purchase most musicians would find difficult to justify, and it wasn't until the VL70m half-rack

didn't emerge for some time. I assigned various VL parameters controller numbers and went to work. Firstly came note pressure, and I used that instead of changing note velocities, which had the effect of altering the timbre of the instrument as well as the volume. Using the mod wheel on my controller keyboard and the Transform function in *Cubase*, I played about with various other controllers, such as growl and breath noise. Even as an ex-saxophonist I couldn't help but be smug about the results. It sounded exactly like a complete novice blasting away on their first lesson, with the sax bending, squealing and parping like a bastard. Truly satisfying.

The attention to detail in other sounds is just as remarkable. For instance, when you pitch-bend a trumpet sound upwards, it does so in that peculiar stepped portamento manner that a trumpet actually does. I think the lesson to learn here is that the MU100R has the capacity to imbue your VL phrasing with amazing instrumental virtuosity or with the mistakes and irritations of the rank beginner, but the key is that the level of control overall can give your work the character previously unheard in sample-based synths.

### HARMONIOUS RELATIONS

What I haven't recapped, as far as the MU100R's similarities to the MU90R are concerned, are the A/D inputs located on the front panel. The general idea is that you can plug any external audio source

**pros & cons**

**YAMAHA MU100R £849**

**pros**

- Integral VL tone generator.
- Harmoniser.
- Classy and versatile effects section.
- Two A/D inputs.
- Great range of sounds.

**cons**

- Interface a little fiddly.
- No breath-controller input.
- Multi setup memory volatile when switched between multi and performance.

**summary**

A top-quality 32-part sound module, three stereo effects units, a VL sound module, and a harmoniser, for £849? You do the sums.

SOUND ON SOUND



module version was released that Yamaha could give their take on physical modelling the sort of mass exposure they thought it deserved.

Rather than take a waveform or a sample and muck about with it as conventional S+S synths do, a physical modelling synth will simulate all the defining characteristics of an instrument and have a set of 'controllers' to realistically alter those characteristics. (If you want to know more about Yamaha's physical modelling synthesis, you could do worse than look at Martin Russ's VL70m review in our October '96 issue.)

When you play the VL sounds on the MU100R, your first impression is "Mmm, nice guitar/sax/clarinet/trumpet, but hardly eerie in its realism". You only really begin to understand the expressive nature of the model when you start experimenting with the controllers. With a healthy degree of cynicism about the radical nature of this process, I embarked on the writing of a sax solo — an instrument notorious as the acoustic musician's favourite example of the hopeless inadequacies of synthesizers. I keyed in the notes and I played it back, to hear the customary synth sax stodginess. Then I jumped headlong into the edit pages of the VL part and

into the unit and enjoy all the benefits of the MU100R's effects, panning and so on. The applications are obvious: play along to an external CD source, play guitar to MIDI files, route a synth source through the MU100R when mixer inputs or effects are scarce, or plug a mic in and sing along to your compositions.

This last example gave rise to the next new inclusion, namely harmonising effects. Not only can you route vocals through the MU100R, you can enjoy up to four-part harmonies. You can pre-program the harmonies, or play them from your master keyboard. The MU100R recognises 34 different chords in any given key, so there's decent scope for experimentation.

In practice it works fine, but it does take a good deal of rehearsal to get the singing and the harmonies spot on. The Vocoder patch will probably be useful here — not really a true vocoder at all, what it does is let you effectively play along to the vocals, keying in chords to accompany the tune. This is particularly useful if you're singing *and* playing because, obviously, you can anticipate your own moves.

Another neat inclusion worth mentioning is an assignable controller for each patch. If you thought

“The effects section is incredibly well specified.”



# Yamaha MU100R

- ▶ footpedals were for organists or sissies, then now's as good a time as any to rethink. Being able to continuously open and close the filter in real time with your foot (or hand, if you want the pedal on your desktop), is just another technique to get some life and movement into your music.

## THE CHANGE WILL DO YOU GOOD

I like the MU100R, mostly for the right reasons, namely the sounds. Constructing songs is as easy as working with Duplo: the sounds all seem to dovetail nicely together. The effects have a lot to do with this: they're as classy as they are plentiful. Because of the sophisticated nature of the sounds, it's sometimes easy to forget that this isn't a programmable synth as such (you can construct your own Performances, but the level of editability is not as sophisticated as on a 'true' synth). But don't think of the MU100R as a slightly inflexible synth; think of it as an exceedingly flexible GM/XG tone generator.

The new alterations to the MU lineage that have brought about the MU100R are impressive. The VL monophonic sound source is a real bonus and for many will be a cost-effective introduction to physical modelling synthesis. It's not exactly a VL70m shunted into the MU100R chassis — it's a little more pruned down than that (although a software editor is included to give you the same access to the VL voicings as on the VL70m) — but it does offer enough sophistication for you to achieve something truly outstanding, whether it be acoustic or analogue synth emulation. A mini-jack input for Yamaha's BC3 breath controller would have been nice (as would a socket for their WX wind controller) to get the most out of the VL sounds — especially given that my impression when the VL70m arrived on the scene was that Yamaha considered a breath controller virtually mandatory to tap into the true expressive nature of their sounds.

All this along with the two A-D inputs and the new harmoniser effects section makes the MU100R an impressive studio tool. For those on a budget looking for the magical 'one-box solution', the MU100R comes as close as anything on the market. If you were a guitarist-cum-vocalist with a MIDI keyboard and sequencer, the purchase of the MU100R and perhaps a 4-track tape machine would turn your setup into a true recording studio for only around £1000 — you wouldn't even need a mixer. The MU100R would be equally powerful for live work, particularly for a one-man band. If you are currently singing along to MIDI files on stage, this would expand your options tremendously — plug in a guitar, enjoy full barber shop/Bachelors/Spice Girl harmonies, and so on.

At some £300 extra, clearly the MU100R won't be superseding the MU90R, but it will make many think about reaching deeper into their pockets, and to my mind it would be £300 well spent.

**SOS**

## SHOP AROUND

At £849, the MU100R is considerably more expensive than any of the other GM modules on the market, but for obvious VL-related reasons.

The main players continue to be Yamaha, Roland and Korg, with the MU90R, the SC88 and the NS5R respectively. All are well worth investigating to compare their relative strengths. The Yamaha MU90R was reviewed in May '97, the Roland SC88 was reviewed in March '97, and the Korg NS5R was reviewed in the February '97 issue of *Sound On Sound*.

“The sounds have a usable transparency that makes them cry out to be stuck in your mix.”

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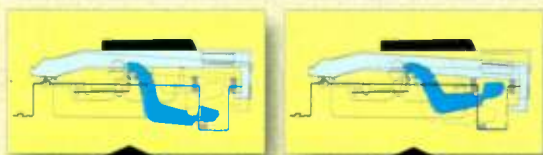
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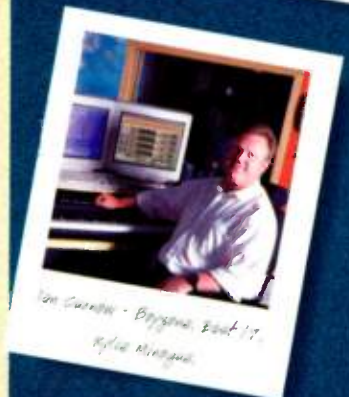
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*Emu have conjured up a combination of sampler and sample playback unit which makes the capabilities of their E4X sampler available at a significantly less-than-E4X price. SIMON TRASK looks for the sleight of hand...*

**F**or a number of years Emu have been producing both digital samplers and sample playback modules. Now the company have used their expertise in these two genres to come up with a single instrument, the E-Synth, that combines the convenience of preset samples and patches instantly available in ROM with the flexibility that comes from putting sampling into the hands of the user. But does the E-Synth give you the best of both worlds, or is it simply orbiting another planet?

#### INSTANT ACCESS

The E-Synth is essentially a rebadged E4X sampler with a 16Mb sample ROM board fitted as standard (the board is also available as an option for the E4X). Emu's new module uses the same EOS (Emulator Operating System) software as the E4X and several other Emu samplers, and also has the same hardware capabilities as the E4X — yet it costs £450 less than the E4X, and £895 less than the combination of E4X and sample ROM board.

To help keep the E-Synth's price down, Emu have removed the internal 540Mb hard drive and the AES/EBU plus ASCII keyboard interface card, fitted as standard on the E4X; instead these features are available as options on the new module. But even taking these differences into account, the E-Synth seems like a more affordable

way of getting an E4X. It can also be fitted with all the options available for the E4X, so for instance you can upgrade it to 128-voice polyphony (standard is 64) and 16 audio outputs (standard is 8). And by not including an internal drive, the E-Synth gives you the flexibility to fit the 540Mb or 1Gb drive options available from Emu (as fitted on the E4X and E4X Turbo respectively) or a larger drive (the E-Synth, like the E4X, can actually address up to 9Gb internally or externally).

Like the E4X, the E-Synth comes with 4Mb of volatile sample RAM as standard, upgradable to an impressive 128Mb, and can optionally be fitted with 8Mb or 16Mb of flash RAM for non-volatile sample storage. However, to have access to more than 64Mb of volatile sample RAM, you have to disable the sample ROM and flash RAM using a parameter in Master mode. Incidentally, Emu will also be bringing out a keyboard version of the E-Synth (price to be confirmed) which, I'm told, will have the same functionality as the module except for there being one option port to the module's three (so you couldn't have both eight additional audio outs and an extra MIDI In and MIDI Thru port).

#### EOS

As I mentioned above, the E-Synth software is Emu's EOS software as used on the E4X and several other Emu samplers. In fact, the new module has v2.8 of

# E is for Synthesizer

EMU E-SYNTH PROFESSIONAL DIGITAL SYNTHESIZER





the software, whereas the E4X currently comes with v2.5; 2.8 is an interim release that supports the sample ROM and also introduces a new 'SGI on SCSI buss' feature, which does for SGI computers what the existing 'Mac on SCSI buss' feature does for Mac OS machines, which is to ease the interaction of computer and E-Synth via SCSI. New v3.0 software, due soon for all EOS instruments, will upgrade the current 'scratchpad' sequencer to a 48-track workstation-quality sequencer with full editing, and also add support for EOS Sound Diver editor/librarian software for Mac and PC. In the meantime, the E-Synth comes with a voucher for a free copy of the new version 3.0 software.

With the same software as the E4X, the E-Synth of course provides the full sampling, sample-editing and synthesis capabilities. Despite being labelled a synthesizer, then, the E-Synth qualifies as one of the most powerful and sophisticated samplers on the market (Emu themselves call it a 'ninth-generation instrument'!).

### SAMPLE ROM BOARD

The E-Synth's 16Mb sample ROM board contains just over 900 samples, which you can use individually for your own patches by assigning them to Preset Voices (see below). However, Emu's module also comes with 256 ready-programmed Presets, stored in the module's 4Mb CPU flash RAM and automatically available on power-up as Presets 1000-1255 (so they're above the 1000 volatile RAM Presets). These 256 Presets use the ROM samples, of course, but because the actual Preset parameter data is stored in flash RAM rather than the sample ROM, you can edit any and all of the 256 Presets to create your own custom sounds.

However, you'll probably want to store the results in the volatile RAM Preset memories (and save them to floppy disk, of course), as Emu have come up with an excellent collection of Presets demonstrating the quality and variety we've come to expect from the company. The emphasis is on providing a well-rounded collection of instrumental, pad and atmosphere sounds for mainstream music production and soundtrack work. There are plenty of acoustic and electric pianos and basses of all kinds, all of them strong and clear, with the basses evincing a very effective tight, punchy, energetic character. Guitar, brass and woodwind sounds are also well catered for, as are tuned percussion and synth leads. Ensemble strings sounds are full, rich and smooth, while the pad and atmosphere sounds are wonderfully deep, full and evocative.

The E-Synth's flexible Preset architecture, which affords complete freedom in multi-layering and multi-splitting samples and synthesized sounds (see below), means that you can build up huge complex multi-layered and split sounds within individual Presets — a capability that's used to good

effect in the pads and atmospheres. A few drum kits are included, and the drum and percussion samples are clean, tight and punchy with plenty of energy. Overall, the E-Synth's characteristic clean, rich Emulator sound makes it one of the most professional-sounding instruments you can buy, though on the flip side it lacks the 'street-level' grittiness of an Akai sampler and may sound too polished and produced for some.

### SYNTHESIS

Typically, a patch in a sample-based synthesizer will have a single set of synthesis parameters for the entire key range or multisample. However, as the E-Synth has been built from the ground up as a sampler, it allows each individual sample to have its own synthesis parameter settings. In EOS lingo, one or more Samples are combined into a Voice, and up to 256 Voices can be combined into a Preset in freely creatable key and velocity split/layer configurations. It's at the individual Voice level

“You can edit any and all of the 256 Presets to create your own custom sounds.”

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# Emu E-Synth

## pros & cons

### EMU E-SYNTH £2699

#### pros

- Ready-made collection of quality instrumental sounds.
- Powerful sampling and editing capabilities.
- Morphing filters enhance synthesis flexibility.
- Expandability.
- Keen pricing from Emu.

#### cons

- Using ROM or flash RAM boards halves the maximum sample RAM.
- Slow LCD scrolling and page changes.
- The Number Lock button isn't labelled, or indicated in the manuals (it's actually the  $\pm$  button).

#### summary

With its large, well-rounded collection of preset sounds, the E-Synth lets you start making music straight away, but also gives you the sonic open-endedness and flexibility of a professionally spec'd sampler. An instrument that can grow with you.

**SOUND ON SOUND**

▶ that the samples are routed through a morphing filter and a dynamic amplifier with associated six-stage filter and amp envelopes, a third, freely assignable six-stage envelope, and two freely assignable multi-wave LFOs. The E-Synth also has a sophisticated modulation matrix, in which any of 56 modulation sources can be connected to any of 53 destinations using up to 18 virtual 'patch cords', programmable per Voice.

The morphing, or 'Z-plane', filter, originally developed by Emu for their Morpheus module, provides a choice of 21 filter types, including various resonant low-pass, high-pass and band-pass options as well as six morphing options; the morphing filter types enable sophisticated timbral changes by providing continuous interpolation (morphing) between two filter 'frames'. The E-Synth has two effects processors, A and B, configurable in parallel or series and offering a choice of 44 reverb and 32 modulation effects respectively. These are programmable per Preset (for Omni and Poly, that is single Preset modes) or globally for all 16 multi parts (Multi mode, one Preset per part). Effects routing can be done at the Voice level, though in Multi mode you can override these settings at the individual part level with a single part setting.

Another way to create new Presets is to add and remove Voices, with copy functions allowing you to quickly add individual and multiple Voices from other Presets. An even simpler, quicker way to create new Patches is to use Emu's time-honoured Link function to freely split and layer two or more Presets.

44.1 or 48kHz); you can also resample internally from the main outputs as you play the E-Synth. After sampling, the new sample is automatically assigned to its own Voice, and you can set original, low and high notes and assign the Voice to a Group; other options let you automate the keymapping process together with truncation, normalising and looping, and create multisample Voices. For auto looping you can choose from several loop lengths, with or without auto crossfading. Once this initial work is done, you can choose from some 16 additional sample editing and processing tools, including time-stretching and pitch-shifting, to further work on your samples.

You can also draw on existing sample libraries, of course. The E-Synth comes with two Emu CD-ROMS, one a compilation of material from CD-ROM Volumes 1-17, the other (*Emulator Production Set*) providing a General MIDI sound set. Emu have a large commercial CD-ROM library as well, and the E-Synth can also read and convert Akai S1000 and S1100 and Roland S700-series discs.

## CONCLUSION

The E-Synth could be seen as simply a crafty repackaging exercise designed to highlight the (not inconsiderable) synthesis capabilities of the Emulator series and attract musicians who feel happier with the convenience of instant access to preset sounds. You can get the same capabilities by adding the (stand-alone) sample ROM board to an E4X. However, the E-Synth's keen pricing is a definite plus, making it a significantly more affordable option than the E4X plus ROM board. Emu deserve credit for not compromising on any of the E-Synth's sampling and sample-editing capabilities; bear in mind, though, that you'll need to budget for extras such as more sample RAM, a hard drive and a CD-ROM drive, and perhaps the AES/EBU interface, if you want to make the most of these capabilities.

The E-Synth, then, combines the convenience of preset sounds with the flexibility of sophisticated synthesis capabilities and the expandability of powerful sampling and sample-editing features, and all at an attractive price for what is a high-end professional instrument.

SOS



## SAMPLING

To get you started with sampling, the E-Synth provides a modest 4Mb of volatile sample RAM as standard, though this can be upgraded using 4Mb, 16Mb or 64Mb 72-pin SIMMs, 70ns or faster, which are freely mixable in two internal slots — though bear in mind that if you combine different memory sizes, only half the memory of the smaller size is read (in effect this means you can have a choice of 4, 8, 16, 18, 32, 64, 72 and 128Mb of volatile RAM). The E-Synth can address up to 1000 samples in its volatile sample RAM.

The E-Synth provides stereo sampling from analogue inputs (at 22.05, 24, 44.1 or 48kHz) or, with the AES/EBU option fitted, digital inputs (32,

## RELATED REVIEWS

- Akai S3000XL: December '95
- Akai CD3000XL: January '97
- Emu EIV: April '95
- Emu E4K: April '96
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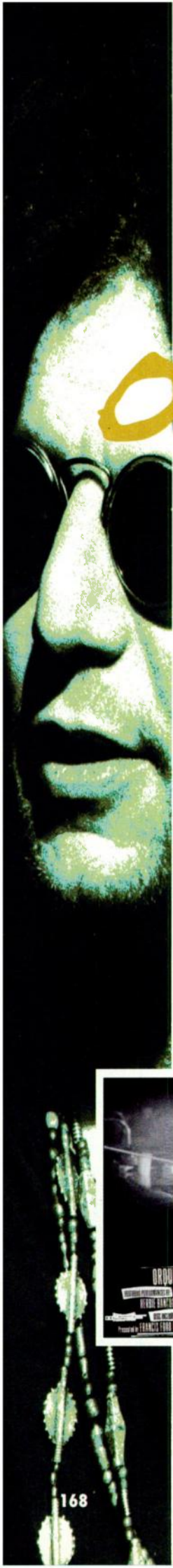
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**D**on Was is one of the most famous and fêted producers on the planet today. Over the last 15 years, he's collected a list of credits so long and impressive that it makes you gasp: The Rolling Stones, Elton John, Bob Dylan, Willie Nelson, Bonnie Raitt, Brian Wilson, Kris Kristofferson, Stevie Nicks, Jewel, Randy Newman, and so on, and so on. In 1995, he was awarded a Grammy for Best Producer of the Year, and two albums he produced, Bonnie Raitt's *Longing In Their Hearts* and The Stones' *Voodoo Lounge*, also received

when you have bullshit on tape."

Listening to his two most recent releases, you can get an inkling of what he means. The Stones have always grated on this writer's ears, but their brand-new, Was-co-produced effort *Bridges To Babylon* is actually highly listenable, with some excellent songs and performances captured in a solid but engrossing production. But Was' new-found musical insights are most evident in his first effort as an artist in his own right since Was (Not Was)'s last album *Are You Okay?* back in 1990. This album, by the new Orquestra Was ensemble,

# Orquestra Was Manœuvres

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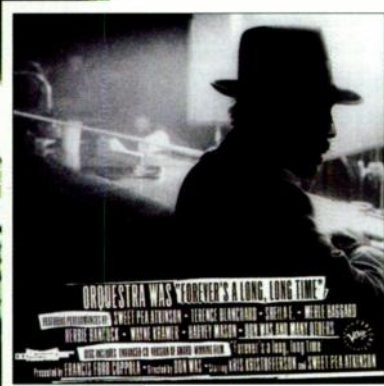
**The skills of world-class producer Don Was are constantly in demand. But, as he explains, years of taking care of someone else's work can have a disastrous effect on your own. Here, he reveals to PAUL TINGEN why (and how) he released a record of his own for the first time in seven years.**

is called *Forever's A Long, Long Time*. Released earlier this year, and based around a number of songs written by '40s and '50s country legend Hank Williams, it's a gem. Even though Was (Not Was) became steadily more commercial and mainstream during the second half of their career, they were known for their leftfield musical approach and taste for the bizarre, always employing the weirdest song titles, lyrics and musical juxtapositions. Orquestra Was take this tradition even further; Was' statement that he's "taken some liberties" with Williams' songs on this album is one of the understatements of the year. For apart from the straight country homage 'I'm So Tired Of It All', sung by Merle Haggard, the other songs are such a radical deconstruction of Williams' originals as to render them almost unrecognisable. Was has chosen to frame them in lazy but infectious hip-hop/funk grooves, with soul-tinted vocals, striking brass arrangements and jazzy instrumental improvisations surfing over the top. And his complementary, half-arranged, half-improvised instrumentals sound like outtakes from Miles Davis' wildest electric periods.

"The album didn't get bad reviews, it just got bewildered reviews", recounts Was, "they clearly didn't know what to make of it. So instead of writing about the music, they kept writing about circumstantial matters." It's easy to see why the album was so hard for reviewers to grapple with; in revamping Williams' songs, Was has come up with a truly fresh and innovative musical vision. On first listening, the whole thing sounds totally peculiar, but soon the slow, burning grooves, arresting brass lines and intense vocals create a mood that's irresistible. The amazing thing about this album is that it's not only the result of Was' recent re-invention of the way he makes music, but that it also comes out of the depths of the deepest musical

Grammys. In 1996, he was again nominated for the Best Producer Of The Year award. On top of all this, during the '80s, he was highly successful as an artist in his own right, with his idiosyncratic band Was (Not Was), who were responsible for worldwide hits such as 'Walk The Dinosaur' and 'Spy In The House Of Love'.

And yet, this man, who is widely credited for having "the magic touch" when it comes to production, was just recently telling me via transatlantic telephone that he has only just discovered what making good music is about: "That 'magic touch' stuff is just what people write; I don't know what to make of it. I've made some good records and I've made some shitty records. And I didn't necessarily know why some records turned out to be shitty and others turned out to be good! Accidents happen. In fact, I'm 45 now, I've been playing music since I was 13, and I feel that only in the last year have I finally started to learn how to really play. What I've learnt in the last year is double of what I've learnt during the past 20 years. And one of those things is to be able to recognise when you have truth on tape and



*Forever's A Long, Long Time.*





identity crises that he's ever suffered. *Forever's A Long, Long Time* sounds like the accomplishment of a man with a clear and well-developed musical vision, and yet, as Was explains, it was produced in a time when his production work nearly killed off his own musical impulse. In 1995, having just completed work on a film about the life of Brian Wilson, the troubled founder of The Beach Boys (the acclaimed

*Brian Wilson: I Just Wasn't Made For These Times*), Was took part in an Internet-based discussion with Wilson to promote the film and the accompanying album of Wilson's songs, which he had co-produced. Asked whether he might ever produce another solo record, Was responded in light-hearted vein, but the answer nevertheless betrayed the depths of the difficulty he found himself in at the time: "Since I





“I was dying as an artist. Every time I picked up an instrument, I thought: ‘there’s really no point playing my own music. I stink.’”

► started charting out Brian’s music in 1989. I’ve been plagued by a severe case of writer’s block. Each time I get halfway through a song, I ask myself, ‘What’s the point? Brian did this so much better 25 years ago’. Perhaps if I can regain a shred of self-respect, I’ll make a new record.” Now, he re-affirms that statement: “I was dying as an artist. I’d been working with these really great, profound storytellers, like Bob Dylan and Willie Nelson, and I started to feel like I was nothing in comparison to them. Every time I picked up an instrument, I thought: ‘there’s really no point playing my own music. I stink. These people are so much better. Why don’t I put on a Keith Richards record instead of playing the guitar?’”

ADVENTUROUS

So here was a strange situation, to say the least: one of the world’s most successful musicians suffering from a first-class inferiority complex, induced by what he calls “going weak in the presence of beauty”. The answer Was found lay in going back to his roots. During our conversation, he explained how he arrived at the bizarre blend of country and western, hip-hop, jazz, soul and funk music that’s at the heart of *Forever’s A Long, Long Time*: “I had to go beyond the confessional criteria for storytelling that epitomises the work of people like Dylan and Nelson. Really, what every artist is doing is taking something that’s a part of themselves, and sharing it in the hope that it triggers an emotional response in someone. And there are literal ways of doing that, and more impressionistic ways: Miles Davis’ *Bitches Brew* is as evocative as a Dylan lyric. So I thought about what was unique in me and in my musical experience, and what I could share. And I realised that it was the fact that I grew up in Detroit in the ‘60s, when it was an incredible place. The MC5 and George Clinton played in my high school: The Stooges, Bob Seger and all the Motown



Don Was improvises, adapts, and overcomes at *The Chomsky Ranch*, where much of the *Orquesta Was* album was recorded.

artists were local people. There was a lot of jazz going on, and I saw Pharaoh Sanders improvising with the MC5. It was amazing. People were continuously breaking down walls and creating new music. And with Detroit being the Motor City, many people, both black and white, came up from the South to work in the automobile factories, so there was a lot of blues and country and western around too. I remember wearing a cowboy hat and going to see Merle Haggard play.”

Somehow, the thought of this dreadlocked, hippy-esque man in a cowboy hat at a country concert is as bizarre a juxtaposition as the ones that are found in his music. And that is exactly the point. Exercising a limitless and all-encompassing musical taste, and combining many seemingly disparate and opposing musical elements is the essence of his approach. And he can therefore work with artists as

DON WAS’ STUDIOS

Don Was has two recording studios. One is a 24-track demo studio in his home in Beverley Hills, the other a larger, professional studio in a house adjacent to his residence. Was wrote the music and arrangements for *Forever’s A Long, Long Time* in his demo studio, which comprises, he said, “a Mackle console, with a Tascam DA88 and a bunch of keyboards and samplers. The synth I use most is the Roland JX8P, but I also have an Oberheim OBX8, a Sequential Prophet 5, a Roland JD800, a MIDI Hammond organ, and an Emu Proteus World module. My master keyboard is a Roland RD1000, which Elton John bought for me. When I worked with him he used it himself as a piano. It had wooden keys and felt great when I tried it out. He noticed I liked it — and the next day one turned up in my garage! I also have some Akai samplers, S3000s, and an older Roland S550 sampler. I have a Kurzweil MicroPiano,

which is a little half-rack box with 30 piano sounds and a couple of string patches. It sounds great; better than any grand piano I can record, unless you’re doing serious classical stuff.” Was’ sequencer and drum machine of choice for more than a decade has been his Linn 9000. He wrote all the arrangements for *Forever’s A Long, Long Time* on it, but he has since switched to the Akai/Linn MPC3000. “The Linn 9000 is a great drum machine; the key pads have a great feel. It’s a fantastic machine when it works; it gives you that wonderfully, laid-back feel, just like Charlie Watts’ drumming. A lot of the great R&B guys still use it exclusively, like Jam & Lewis and Babyface. But what I’m getting really sick of is that it malfunctions a lot; it crashes all the time. The loops still feel great, but I’m about to give up on the machine. So I’ve bought the MPC3000. The problem with that is that I have to learn it, and I

don’t have the time to learn new machines. That’s what’s holding me back with my new record.” Was’s other studio is called *The Chomsky Ranch*, after the famous linguist Noam Chomsky. Was recorded sections of *Forever’s A Long, Long Time*, and also mixed several of the tracks there. He described what it looks like and what’s in it: “The whole point was to have a studio in a normal house, so you’re not feeling as if you’re in a recording studio. It’s been in use as a recording place since 1992, after Bonnie Raitt suggested that I put some equipment in. We knocked the walls out between two bedrooms, and now have a very long control room, with an additional window into the living room, which is the recording area. I have a great old classic early ‘70s Neve desk in there, the 8078, which is a weird mixer. It’s actually two broadcast desks that were used at CBS TV City combined. It’s interesting that all the great desks are British, isn’t it? But how important is it to have a good

desk? I’ve had great-sounding records that didn’t sell at all, and shitty-sounding records that have been compressed and SSLed to death and were big hits. My biggest hit, ‘Walk The Dinosaur’, was recorded on a Fostex B16 reel-to-reel half-inch in my house.” When I queried Don Was further about the exact nature of his equipment at *The Chomsky Ranch* and his preferences and opinions, he got a bit impatient. “I’m into everything. It’s just gear, so whatever works will do for me. Also, there’s different gear for different types of records. If you’re looking for warmth in a record, there’s nothing like the sound of these great old Neves. But maybe you don’t want that sometimes. I wouldn’t recommend recording Kraftwerk on an old Neve, for example! My feeling about gear is that it’s just tools — I’d rather worry about writing good songs. If you wrote ‘Bridge Over Troubled Water’, would it matter whether you recorded it on analogue or digital? Of course not.”



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“Record companies don’t know how to handle this esoteric stuff any more — there’s no record company in the world that can market this kind of music.”

▶ diverse as George Clinton and Neil Diamond, or Maxi Priest and Paula Abdul, without batting an eyelid. This was exemplified in a project that laid some of the foundations for *Forever’s A Long, Long Time*, namely the *Rhythm, Country and Blues* album (1995), on which he produced tracks that saw meetings between soul and country singers, like Al Green and Lyle Lovett. Was picked up the story: “I’ve always felt that there was very little separation between R&B and country in terms of songwriting. These singers can perform each other’s material without stretching at all. However, I do regret that I only started to be adventurous towards the end of recording that project, when we ran hip-hop beats underneath these country songs, messed with the chords a lot, and really re-invented the songs. *Forever’s A Long, Long Time* is in a way an extension of that.”

### MOTIVATION

Several more elements contributed to the making of *Forever’s A Long, Long Time*. Was stumbled upon a book with Hank Williams lyrics, and was touched by “how vividly Williams paints a picture of universal loneliness in the simplest of words” — probably one reason why he’s one of the most frequently covered country artists. Don also had a meeting with the famous movie director Francis Ford Coppola, who was interested in doing longer-form music videos, or short music movies. Was had already directed the 1995 Brian Wilson film, and jumped at the chance to make another. The resulting 15-minute, moody black and white film (also called *Forever’s A Long, Long Time*) concerns a man (played by Orquestra Was singer Sweet Pea Atkinson), who strays from his girlfriend and gets put on the right track again by what’s billed as “the ghost of Hank Williams” (Kris Kristofferson in a white cowboy outfit), and is included on the CD, accompanied by excerpts of the album’s songs and instrumentals.

Though the film was made after the music, it influenced the way the music came out. Was: “I tried to choose the songs from the almost 170 tunes in Hank’s catalogue that related directly to the narrative of the film, and that were fairly obscure, so that my versions wouldn’t force comparisons with his own or other people’s versions. To me, the film and the music comprise one piece, and are inextricable from each other”.

The film also influenced the making of the album in an equally important, but far less tangible way, and this has to do with the way Was has re-invented his relationship with music during the last year. He stated that the making of Richie Sambora’s solo album had a “major impact” on him in this respect. The album, by Bon Jovi’s guitarist, is expected to be released in January, and Was described how, working on this project, he learnt to approach production in filmic rather than musical terms: “Richie was trying to find his own voice outside of the band, and so we took a long time making sure he did. It was about self-discovery, about the question ‘who am I?’, so that every word he was singing was really from the heart and not some sort of cliché. It really was like making



a film. We talked about the motivation of the character: where is this guy sitting when he’s singing this song, is he in New York City or is he in a tent in the woods? What does it look like where he is, how does he feel, how do we make it sound like this place? Music, the actual licks that you play, is all secondary to the story that you tell, however impressionistic. It was a whole new way of approaching music.”

Another influence quoted by Was was Keith Richards, whom he credits with teaching him about “loosening up, playing in the moment, and spontaneity. He’s changed my whole approach to music, and to life, allowing me to be inside of music in a way I’ve never been before, with time seemingly standing still. Afterwards, I listen to the stuff I’ve been playing, and sometimes don’t even recognise myself.”

### PUTTING IT TOGETHER

And so, filmic images played a big part in the making of the *Forever’s A Long, Long Time* album; the dark, brooding, late-night ‘40s atmosphere of the film is apparent on the tracks. With one of them clocking in at 13 minutes, and others at between 6 and 8 minutes, they’re graced by extended instrumental jazz-like improvisations over minimalistic hip-hop beats, featuring (most notably) Herbie Hancock on piano and David McMurray on saxophone. In these moments, the music has echoes of late-night urban jazz from the ‘40s. In the wilder, more avant-garde instrumental pieces, it conjures up images of New York (probably Detroit if your name is Was) jazz clubs in the mid- to late ‘60s. It’s easy to hear how the music took shape in Was’ mind when he was thinking about the images and atmosphere that he later captured in his film. He described how he went about writing the music and arrangements for the album at his studio in his home in Beverley Hills (see the box on his two studios elsewhere in this article), beginning by laying down hip-hop rhythm loops: “I’ve always written to grooves. During the early Was (Not Was) years, there weren’t any serious drum machines available, so I would have a drummer come into the studio and play some beats for me. I would find a couple of bars that I liked, cut the 24-track two-inch tape to create a loop, put the tape around a mike stand two feet away from the tape recorder and run the loop for five ▶



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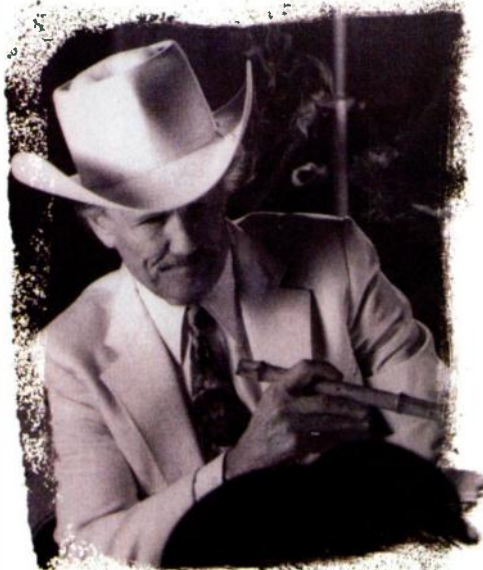
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“I think that using a drum machine in a song has the same effect on the emotion of the song as a compressor has on its dynamics.”

► to 10 minutes or so, bouncing it back onto another 24-track tape. Then I'd write to that. Everything was groove-orientated. A couple of years after that, the Linn 9000 drum machine came out, and I started using that instead of live loops. But the problem is that drum machines are stiff; they essentially put an emotional compressor on your music. I think that using a drum machine in a song has the same effect on the emotion of the song as a compressor has on its dynamics. It can build to a certain level of intensity, but not beyond. You only have a very narrow window of expression, as far as laying things behind or before the beat is concerned; you really can't use time as a means of expression. Every record we made like that with Was (Not Was) felt stiff. It was a trade-off for the repetitiveness that we felt the dance groove needed.”

Was didn't want this “emotional compression” on *Forever's A Long, Long Time*, but the problem remained; how do you combine the mesmerising repetitiveness that's needed in dance grooves with the flexibility and feel that comes from live playing? He found an interesting solution, inspired by the huge percussion sections that are at the root of much African music: “I'd been listening to Sunny Ade, for example, and thinking about how that African groove has been re-invented in a funk context by people like George Clinton. So I stumbled on the idea of having a percussion section playing the drum parts, with one person playing just the bass drum part, on some deep ethnic instrument, another person playing just the backbeat, with something that made a slap-like noise, another person playing the 'hi-hat' part with a shaker, and so on. I had already made the 24-track demos using loops from hip-hop records and samples, and programming myself. I had also done the arrangements, and played and recorded them, using guitars and keyboards, and a copyist had written out all my brass arrangements. So the basics of the songs were arranged, but then I gathered a big group of 13 musicians, including five percussionists, in Ocean Way Studios, played them the demos, and gave the scores to the brass players.



Kris Kristofferson plays the ghost of Hank Williams in the film *Forever's A Long, Long Time*.



Sweet Pea Atkinson, *Orquesta Was's* vocalist and star of the *Forever's A Long, Long Time* film.

The percussionists listened to my demos and played the parts on them.”

Three, long, stretched-out tracks were recorded like this, featuring a top-class percussion section headed by Sheila E: ‘I Ain't Got Nothing But Time’, ‘Forever's A Long, Long Time’ and ‘Lost On The River’. A fourth track, ‘Never Again’, was also recorded in this way, but Was found that his demo “felt better” than the 13-musician live version, and so he used the original on the album. “In this case”, he comments, “the rigidity of the machines helped the song”. However, the slow-burning feel of the three tracks recorded live in one room is simply gorgeous, the most striking aspect being the enormous amount of space that's in the rhythms. Was talked about this appliance of groove-science: “These songs are really the meat of the album for me, and they have no machine loops at all. My original funk and hip-hop grooves were played by the five percussionists, each of whom has a slightly different feel. So the bass drum is landing in a slightly different pocket, in terms of timing, than the snare drum, and so on. And yet, all five of them are great percussionists, so the end result had the hypnotic, repetitive feel of a loop, but also the feel of individuals playing together. It's just like with Charlie Watts. I only discovered whilst recording *Bridges To Babylon* what a great drummer he is, with unbelievable technique and feel. And in his case, the feel also comes from laying the bass drum in a slightly different pocket than the snare drum and the hi-hat. The space that is created between the different timing grids, if you like, gives other musicians a pocket to play in.”

Despite this pleasing effect, the recordings made with the percussionists also had a drawback. Was: “They were *too* good. They locked so well that time didn't move. It had a great mood to it, and gave us a great pocket to play in later, but it didn't really have the dynamics and movement I was hoping for. So I had to go back and put some more excitement in, and for that I got drummer Harvey Mason to overdub some parts, like cymbals and snare — not to give a backbeat but to impart some colour. Conversely, the grooving instrumental tracks on the album were recorded with the percussion loops that I'd made on my Linn 9000. They were written by me trying to imagine a score to my little film. For those, a small group of musicians played



live in my other studio, The Chomsky Ranch, to the machine loops. For these tracks, I was really inspired by the sound of Tony Williams' *Life Time* album (1965) which featured John McLaughlin on guitar. I tried to match that vibe and sound, and I compressed the hell out of those tracks in the mix, using two Fairchild limiters, to really make the room speak."

### HANG IN THERE

And so *Forever's A Long, Long Time* turned out to be one of the most leftfield cocktails of music that has come out this year. The reinvented Hank Williams songs and the two pastoral piano-based instrumentals that Was wrote ('Once Upon A Time In Detroit', and 'Detroit In A Time Upon Once') are simply sublime, and explore new musical territory. The instrumentals are great fun but less ground-breaking, and range from the noisily abrasive excitement of 'Excuse Me, Colonel, Could I Borrow Your Newspaper?', to the more soulful and atmospheric 'You've Been Having A Rough Night, Huh'. However, the critical reaction to all this excellent but unclassifiable music was rather confused, and the audience reaction has been even more unresponsive. "It's done terrible", admitted Was, "but I'm proud of every note on it. It's the first time in my life that I feel that way about a record. I didn't do it to sell 10 million copies. I guess I'm in a fortunate position, where I can fund these recreational trips through my Rolling Stones royalties, but it's nevertheless a great triumph for me; I wouldn't change anything on it. The problem is that the record companies don't know how to handle this esoteric stuff any more. Short of me stopping what I'm doing and personally marketing this record, there's no record company in the world that has a machine in place that can market this kind of music. That's the reality of things, and I don't care."

Well, from the sound of it Was actually *does* care, because at several times during our conversation he lunged into strong and impassioned criticisms of the way things are in the music business at the moment: "The whole music industry has gone towards making quick bucks. It's really the result of the modern business's corporatism. The old days of music-loving entrepreneurs like Jac Holzman, who started Elektra Records, have gone. These guys believed in and supported music they liked, and they had long-range visions about artists' careers. Now people working in record companies have to make quick money and get quick hits, otherwise they lose their job. It means that only music that conforms to the lowest common denominator gets signed and promoted, and music that's different, which no-one has ever heard before, is no longer encouraged. That has dire consequences; last year was the first in 25 years that there was zero percent growth in the music business. The reason is simple: during the last decade, the larger share of growth and profits came from the sales of back catalogue from an era when people put a premium on integrity. But most people have now replaced their vinyl records with CDs, so that well of profit has dried up.

"I asked Leon Russell [*famous '60s piano player*]



what he thought was the difference between making music in the '60s and today, and he said that if you walked up to someone in the '60s and said: 'man, I really dig your new record, it sounds just like so and so'. that was fighting talk; the worst insult that you could land! Today, when you bring your finished record to your label, they panic if they can't say 'great, it's just like a cross between Mariah Carey and Bush' or whatever. So artists are under huge pressure to conform. I know, because I've succumbed to the same game. The first two Was (Not Was) albums were also very jazzy and pretty out there; they weren't that different from Orquestra Was. But they didn't sell, and the record company then started to say: 'if you could just clean it up a *little*, we could sell this stuff...'

I blame no-one but myself; instead of holding our ground and going for the long run, we opted for the commercial move, and veered from our vision in a series of bad judgements. I've come to realise that having hit singles isn't the ultimate goal, because afterwards, you're compelled to deliver again. And when your hit singles don't come from deep inside of you, aren't your natural musical habitat, that gets pretty hard. What I learnt from that experience is not to compromise my music just to get it on the radio for a quick buck. You have to hang in there, and develop stuff that's real and truthful to yourself over a period of time. And people will eventually find your music. That's my lesson of the last 20 years as an artist."

SOS

"What I've learnt in the last year is double what I've learnt during the past 20 years."



**Q: What's the difference between a PCI soundcard and the**

# **Layla, Gina & Darla Professional Digital Multitrack Recording Systems?**

**A: Oh, just about everything**

These days it seems like everyone and their brother is making PCI audio interface cards for the PC and Mac. To say the market-place is a bit confused is like saying Trafalgar Square on New Year's Eve is a little crowded. So how do you separate the good from the bad and the ugly?

Easy. Look hard at the features, determine what's important to you, then balance that against the price.

We'll help. Study these pages carefully. We think you'll soon see that the Event range delivers the features and performance you want—at a price that's remarkably easy on your budget.



## **Forward Compatibility**

We've designed Layla, Gina & Darla to be compatible with audio recording/editing applications that use standard Microsoft Windows 95™ calls - which means the systems work with virtually all of today's most popular programs, including Cakewalk's Cakewalk Pro Audio™, Steinberg's Cubase VST™, Emagic's Logic Audio™, Innovative Quality Software's SAW Plus™, and Sonic Foundry's Sound Forge™ (to name just a few). You also get support for software plug-ins from respected manufacturers like Waves and Arboretum Systems.



Logic Audio by Emagic™



Cubase VST by Steinberg™

## **Don't yet own recording software?**

Not to worry: Layla, Gina and Darla come complete with a custom version of Syntrillium's Cool Edit Pro™ - a powerful multitrack audio recording and editing environment - so you can enjoy a no-hassle musical experience right out of the box.

And since getting up and running is half the battle (a battle we firmly believe you should not have to fight) all three systems are true plug-and-play™ compliant. We even give you a utilities disk that examines your system before installation, so you know exactly what performance you'll be able to achieve.

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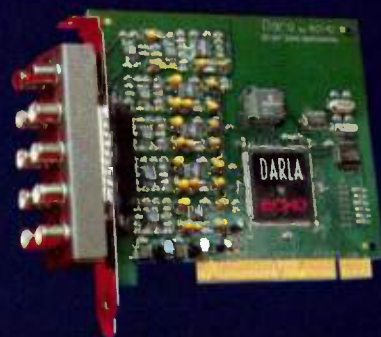
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**Darla** by echo® £299

## 20-bit Multitrack Audio Recorder for Mac or PC.

Darla uses the same top quality 20-bit Digital Audio conversion as the more expensive systems, providing clean and quiet operation. Build your song track by track and then play back the tracks through 8 independently assignable outputs. You can mix tracks, of course, and Darla will playback as many as your software allows, we have even provided a separate 2 input and 8 output audio interface box with RCA connectors. Darla is compatible with most audio recording software, so you can stay with the system you know and love. With true Plug-and-Play™ compliant, getting started with Darla is about as effortless as it gets.



**Layla** by echo® £899

## Professional Digital Multitrack recording System for Mac or PC.

First the basics: Layla is designed to knock your socks off. (That was the basis of our product philosophy anyway.) It starts with a cross-platform PCI bus-master host card that connects to the rack-mount audio interface. The interface sports eight balanced 20-bit analog inputs, ten balanced 20-bit analog outputs, and S/PDIF stereo digital I/O. It also has massive on-board DSP, word clock (for sync and expansion), a 24-bit signal path, and MIDI in/out/thru. Then we topped off by giving the system broad-based software compatibility, making Layla perfectly suited for a wide variety of music production applications.

Still have your socks on?

**RECORD IT:** Eight balanced analog inputs make it a snap to capture multitrack performances. Two front panel inputs let you easily plug in instruments without crawling behind your rack to patch in cables. To make things totally foolproof, we outfitted all inputs with our EasyTrim™ automatic gain adjustment circuitry. Just play a few notes, and let EasyTrim automatically set the input gain for maximum possible dynamic range.

**PLAY IT:** Ten balanced analog outputs give you total control over independent tracks - no premixing required. And our exclusive OmniBus™ audio assignment architecture lets you configure the outputs as discrete track outs, aux sends, monitor mixes - you decide.

Plus you can play back on all ten output channels and both S/PDIF channels while you're recording on eight input channels...that's not just full duplex - that's octaduoemplex!

**DIG IT:** The S/PDIF digital interface supports stereo signals with up to 24-bit resolution - on both input and output - so it's ideal for mastering or maybe even a digital effects loop. Whatever the application, your audio tracks are handled with 24-bit precision throughout Layla's internal audio path.

**SYNC IT:** Synchronize multiple Layla systems - expansion is as simple as plugging in another card and connecting word clocks. A larger system means not only having more hardware ins and outs (how does 24 inputs x 36 outputs grab you?), your DSP horsepower grows as well.

**MIDI IT:** The on-board MIDI interface lets you create a powerful audio/MIDI multitrack recording system without having to hook up additional gear. And Layla is true Plug-and-Play™ - no jumpers to set, no IRQs to configure (in fact, only one IRQ is used for both audio and MIDI functions and no DMA channels at all are used.)

**PROCESS IT:** That big black square sitting in the middle of the Layla PCI interface is Motorola's latest generation DSP - the 56301, a 24-bit chip running at an astounding 80 million instructions per second. In addition to being a giant chunk of raw processing power, it's the PCI bus master, which means your computer's CPU is left free to do things like drawing screens incredibly fast. The 301 also handles audio timing information, for absolute dead-on synchronization accuracy.

**Gina** by echo® £499

## 20-bit Multitrack Digital Audio Recorder for Mac or PC.

Gina sports all of Darla's great features and stellar audio performance plus those extras that pro musicians simply can't live without: 24-bit Stereo S/PDIF digital I/O for digital mastering. With simultaneous digital and analog I/O Gina is a true 4-in / 10-out system.

Just what you need, after all, you've got a masterpiece to record!



Audio Interface for Gina

For more specification contact: Key Audio Systems Ltd. Unit D, 37 Robjohns Road, Chelmsford, Essex. CM1 3AG.  
Tel: 01245 344001 Fax: 01245 344002 email: keyaudio@compuserve.com

**Key audio**  
S.V.S.G.H.S.



# Hard Disk *made*

*If you don't fancy struggling to get a 'PC plus soundcard' hard disk recording setup working reliably, you might be interested in a system where pre-configured external hardware shoulders all the complex processing, while your PC just stays in charge. MARTIN WALKER explores the Soundscape solution.*





# Simple?

## SOUNDSCAPE SSHDR1+ HARD DISK RECORDING SYSTEM

Soundscape's SSHDR1+ is a digital recording package comprising a hardware unit and a software front end, which runs on a Windows 95 or NT-compatible PC, and provides a full-screen editing environment that can run alongside your existing MIDI sequencer. The system offers 12-track playback from its internal hard disk drive, along with digital mixing, editing and real-time effects.

Normally, the biggest problem with using PCs for hard disk recording is that the audio circuitry sits on a soundcard in the PC's case alongside video cards, hard disk controllers, and sundry other add-on expansion cards. Exposed to all these sources of potential interference, it is hardly surprising that when you turn up the output of the soundcard, you can hear assorted hisses, hums and whistles, along with occasional ticking noises in time with processor or hard disk activity. PCs were just never designed with audio in mind, although the latest soundcards have far better performance than their predecessors (for more on this, see the article on optimising your soundcard, starting on page 118 this month).

Wouldn't it be lovely to use the PC to do what it does best — provide a large-screen editing environment, and access to industry-standard MIDI sequencing packages — but use a much higher quality box for the audio part of your work? Soundscape went one further than this with their SSHDR1: rather than rely on a high-performance PC with a fast hard disk drive, they incorporated a hard drive into a box of their own, which also contains the necessary digital I/O hardware and DSP power to handle the audio processing. This neatly avoids the potential problems of sending two-way streams of high-speed multitrack audio data down a cable, and expecting the PC to ferry it to an internal hard disk that already holds thousands of other files. Soundscape's approach also means that the PC itself can be far less powerful, since it doesn't require a fast internal hard drive, fast access to another external drive or tons of on-board DSP to do the signal processing; all it has to cope with is system management; sending out occasional commands, and then putting its feet up until the next change is required.

Soundscape first introduced its SSHDR1 back in 1993 (see Brian Heywood's review in the September issue in that year), and since then it has gone from

strength to strength. There are now nearly 5000 owners worldwide, and unlike the PC which controls it, the Soundscape system has an enviable reputation for reliability — in most cases, even if the PC crashes and needs rebooting, Soundscape will happily carry on playing or recording by itself, oblivious to the chaos at the other end of the cables. One of the reasons that so many people have stuck with it is its potential for expansion, and whenever new hardware features or operating systems have been announced, there has always been an upgrade path for existing users. Given that so many other hi-tech music products are quietly dropped after a couple of years when the new model is introduced, this is a refreshing change in attitude.

### NEW FEATURES

The new SSHDR1+ system features new version 2.0 front-end software, and the same basic hardware unit and ISA PC interface card as the original SSHDR1, but this is not just a software upgrade, as the hardware unit has an additional engine under its bonnet; the SSAC1 plug-in accelerator card, which comes as standard with all new SSHDR1+ systems (the original, accelerator-less SSHDR1 remains on sale alongside the new '+' system, and owners of the original SSHDR1 can buy the SSAC1 card and version 2.0 software separately, to bring their systems up to the spec of the SSHDR1+). The SSAC1 adds a huge ▶

### pros & cons

#### SOUNDSCAPE SSHDR1+

##### pros

- Excellent sound quality.
- 12-channel playback into four analogue outputs.
- Good expansion potential.
- Solid synchronisation features.

##### cons

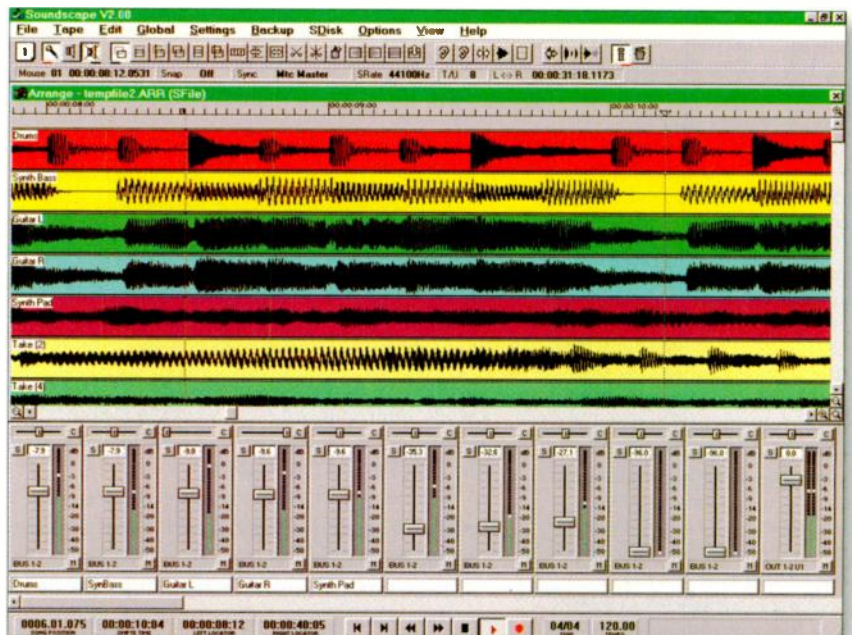
- Still only two analogue inputs unless you buy the SS8101 expansion box.
- No Windows help file.

##### summary

The SSHDR1+ is a mature and professional product, with good support and expansion possibilities, and will suit those who wish to expand beyond the limits of 8-track recording, and carry out random access editing on a large-screen display.

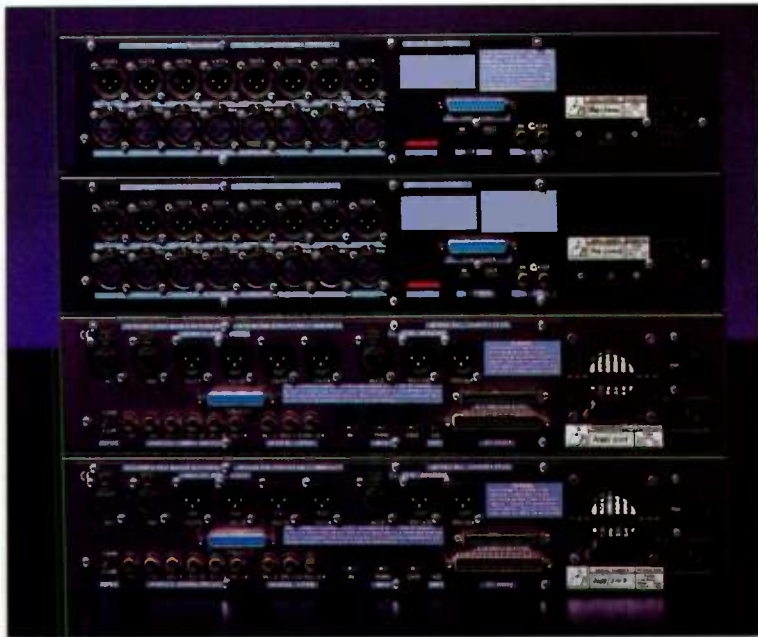
**SOUND ON SOUND**

*Soundscape is totally user-configurable — the top half of this screen shows half a dozen zoomed takes, while the bottom half has been configured as a 10-input/2-output mixer. You can have as many different mixer setups as you like.*





# SOUNDSCAPE SSHDR1+



The rear panels of the main SSHDR1+ hardware unit and the SS8IO1. Note the TDIF connectors, and (on the SS8IO1) the ADAT optical connection.

## HOME VIDEO?

Soundscape has always been known for its rock-solid video synchronisation. Standard AVI applications on the PC, like *Media Player*, freewheel the video and try to keep the audio in sync. The standard AVI player which is supplied with the SSHDR1+ stays 100% in sync, since it seeks individual video frames according to its current timecode value. The v2.00 AVI player has also been rewritten to allow smooth playback at 30 frames per second with a suitable PC system, without tying up too much of the available processor power. Audio and video scrubbing is also frame-accurate — even if the PC can't keep up, there is no overall slippage, making Soundscape eminently suitable for audio-visual post-production.

The EDL (Edit Decision List) Processor is an optional plug-in for the v1.18 and v2.0 front-end software. Using an existing EDL, this plug-in identifies the sections of audio used by the final video cut, and records them into Soundscape, putting them in the correct time positions. It can read all common EDL formats (including CMX, GFG, and Sony) and supports Sony 9-pin protocol. Soundscape can then be used with the edited video to add synchronised music and effects, or even dialogue replacement. Using the same Sony 9-pin protocol, or MIDI Machine Control, the RDC (Remote Device Control) software — provided free with the v1.18 and v2.0 Soundscape software — can control tape transports such as Sony Umatics, ADATs, or DA88s.

► amount of extra DSP power to the Soundscape system, together with a further potential eight channels of digital inputs and outputs in the form of a TDIF (Tascam Digital InterFace) socket. Once you have an SSHDR1+, you can easily daisy-chain further hardware units, up to a maximum of 16. The multiple units can then be locked together with sample accuracy, giving a potential 192 playback channels. You certainly couldn't attempt this using any internal PC alternative.

In reaching version 2.0, Soundscape's front-end software has been completely rewritten to take advantage of the SSAC1 accelerator. Version 2.0 is now 32-bit, and for the first time, this means that Windows 95 is required (version 1.18, the most recent update of the previous software, will still run under Windows 3.1 if required). The main advantage of the new hardware/software combination is that you get four additional playback channels in software, bringing the total to 12, even though the SSHDR1+'s hardware unit retains the two analogue inputs and four analogue outputs of the original SSHDR1 (the 12 software playback channels are mixed down into four before being sent through the analogue outputs). If you want all 12 outputs to emerge from separate analogue sockets, you will need Soundscape's new SS8IO1 box (see the separate 'I/O Heaven' panel elsewhere in this article). The only caveat is that the hard drive you choose to fit into the Soundscape hardware (it's supplied without a disk drive) will need to be fast enough for all of this extra activity — an up-to-date list of approved drives can be supplied by Soundscape and their dealers.

For owners of the original system, the SSAC1 and v2.00 software bundle forms a cost-effective upgrade (see the 'Pricing' box elsewhere in this article), especially considering the power of its on-board DSP. Future software releases from third-party vendors will also use the extra DSP power to

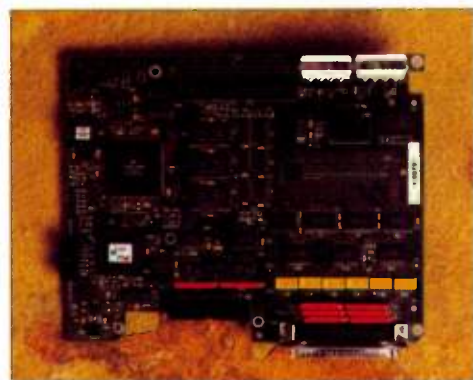
provide more real-time effects. No wonder users keep on upgrading!

## CONNECTING IT UP

The SSHDR1+ hardware provides unbalanced phono connectors, which can be switched between -10 and +4 levels with a small toggle switch on the rear panel. These will connect in much the same way as most 'prosumer' DAT machines, as well as ADAT recorders. There is a so-called Pro version of the SSHDR1+, which features both balanced XLR inputs and outputs, but this comes at an extra £250 (standard SSHDR1+ systems can be upgraded to Pro versions with XLRs by Soundscape and many of their dealers). Digital connections are taken care of by a co-axial S/PDIF input (2 channels), and a pair of S/PDIF outputs (4 channels in total), all using phono co-axial sockets, although these are not the same as audio phonos, since they must use 75Ω digital cables for reliable results. To complete the array of rear-panel connectors, there are a trio of MIDI sockets (In, Out and Thru) for sync duty, and three more digital sockets. The one labelled 'To' Host connects to the ISA PC interface card, while the so-called Expansion Port is for future purposes (Soundscape plan a time-division multiplex buss-driven expansion chassis for release next year, which should offer both extra DSP processing power and extra I/O facilities, and will connect via this socket). Finally, located on the SSAC1 accelerator card, there is the TDIF connector, which allows the system to communicate digitally with the outside world.

The PC interface card, which fits in any ISA slot inside your PC, seems to be the same as in the original Soundscape, and so pre-dates plug and play. It only needs a single I/O address to be set using the jumper switches on the card, and the default 250h (hex) value has been chosen wisely, as it is unlikely to conflict with anything else — there was certainly nothing here in my machine. There are no IRQ or DMA settings to make, so the PC hardware end of things is blissfully simple. Once the card is in place, a single ribbon cable connects the SSHDR1+ and the PC.

Thankfully, although there is a cooling fan within the Soundscape hardware's case, it is very quiet (it made less noise than my PC, which has low-noise fans). In addition, most of what little noise there is



The SSAC1 accelerator card — heart of the new SSHDR1+ system.





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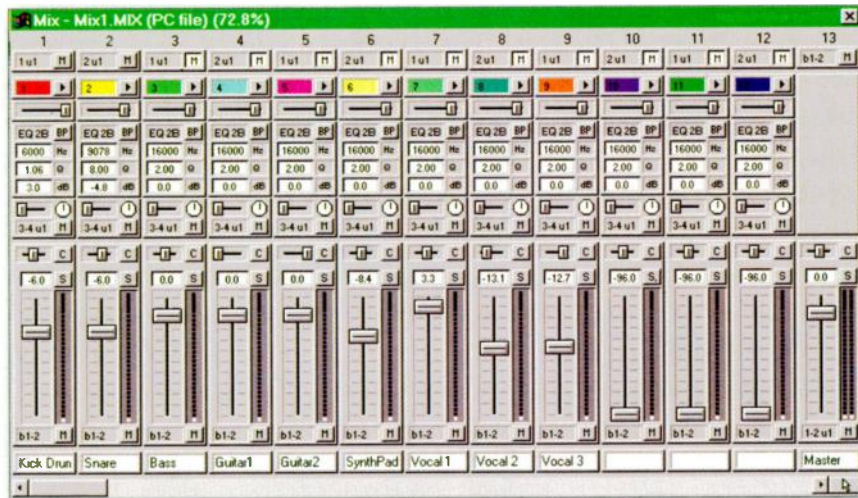
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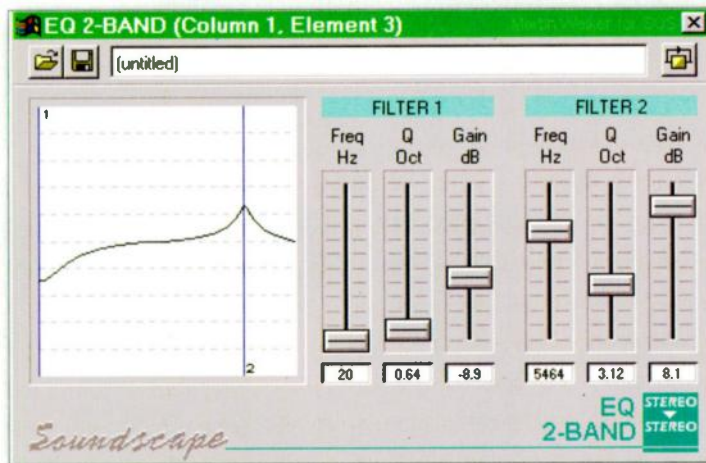
WRH





Here is an example of the new mixer, showing 12 mono tracks being mixed onto buss 1-2. This buss is then (on the rightmost channel) routed to physical outputs 1-2, which emerge on the phono sockets on the back panel. The percentage figure on the Titlebar shows the total DSP power currently used.

The 2-band EQ is fully parametric, and can be patched in to any mixer channel. Although the EQ display in the mixer is small, a double mouse click brings up this larger window, which makes adjustments rather easier.



emerges from the side-intake grille, so once bolted into a rack, the unit should be quieter still.

## v2.0 SOFTWARE

The new Version 2.0 front-end software is strictly for Windows 95 and NT only, so anyone still running the older version 1.18 with Windows 3.1 will have to install the Windows 95 operating system if they wish to upgrade. The entire program can fit on a single high-density floppy disk, so it is quite feasible to download an upgrade from Soundscape's

comprehensive web site (see URL details at the end of this review). My initial impressions were of a well-designed screen interface, with clear button graphics, and more menu options than you can shake a stick at. One of the downsides of producing a 'lean' program is that Help files tend to be the first to go — in the version of the software that I received there was no Help file at all. Many people find context-sensitive help even more useful, since you get an immediate explanation of a particular feature, without having to wade through the documentation. Still, as they always say, if all else fails, read the manual. Sadly, the v2.0 manual was not finished at the time of this review, so I had to rely on preliminary v2.0 release notes, and a manual for version 1.18, which did make initial exploration rather more long-winded than expected. The version 2.0 software employs a new hard disk file format, but a software utility (SSCONVERT.EXE) is provided to convert v1.18 files into the equivalent 12-track v2.0 equivalents, so anyone upgrading should find the process relatively painless. The v2.0 software will also read DAT backups produced with v1.18 software.

In essence, the main Arrange page follows the part-based approach familiar from many other MIDI + Audio applications, with all the cutting, moving and pasting operations that you would expect. The v2.0 software now supports multiple hardware units in

## ALTERNATIVE APPROACHES

Although the Soundscape system operates with its own software which runs on any PC, there are many other ways to approach PC hard disk recording. If you want an integrated MIDI + Audio solution, all of the major sequencers now have packages that will provide multitrack audio support, using any hardware from consumer soundcards upwards. As mentioned in the main body of this review, *Cakewalk Pro Audio v6* and *Logic Audio* will also allow you to use the SSHDR1+ hardware instead of a normal Windows soundcard for audio recording, but only for basic recording and playback, without access to any of the SSHDR1+'s other DSP functions, which does rather defeat the object of all that power. *Cakewalk* is, however, the first PC sequencer to feature real-time EQ and effects using Microsoft's DirectX technology, although Steinberg's *Cubase VST* for PC is just off the starting blocks (see Janet Hamiman Cook's review starting on

page 216 of this month's issue). These solutions will suit those who don't mind getting their hands dirty upgrading their PC, and are prepared to suffer possible frustrations with performance and sound quality when things don't always work as hoped.

For a standalone alternative at the more cost-effective end of the market, the *Fostex D90* (reviewed in the August '97 issue) is a standalone 8-track hard disk recorder which retails at only £1499. However, this is strictly a digital version of an analogue recorder, with very basic editing facilities, no link to a large computer screen, and none of the built-in EQ and effects of Soundscape, although it can be directly linked with an Alesis ADAT. Another 8-track hard disk machine is the *Vestax HDRV8* (reviewed in the March issue), which does have built-in EQ and mix facilities. At £2299, this also has excellent audio quality, and allows eight simultaneous tracks to be recorded, as well as providing random access editing, using the now familiar playlist system, but again, it is not linked

to a computer screen, so you lose the beauties of visual editing.

For a more equivalent spec to Soundscape, but a different approach, DAL's new V8 system puts the digital and DSP circuitry inside the PC, for up to 16 input and output channels, and uses the PC's hard drive, but has an external box with 8-channel analogue and stereo digital converters. The total package looks to be priced about the same as the SSHDR1+ (look out for an SOS review shortly).

If you narrow the field down to systems controlled by a PC, few companies put as much of the system into the external case as Soundscape, and this allows the SSHDR1+ to run with much less powerful PCs. Although its DSP technology might seem to tie you to 'own-brand' EQ and effects, in fact the new software makes it easy to port data into the PC as a WAV file, use any standard PC sound editor with exotic plug-ins, and then send it back. This can give you far more flexibility.



one Arrange window, which is a huge improvement. It also features a filing system that more closely resembles the Windows 95 Explorer, with longer, 64-character filenames. Since the program is designed to be totally flexible, it can be configured to suit the user. Left and right mouse button presses can each be assigned to specific functions by clicking on the row of toolbar buttons near the top of the screen, and holding down the Alt key with the mouse buttons allows two further functions to be assigned, so that any four can be quickly accessed, without your mouse ever having to move from the main Arrange page. The toolbar itself (there can be up to nine of these) is also customisable — there's a Customise Tool page, which I also found to be a useful substitute for ToolTips (those little text boxes that appear if you hover over a particular button), as clicking on any of the buttons on this page gives a short description of its function. Overall, user-definable software is loved by long-term users, as they can adapt its operation to their own way of working. New users may initially find the flexibility slightly more confusing, but should see the benefits as they become more familiar with the package.

## THE MIXER

The most significant change in the new software is the v2.0 mixer. Even if the Arrange page shows lots of parts, and you press the Play button, no sound will be heard until a mixer has been Opened, (much as with 'real' hardware!). Two mixer display sizes are provided: on an 800 x 600 resolution screen, 'Full' will show a maximum of eight channels at a time, and 'Small' displays a narrower version of each channel, increasing the viewable total to 13. Although a couple of examples are provided to get you started, you can have as many mixer setups as you like, saving and loading them to your PC's hard disk. Each extra channel, EQ, send or return, meter or effect will take a certain amount of the system's DSP resources to operate, but since you can mute elements, you don't have to restrict yourself to 100% DSP power when you design your mixer — just mute any channels that you don't need at the time, to ensure that the running overhead never exceeds 100%.

You can create a new channel by selecting the Record tool, and then clicking on any blank spot in your Mixer page. All combinations from Mono In/Mono Out, up to Stereo In/Stereo Out are available, including Mono In/Mono to Stereo Out (to pan a mono signal onto a stereo buss), and Mono In/Stereo Out (to use stereo treatments such as reverb). Possible input sources include the two analogue inputs, and the eight TDIF digital ones. Outputs include the four analogue ones, and eight TDIF digital ones (these examples give the quoted maximum of 10 inputs and 12 outputs per unit).

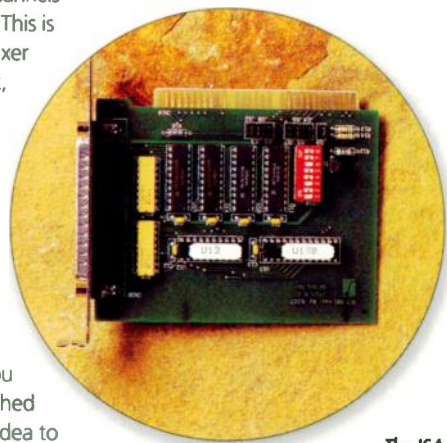
The SSAC1 accelerator also provides 16 internal audio busses (per hardware unit in your system, that is) for routing. These busses are available singly (buss 1 to 16, for mono channels) or as eight pairs for stereo use (buss 1-2, buss 3-4, and so on up to buss 15-16). You can choose the input and output routing of any channel using the Loudspeaker tool, and

SPEC CHECK	
Soundscape's advanced digital technology would be worth little unless the audio specs came up to scratch as well. However clever the hardware and software, the original reason for placing this circuitry in a box separate from the PC is to improve the sound quality. In this department, potential Soundscape owners need have no fears, as the following figures testify.	
<b>SOUNDSCAPE HARDWARE (DRIVE, I/O &amp; DSP)</b>	
A/D conversion	16-bit delta-sigma, 64x oversampled
D/A conversion	18-bit sigma-delta, 64x oversampled
Sampling rates	22.05, 32, 44.056, 44.1, 47.952, 48kHz
Internal processing	24-bit
Input signal-to-noise ratio	>93dB (unweighted), 96dB (A-weighted)
Output signal-to-noise ratio	>113dB (unweighted), 115dB (A-weighted).
<b>SS8101</b>	
A/D conversion	20-bit crystal semi-conductor
D/A conversion	20-bit crystal semi-conductor
Sampling rates	44.1, 48kHz (2072Hz to 48kHz with super clock Input)
Frequency Response	30Hz to 20kHz (-0.2dB)
Input signal-to-noise ratio:	-96.5dB (unweighted), -100dB (A-weighted)
Output signal-to-noise ratio	-93dB (unweighted), 98dB (A-weighted)

routing is always from top to bottom in a channel.

The other available tools for mixer use include Mute (switching out a complete channel will reduce the DSP overhead, whilst leaving your custom layout unaltered), Move (for transferring individual channels to other positions in your mixer), and Delete. This is a wonderfully flexible page, and since the mixer is completely separate from the arrangement, you can load and save them as you wish. By the way, if you get a message saying 'Mixer elements cannot overlap!', this simply means that the Mixer window needs vertically enlarging in order to fit the desired element where you want to place it (it took me some time to cotton on to this). Strangely, although the mixer window can be scrolled horizontally on a channel-by-channel basis, there is no vertical scroll, so if you want a whole stack of EQ and effects patched into some channels, it would seem a better idea to create several connected channels side by side. The basic EQ block is a 2-band parametric, but of course if you need more control for a particular channel, you just slap in more EQ blocks.

Various optional DSP-based effects can also be made available to the mixer. Soundscape themselves offer the so-called Audio Toolbox option, which currently contains a chorus/flanger and a



The ISA Soundscape PC interface card.

## I/O HEAVEN — THE SS8101 EXPANSION OPTION

If you want to access the SSHDR1+'s extra ins and outs through additional analogue sockets, the SS8101 Digital/Analogue Interface Unit is another new addition to the Soundscape range. Like the SSHDR1+'s primary hardware unit, the SS8101 comes in a 2U rackmount case. It provides eight additional channels of 20-bit A/D and D/A converters, all on balanced XLRs, along with a further TDIF output port, an ADAT optical port, and a pair of Word/Super Clock sockets. If you don't need the additional analogue channels, a similar box is also available without the D/A and A/D converters, to provide a cheaper way to directly connect Soundscape and ADAT (the SSSI0D). Both the SS8101 and converter-less SS810D can be used as stand-alone TDIF-to-optical (or optical-to-TDIF) interfaces, for interconnecting Tascam DA88 and

Alesis ADAT machines.

The SS8101 can also be used to provide additional analogue channels to any other digital devices which feature the TDIF interface, such as the Yamaha O2R and O3D consoles. However, if you use it as part of a Soundscape system, it will not work without the SSAC1 accelerator — so existing SSHDR1 owners will have to upgrade to the SSHDR1+ and buy an SS8101 (or SS810D) unit before they can make use of the ADAT optical link. Nevertheless, both the SS8101 and SS810D show that Soundscape intend to embrace ADAT owners rather than ignore them. Together, the SSHDR1+/SS8101 combination gives you access to a total of 12 analogue outputs and 10 analogue inputs, and forms a system with the best features of both transportable digital tape and random access hard disk recording.



# SOUNDSCAPE SSHDR1+



I tried out the SSHDR1+ running with Cubase, first syncing up with Soundscape as the master MTC source, and then audio recording each MIDI track individually. You can see the Cubase SMPTE and Transport Bar at the bottom of this screen, locked onto Soundscape.

► compressor/limiter/gate/expander (a phase-shifter is due to follow soon, with a delay coming after that). The eventual plan is for all the Toolbox effects to be shipped in a disabled form with the SSHDR1+ system when purchased. On paying the Toolbox price (£235), Soundscape will send you a password to enable the effects. At the time of this review, my system only included the chorus/flanger, but the compressor/limiter/gate/expander should be shipping with new SSHDR1+ systems by the time you read this. Anyone who already has an SSHDR1+ who has paid for the Toolbox and received a password will be sent the newer effects free of charge as the Toolbox grows. There's also a third-party, real-time reverb now available from a company called Wave Mechanics, and a so-called Time Module from Soundscape themselves (as the name suggests, this handles time-stretching). Sadly, I didn't get a chance to play with either of these last two, but the potential for expansion of the processing options via third-party software is an interesting one, and another plus point for the system.

Once you discard the notion of a default mixer, more flexible ways of working begin to pop into your head. For a start, as you progress through a mixdown, you could save in-progress mixer snapshots as you go, so that you can backtrack if things go wrong. You could work on different remixes by creating a set of mixers, with different effects and levels, while accessing the same bank of musical tracks. For monitoring either inputs or outputs, you could even create a 12-band spectrum analyser, by sending a single buss to 12 channels and setting the EQs accordingly. The possibilities are endless. According to Soundscape, the next step is to implement full MIDI mixer automation in a future software release — they are aiming for January 1998.

## CONCLUSIONS

The Soundscape system already has an enviable reputation where it counts — among its existing

users. Owners of the original SSHDR1 system are already upgrading in droves to the Plus version — it was several months before the review model finally appeared, simply because units were going out of the door as fast as Soundscape could make them!

When the original SSHDR1 unit appeared in 1993, internal PC soundcard audio was a bit of a joke by comparison, but Soundscape have more competition this time round. Some people might think that £3200 (not including the hard drive) is expensive, compared to building a similar-spec system into a PC using the latest multi-channel soundcards. However, the total cost of such a system is still more than many people suspect, especially once you budget for digital I/O and comparable-quality converters in an external box. To duplicate the power of the new DSP accelerator card, your PC will also need to use one of the fastest processors available, or have other DSP capability built into its soundcard, which further bumps up the price.

The big problem with the DIY 'PC, soundcard, MIDI + Audio software' approach is the potential for system incompatibilities, unbalanced performance, or just plain poor audio quality. Some PC soundcards are released with huge promises, but purchasers are often still waiting for reliable drivers six months later. On the other hand, the integrated MIDI + Audio software solution is attractive, since there is no juggling of two screen displays, and no need to set up any sync between two applications. Even here, however, Soundscape can compete — the SSHDR1+ I/O and recording hardware is now supported as an option from within both *Cakewalk Pro Audio* and *Logic Audio*, so you could use one of these pieces of software as your integrated MIDI + Audio front-end if you wish, while still recording via the external Soundscape hardware (see the 'Alternative Approaches' box).

Overall, Soundscape's SSHDR1+ is a mature and expandable system, which will appeal to many musicians looking for a primarily audio recording system, with the huge advantages of a large-screen display. I suspect that many musicians now wish that they had taken the Soundscape route after embarking on the often long and tortuous path of the 'DIY' PC-based hard disk recording system. If you want an open-ended system with a professional audio spec, which does not require detailed knowledge of full-duplex soundcard drivers, IRQs, and DMAs, and which is guaranteed to work now (not when the next version of the drivers appear!), then Soundscape should prove very attractive to you.

SO

## PRICING

- Soundscape SSHDR1+ (includes SSAC1 and version 2.0 software, but not hard drive) — £3200.
  - SS8101 (expansion option with extra TDIF port, ADAT connector, a pair of Word/Super clock sockets and eight more analogue I/Os) — £1495.
  - SS810D (an SS8101 without the eight I/Os, for those who just want the extra TDIF and ADAT interfacing) — £795.
  - SSAC1 upgrade (for units bought before 1/1/97) — £650.
  - SSAC1 upgrade (for units bought after price drop at 1/1/97) — £1250.
  - Audio Toolbox software processing kit — £235.
  - Wave Mechanics reverb — £275.
  - Time Module — £150.
  - EDL option — £500.
- All prices include VAT.

See separate 'Pricing' box.  
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 Square, Cardiff Bay CF1 6DR.  
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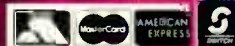
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# Making Arrangements

A ROUGH GUIDE TO  
SONG CONSTRUCTION  
AND ARRANGEMENT

## PART 2: BIG GEORGE looks at arranging for strings, brass and horns.

Last month we looked at various ways to lay out a song; this month we're going to explore a couple of different ways to colour up a track. Even if your particular musical bent is 'Hardcore Techno Massive', acknowledging no known boundaries to the sonic experience of the recording process, there's still maybe something for you to glean from the next couple of pages. If you make music that is more to do with mainstream daytime radio play, there definitely is.

There's an old saying that 'you can't polish a turd', although there are plenty of ex-Number One acts who spend months trying to shine up their latest, unremarkable albums — the only thing dazzling about the end result they produce, however, is the cost of the video special effects to promote these pieces of musical irrelevance.

### NEXT NEXT NEXT

In the hands of an expert, or someone with 'that certain touch', the addition of musical colour can raise a track to hitherto unimagined levels of orgasmic audible pleasure. In the hands of a lazy or careless expert, however, or someone who merely thinks they have 'the touch', adding strings and/or horns can drown a track in a sea of ill conceived, over-busy, self indulgent nonsense.

You, as the arranger, are the judge of what is the right amount of fairy dusted gloss to put on, but the listening (and more importantly, buying) public will always be the jury. But thankfully, it is possible to fool some of the people all of the time!

Adding strings or horns to an arrangement, whether they are real instruments playing along to the previously recorded backing track (only the very brave begin with 'a section' at the start of the recording process) or sequenced, synthesised or sampled re-creations, is one of the most rewarding and exhilarating (and time consuming!) elements of arranging. Sadly, it's not also the most financially rewarding aspect of the music industry — the rate for arranging a six part score is £2.30 per bar, which means for an average pop song the fee would be less than £300 for a full six voice brass or string arrangement. But that's only if you

get hired by the artist or producer as 'an arranger' for the session. If you are, you'll have to supply perfectly constructed, readable and playable parts, which you will no doubt have to amend in the studio to take into consideration 'that new chord sequence in the middle eight'. But don't think about that too much, being part of the session generally means you do it for nothing.

### MASTER CLASS

Good music isn't tied to any particular genre or time period, it is and will forever remain simply good music. Having a big promotional budget or catching the media wave for 15 minutes won't make a record great as the years go by.

I've picked out four exceptional records which show the very best qualities in different aspects of arranging. You may not like one or more of the artists, but only a bigoted fool would question their excellence.

#### • FRANK SINATRA *SINATRA AT THE SANDS*

Frank singing at the peak of his powers with the best big band in the world (at the time), the



Count Basie

Orchestra, arranged and conducted by a young, but very experienced Quincy Jones. This double album is 'The Bible' for arranging horns with class, and in tune with the content of the material and the singer's style of performance. Recorded in 1966 in Las Vegas, it shows the power of musicians playing written parts with more oomph than an entire Iggy Pop tour. Yes, there are a few sad old cabaret songs dotted around, it's a Sinatra concert for heaven's sake, but the class moments outweigh them by at least 100-1. The beginning of the show, for instance, drummer Sonny Payne strikes up a killer hi-hat pattern with Basie playing a one fingered vamp while the MC announces



## ALONE WITH THE HORN

One of the easiest jobs in the arrangement of brass, and the one that always gets the less-musical elements of the operation (record company liggers, parents, friends and lovers) jumping up and down shouting "it's a Hit", is the time honoured saxophone solo. This is one section in a song which definitely requires the use of a human being. The way to execute this most heralded, but elementary part of the session is simple, just call up the best saxophone player who's phone number you have, and get them to come down to the studio and blow their lungs out on your track — in the relevant key of course. The cost of this can be as little as a pint of beer, right the way up to £200, or so, but that should buy you the best there is. If the player is good, and there are loads of stunning saxophone players around these days, the chances are they will play something brilliant first time, just like on all the really big hits.

If you want a little more control over the style of the solo you want them to play, tape a couple of your favourite solos off records. Not only will it

help them, but it will save everyone the spectacle of you singing a load of incoherent nonsense trying to indicate how you think the solo should go! This never works out the way you want it to, with both you and the player ending up frustrated to the point of wanting to murder each other. If you do have a specific solo in mind, score it out in notation (most saxophone players read well enough) and save everybody having to listen to you blabbing your way through a simulated saxophone solo!

If you haven't got any phone numbers for saxophone players, just ask someone who works in a studio as they're bound to know at least one, or go to your friendly local saxophone shop and ask. Remember, punters just love saxophone solos, and punters buy records.

## KICK ASS HOT SECTIONS

If you want to kick a hook line into your song and punch in a few dynamic stabs in key spots there is nothing better than a brass section at full tilt. To hire a top notch professional horn section of four players for a two hour session will set you ▶

"and now, a man and his music" and the musical heavens open. You think I'm gushing? Just check it out for yourself. In the first song 'Come fly with me' alone, there are counterpoint alto sax gems coupled with a press roll on the drums in sympathy with the vocal line (sung in lazy frame of mind and written as such), which is chased by the trombones. Every song is crafted to perfection and every note is hand written by a master.

### • SCRITTI POLITTI, *CUPID & PSYCHE 85*

Six months is a long time in the world of music sequencing technology, so a dozen years ago must be the Stone Age of computer produced music. Yet still, to date, there's no record to touch Scritti Politti's second album for the sheer perfection of its sequenced arrangements. Put together primarily on a Series II Fairlight, it has more intelligence in one song than the entire career of the majority of sequencer based artists.

Since this ground-breaking record (which contains versions of 'Wood Beez', 'Absolute' and 'The Word Girl'), they've made only one other album (the nowhere near as good 'Provision') and produced a couple of very iffy dance pop singles for the likes of Shabba Ranks. But anyone who makes an album this slick, intelligent and ahead of its time has nothing else to prove. If you know the album, you know what I'm on about, if you don't, check out the best of the mid eighties.



### • THE CARPENTERS *THE SINGLES 1969-1973*

Sugar sweet, home cooking American drivel at it's worst? Maybe. But listen to the precision of every note, every harmony, every string line and be impressed but the fact it was the work of a couple of clean cut mid American kids in their early twenties who worked harder at their craft than most, and got closer to perfection than anybody.

From the single oboe line at the beginning of 'Superstar' to the big vocal chords in 'Close To You' there isn't a wasted harmony or string note to be found. Contrary to popular belief, the music of Karen and Richard is the standard that most big arrangements can be judged by. Whether they were using a full blown string ensemble, layering their vocals, or both, the music was complemented, not complicated. Richard's arrangement of the Bacharach/David song 'Close to you' keeps only the two five note piano figures played before the line 'That is why, all the girls in town' line from Burt's original arrangement.

The Carpenters also show the importance of allowing musicians to 'blow' over a constructed part. Take the blinding guitar solo at the end of 'Goodbye to Love' played by Tony Peluso. He was jamming over the song in rehearsal and Richard heard him hit a particularly killer lick and asked him to construct a solo using it. The result was one of the all time great pop fade-out solos.

### • STEVIE WONDER *INNERVISIONS*

In the history of modern music there have many one man bands. Mike Oldfield and his *Tubular Bells*, 'the artist we have always known as Prince', not forgetting Don Partridge and his 'Rosie'. But of all the performers that have played, produced and arranged their own work, no-one has had as diverse a career as Stevie Wonder. Of the three stages of his career, the middle one shows a 21 year old man inspired. 'Innervisions' marks the mid-way point of this period. Recorded using Moog and ARP synthesizers as they were being invented, programmed by Robert Margouloff and Malcolm Cecil.

Songs like 'Living For The City' and 'Higher Ground', starting with Stevie playing the drums (that is, actually sitting behind a kit whacking sticks against skins and cymbals), to constructing chords one note at a time on bulky, unpredictable, monophonic synths, with playing so damn funky it makes James Brown sound like a karaoke backing track. If you aspire to playing everything on your own tracks, humble yourself with a listen to perfection a quarter of a century old. What a shame the biggest hit he's ever had is the bland 'I Just Called To Say I Love You'. Ever since then, I feel his music has been 'Chicken In A Basket' middle of the road nonsense.





# A Rough Guide to Song Construction & Arrangement

► back around a grand. To get the best out of them will mean scoring out all the parts, in the correct transpositions, before the session starts.

Why brass and horns are written in one key and played in another has been explained to me a number of times and I still don't understand fully, but I do know that if you write the notes G, A, B for a B-flat transposing saxophone or trumpet they will played back to you as F, G, A. Confusingly, likewise, if the saxophone were one of those in E-flat, these same notes would be played back B-flat, C, D.

Once, I hired a bunch of tip top players for a session. Rather than score out everything in concert pitch and let them transpose the parts themselves into the relevant transpositions, I thought I'd be cute and do it for them. The only trouble was, instead of transposing the B-flat part up a tone I transposed it down a tone, likewise I scored out the E-flat part down three notes instead of up three notes. The discordant cacophony of noise when they started to play was a major shock to my system. Luckily for me after the severe ribbing I got about my theoretic musical knowledge (which a couple of them still delight in reminding me of to this day) they sight transposed the parts themselves.

It isn't a requirement to transpose your parts as all brass sections are able to sight transpose concert pitch-written parts into their own transpositions. They'll even scribble your ideas down — singing a hook line isn't nearly so torturous as singing a lead solo idea. It just saves time when they're written out, and as we all know, time is money.

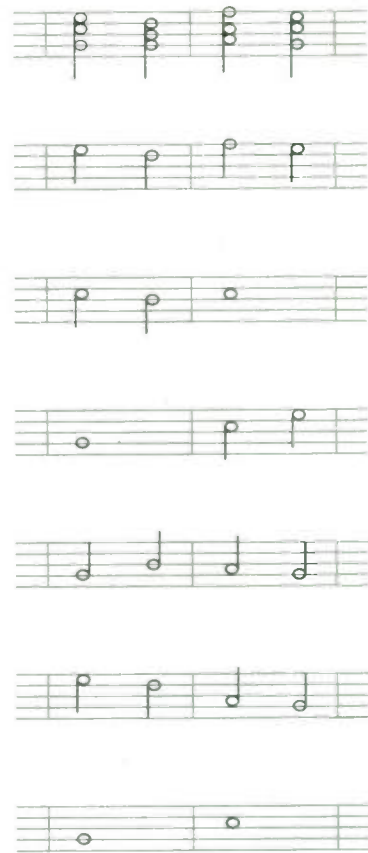


Figure 1: The simple string chord structure at the top can be split many different ways, as shown in the lines below. Transposing up and down the octave and using slight delays on each part will thicken the lines up no end.

## MIDI CONTROLLER NUMBERS

0	Bank Select	74	Brightness/Expander-Gate
1	Modulation Wheel	75	Undefined/Reverb
2	Breath Controller	76	Undefined/Delay
3	Undefined	77	Undefined/Pitch Transpose
4	Foot Controller	78	Undefined/Flange-Chorus
5	Portamento Time	79	Undefined/Special Effect
6	Data Entry	80-83	General Purpose 5 to 8
7	Main Volume	84	Portamento Control
8	Balance	85-90	Undefined
9	Undefined	91	Effects Depth (Effect 1)
10	Pan	92	Tremolo Depth (Effect 2)
11	Expression	93	Chorus Depth (Effect 3)
12	Effect Control 1	94	Celeste Depth (Effect 4)
13	Effect Control 2	95	Phaser Depth (Effect 5)
14	Undefined	96	Data Increment
15	Undefined	97	Data Decrement
16-19	General Purpose 1 to 4	98	Non-Registered Parameter Number LSB
20-31	Undefined	99	Non-Registered Parameter Number MSB
32-63	LSB for Control Changes 0 to 31 (where greater resolution is required)	100	Registered Parameter Number LSB
64	Damper/Sustain Pedal	101	Registered Parameter Number MSB
65	Portamento	102-119	Undefined
66	Sostenuto	120	All Sound Off
67	Soft Pedal	121	Reset All Controllers
68	Legato Footswitch	122	Local Control
69	Hold 2	123	All Notes Off
70	Sound Variation/Exciter	124	Omni Mode Off
71	Harmonic Content/Compressor	125	Omni Mode On
72	Release Time/Distortion	126	Mono Mode On
73	Attack Time/Equaliser	127	Poly Mode On

## ELIMINATING THE HUMAN ELEMENT

On the assumption you're not proposing to invest £1,000 or more to hire a real horn section, as your bedroom studio isn't quite big enough to accommodate them (and neither is your pocket) you have two options. Option one: buy a sample CD, as advertised in this very magazine — on these audio or CD-ROM discs (ranging from £30 to £200) are literally thousands of segments to choose from. All you have to do is find a suitable section which fits your requirement and punch it in.

The big plus side of using sample CD's is that they offer you real horn sections, playing with optimum dynamics and recorded with the correct microphones, all at the touch of a button. The downside is that you might not find anything on the disc worth sampling or which fits the bill for what you had in mind.

Option two: or, to put it another way - 'you don't have a sampler'. If this is the case, don't despair, there are many tricks of the trade at your disposal, both organic and through the wonders of binary code!

Despite the fact the MIDI sound module companies of the world have never got near to cracking a really accurate impersonation of a proper horn section, you can actually get pretty ►



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# A Rough Guide to Song Construction & Arrangement

► close with a bit of work. All modules respond to at least a couple of MIDI controllers, and there are plenty to choose from for added expressiveness and reality. (see MIDI Controllers box).

When you're adding a synthesised horn section to your track, try using a number of different patches for different qualities of tone and note duration. For long notes, maybe use a lush brass sound with some breath control and a touch of modulation as the note builds. For short, staccato sections use a sound with a fast decay, but then put all the different parts through a compressor (don't 'spare the rod' on this one — give it plenty) and maybe a touch of overdrive distortion as well (but do spare the rod here — a touch of distortion means a very small amount of growl on the sound not reducing it to a fuzzy noise!).

With modern recording, sequencing and sampling techniques it is possible to layer thousands of synthesised horn parts on top of each other, however, this doesn't mean that the effect will necessarily be more powerful. In fact, when



Wayne Jackson of The Memphis Horns (right) with the author in Nashville.



Figure 2: Chasing an on the beat bass note with the 3rd and 4th quaver off the beat an octave above will instantly turn a thudding bassline into a pulsating Hi-NRG groove thang!



laying down realistic horn section parts, it's better to try to limit yourself to no more than a three part harmony structure and have just one voice per part. If there are no harmony parts, the fewer the synth voices layered the stronger the part will probably sound.

## COCK YOUR BOW AND GET PIZZ

Unlike horn and brass sections, the lush sound of strings has pretty much been perfected by the makers of sound modules, apart, that is, from string

flurries which are available by the lorry load on sample CD. 'Video (may well have) Killed The Radio Star', but MIDI has certainly put a whole generation of highly trained string players into the Job Centre. Still, serves them right for being, in my opinion, a stuck up bunch of elitists, on the whole. Just a personal view which should not prejudice you against hiring the entire violin, viola, cello and double bass sections of your local orchestra to play on your next demo. This will, however, set you back the cost of a small terraced house.

Also, unlike horns, voicing string sections, especially with the luxury of a couple of hundred pounds worth of MIDI, is a case of the more the merrier. If you have the necessary multitimbrality and mixing facilities, bank 'em up as high and wide as you like! Of course, you can be as subtle as you like too — a single cello playing a simple figure can sound awesome.

Split the strings into different parts and voice the elements of chords along different paths. Remember, last month I went over parallel fifths (what d'ya mean you didn't get last month's issue?). Start by voicing strings with one line moving upwards, another moving down and a third moving as little as possible (see Figure 1). And remember the other trick from last month, holding the highest note of the song's key across the chorus, that is a real uplifter, as both the Pet Shop Boys and the Communards would testify.

Talking of whom, the figure used in just about every high energy track consists of a note on every beat chased by the same note an octave higher on the third and fourth quarter note (see Figure 2). This is just another handy tip, which used wisely can add to the groove of your music, or used recklessly and with no regard to the boundaries of rationality can turn your home-cooked demo into a worldwide smash. So, when you get into arranging, be creative — don't be just be influenced by other arrangers, steal their ideas for yourself!

## A MAN WITH THE HORN

The Memphis Horns (the two man operation of Wayne Jackson on trumpet and Andrew Love on saxophone) are without doubt the most listened to horn section in the history of music. At the beginning of Rock 'n' Roll, barely out of high school, they were playing with the likes of Elvis Presley, Otis Redding and Aretha Franklin, and four decades later they're still going strong with a CV which reads like a directory of pop music

greats including U2, Rod Stewart, Stevie Windwood and many more. Despite augmenting their line up by with as many as eight additional players, a good chunk of their work has consisted of just the two of them, alone on stage.

They developed a system they called 1,3/5,7. It is how the two of them manage to develop the musical hook during a double chorus and throughout the course of a

song. Wayne Jackson explained "When we're blowing on a tune, the first time through I'll take the root melody and Andrew will play along a third higher. Then when it comes around again I'll take start on the fifth note and he'll bust his balls playing the seventh. We swap around who starts where, sometimes, but that's the equation we always use, and it always works too."

Which only goes to show, sometimes (or more accurately, usually) Less Is More!



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## FULL VOICE ARCHITECTURE

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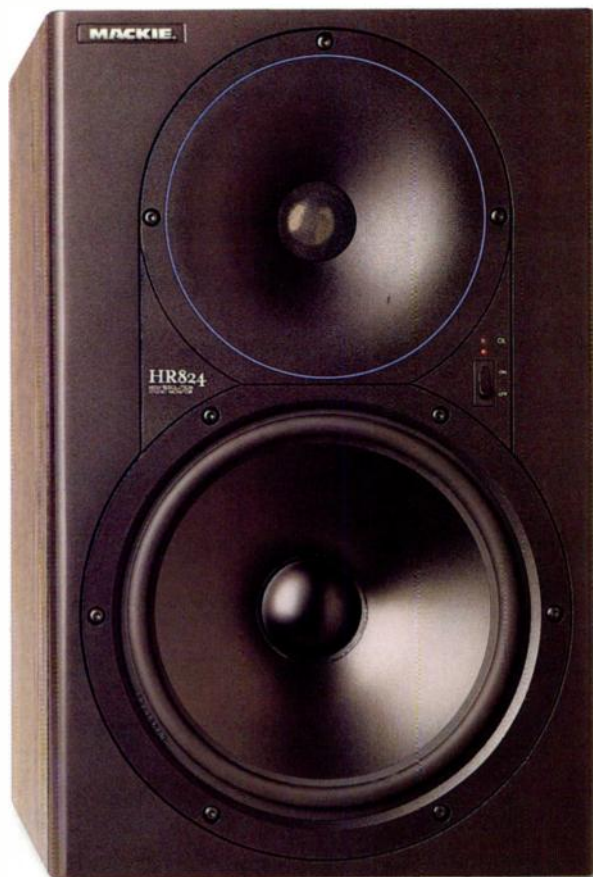
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MACKIE HR824  
ACTIVE MONITORS



*PAUL WHITE hooks up Mackie's new monitors, nails down the furniture, and settles down for a long listening session.*

## pros & cons

**MACKIE HR824 £1299**

### pros

- Clean sound with tremendous bass extension, even at high SPLs.
- Wide sweet spot and good stereo imaging.
- Variable frequency tailoring to suit the environment and the user's preferences.

### cons

- Slightly forward high end.
- Rear-panel legend is very small and difficult to see without strong lighting.

### summary

The competitive pricing and extraordinary bass extension of these speakers makes them very attractive to small studio owners who need a more accurate means of monitoring their output than conventional nearfield monitors can provide.

**SOUND ON SOUND**

**M**ackie have been making mixers for so long now that when they come out with a studio monitor, they still give it a name that makes it sound like a mixing console! You might think that they don't seem the obvious company to diversify into the monitor market, but I've followed the development of this particular project for around 18 months now, and can report that they've gone into it very seriously, making considerable investments in both test equipment and experienced designers. The fruit of their labours is a compact, two-way active nearfield monitor, though I don't think the term nearfield really does it justice, as the frequency response extends to around an octave below that of many other nearfield des.gns.

### DESIGN & CONSTRUCTION

Driven by lower-powered versions of the FR power amp design used in the Mackie rackmount PA

power amps, the HR824 uses a substantial 8.75-inch woofer with a die-cast magnesium frame and mineral-filled polypropylene cone, complemented by a 1-inch, ferrofluid-cooled aluminium domed tweeter mounted in a shallow horn or waveguide to maintain dispersion at high frequencies. Servo motion feedback is used between the bass/mid driver and the power amplifier to produce a very tightly controlled sound with minimal overshoot. An active crossover with a modified Linkwitz-Riley, 24dB/octave response comes into play at 2kHz.

Switches are provided on the rear of the cabinet to match the bass level to the position of the monitors relative to rear and side walls, with further switches to tailor both the bass and high end to the user's preference (more on these in a moment). The bass/mid power amplifier is rated at 150W (350W burst power) and the tweeter is driven from a 100W amplifier with a burst power



of 210W, giving a maximum peak SPL of 120dB at 1 metre (per pair). Maximum short-term SPL is quoted as being 111dB at 1 metre on-axis. As you'd expect, the amplifiers do not have cooling fans, so you only hear the music.

The overall cabinet size is just 400 x 254 x 310mm (15.75 x 10 x 12.2 inches), with an overall weight of a little over 15kg, so it's not immediately obvious where that extra octave of gut-punching bass end comes from. To answer this question, you need to examine the rear of the cabinet, because behind the amplifier metalwork is a large, flat-fronted elliptical passive radiator measuring 6 x 12 inches. Earlier publicity material suggested two smaller circular radiators, so presumably this is the result of a mid-project design revision.

Passive radiators are a tried and proven alternative to traditional cabinet porting, and this example comprises a mass-loaded piston with an aluminium-honeycomb composite diaphragm suspended in a rubber surround. It operates rather like a bass driver with no coil and no magnetic assembly, and its job is to provide a mass that reacts with the springiness of the air trapped inside the cabinet to tune the low-frequency response of the box. At low frequencies, the bass driver moves over a relatively small distance compared with conventionally ported designs, and a lot of the deep bass energy actually emerges from the passive radiator. This allows the cabinet to have a nominally flat frequency response right down to 37Hz (3dB down), while the aluminium domed tweeter is only 3dB down at 22kHz. Each monitor comes with its own response curve measured with a B&K 4133 test set, and this shows the average response to be essentially flat between the frequency extremes.

The cabinet itself is made from 0.75-inch black ash finish MDF with a 1-inch front panel, and the side edges are radiused to help minimise cabinet edge diffraction at high frequencies. An internal H-shaped brace stiffens the cabinet and the tweeter sits in a cast zinc waveguide that works on a similar principle to that used by Genelec; the idea is to maintain an even dispersion at high frequencies rather than allowing the dispersion angle to narrow as the frequency increases.

Inside the cabinet is an open-cell foam material to attenuate internal reflections. The active circuitry is mounted on a sheet-metal chassis on the rear panel, covering the passive radiator. Ventilation slots allow the bass radiator's contribution to pass through with little attenuation, and I'd imagine the significant air flow this causes

also helps a little with the cooling.

### ACTIVE FACILITIES

Both balanced jack and XLR inputs are fitted, along with an EC mains inlet, and these face downwards rather than rearwards to allow the monitor to be mounted close to a wall when required. The power switch and LED are mounted on the front panel along with a clip warning LED, but the rest of the controls and switches are on the rear panel, on which the small legending can be a little tough to read in poor lighting conditions. Perhaps the first unusual feature on the rear is the three-way power switch to select on, off or Auto mode. In this third mode, the amplifiers come on when an input is detected and turn themselves off after five minutes of continuous silence — very eco-friendly, and useful for those who don't have a centrally switched power source for their studios!

An input trim control sets the gain of the active circuitry, which is designed with a nominal +4dBu sensitivity. If you find your mixer output is always turned right down to get the right listening level, you can reduce the input sensitivity on the monitors to let you work at a more realistic mixer setting.

The three-position switch named Acoustic Space may take a little explanation. When a loudspeaker is mounted away from walls, very low frequencies radiate in all directions, rather like the ripples on a pond, so the available energy is shared out over a full 360 degrees. This is known as Full Space operation (the first switch position). If your speakers are positioned right back against a solid wall, all the energy that would have gone to the rear is reflected back into the room, and if the monitor/wall spacing is small, this will be in phase with the forward radiating sound, resulting in a doubling of the bass energy at the listening position. In this situation, all the energy is concentrated into 180 degrees. To compensate for this, the bass end needs to be dropped by 3dB, but as few home studio walls are completely solid, Mackie have given the switch a 2dB cut in the Half Space position.

Quarter Space conditions (the third setting) occur when a monitor is placed in a corner, because now it can only radiate into 90 degrees, and as you might expect, the bass level doubles yet again, so further cutting is required to compensate. Mackie provide a 4dB cut to handle this, but as corners can be acoustically unpredictable places, mounting the speaker against just one wall is likely to produce a more

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# Mackie HR824 Active Monitors

- ▶ accurate bass end. Still, it's nice to have the option if room size forces you to put your monitors in corners.

Another factor affecting bass is room size, and in a typical domestic room, the dimensions aren't big enough to support deep bass, so all the really low energy just makes the room boom. Because the HR824s can go right down to 38Hz, they can sound a little out-of-control in very small rooms or those with poor acoustic treatment, so Mackie have added another three-way switch to raise the bass cutoff frequency to either 47Hz or 80Hz. The 47Hz position still provides plenty of kicking bass in a small-to-moderate private studio, but keeps out the really low stuff that sets your room booming. Few rooms are so small that the 80Hz position is essential, but if you want to check what your mixes might sound like on a small home stereo, you can flip to this position and check.

High-frequency adjustment is also provided, again on a three-way switch that provides the option of 2dB cut or boost, as well as a flat position. Those who like the over-bright, 'West Coast' sound [*what, Cornwall or Bristol? — geographically concerned Assistant Ed*] can opt for the +2dB setting, but if you're one of those people whose mixes always sound dull on other systems, choose the -2dB setting. This will make your monitors sound a little less topky, which means you'll probably add more top when mixing to compensate. The result should be brighter mixes in the outside world.

## LISTENING TEST

Armed with my Sunday-best CD player, a handful of test material and a pair of metal speaker stands, I positioned the HR824s about a foot away from my office wall, slotted in an Enigma album and promptly felt my breakfast trying to get re-acquainted with the outside world. The speakers are shipped with the rear switches in their normal positions, which means maximum bass extension and Full Space bass settings, and in my 12 x 13 foot office, that produced the kind of bass more often associated with cinema sub-bass units during disaster movies. Impressive though it was, I felt the 47Hz and Half Space settings produced a more natural sound balance, but the depth of bass was still unbelievable compared with most other small monitors I've tried. The servo amplification system obviously works, because even at levels close to clipping, the bass remains firmly in control.

The mid and high end is best described as crisp and detailed, with a slightly forward characteristic, but not enough to make the sound seem rough or fatiguing. Tested with solo voice, the delivery is natural and dynamic, but again with that slight forward character that lets you hear every breath and lip smack in close-up detail. I'm not usually a fan of metal tweeters, but I think these represent an excellent compromise between absolute neutrality, and the ability to deliver loud, detailed sounds without distorting. I have heard sweeter-sounding soft-dome tweeters, but usually in much

more costly monitors, and at rather lower volume levels.

More complex material shows the HR824s to be capable of good imaging over a surprisingly wide sweet spot, and even at high levels, the bass doesn't seem to cloud the mid range or high end. The user-tweakable bass and treble settings are actually very useful in matching the speakers to different environments and tastes, and as someone used to very neutral speakers, I found things more comfortable with the treble set to the -2dB position. The difference is relatively subtle, but having the facility is well worthwhile.

## SUMMARY

Servo feedback, passive radiators and waveguides have all been used before, but never to my knowledge in a studio monitor of this type. Indeed, I've only ever seen passive radiators before in hi-fi systems. However, Mackie seem to have combined them to tremendous effect, no doubt after extensive late-night listening and tweaking sessions.

After prolonged listening tests with a variety of CD material, plus a stint in the studio, I have to acknowledge that the HR824s are quite remarkable little monitors, not least because they offer such a high level of performance at a most attractive price. I find the voicing to be just slightly on the forward side of neutral, but the overall character is comparable with existing big-name active studio monitors costing upwards of twice the price, and being honest, I think most people feel happier with a speaker that errs on the side of crispness rather than dullness. The degree of genuine bass extension is extraordinary, and the all-important test with solo vocals shows no apparent defects or anomalies at the crossover frequency.

I feel that most home studio owners will be better off selecting the 47Hz bass position rather than leaving the system wide open, and because even with that setting, you can hear further down into the sub-bass than with regular nearfields, it may take a little while to get used to mixing with the HR824s. Even so, any effort will certainly be worth it, as the HR824s deliver main monitor performance for a nearfield price, and on a nearfield budget. What's more, the small size and reasonable weight means these would make great portable references for the travelling producer, not to mention great home cinema speakers for a Dolby Pro Logic system. You have to hear these to believe anything so small could sound so big.

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# getting it together

*Using a sampler without some sort of hard drive is just not an option these days, which means that some understanding of SCSI is necessary. Devoted Akai samplists PAUL FARRER explains some of the pitfalls that can befall the unwary user of SCSI'd up samplers, and examines some of the other cross-platform issues that can complicate sampling.*

There was a time when a sampler could get everything it needed to know from a floppy disk, both in terms of samples and operating system software. Samples weren't particularly complex or memory-hungry in those days, which was just as well, because samplers themselves had only a limited amount of RAM and seriously basic editing facilities. The advent of the first affordable stereo sampler, however, changed all that: sounds increased in quality and therefore complexity, samples became bigger, and as a result storage

## SOLVING AKAI SAMPLER SCSI AND CD-ROM COMPATIBILITY PROBLEMS

capacity had to be much, much greater. No longer could you cram everything onto two or even five floppy disks — piano samples these days are considered average if they'll fit into 8Mb. Clearly something had to develop, and fast. Enter the strange sockets round the back of your sampler; the ones that bear the mysterious inscription 'SCSI'...

### TERMINATOR TOO

The world of music technology is riddled with more strange acronyms than most of us care to remember, and just as we all know that SMPTE is pronounced simp-tee or sim-tee and not S.M.P.T.E, so it is with SCSI (Small Computer Serial Interface), which is pronounced skuzzy. SCSI is used for connecting computer peripherals, such as samplers, hard drives and so on, and the connection is in the form of a chain, not unlike MIDI. Most stand-alone hard drives (CD-ROMs, magneto optical drives and so on) have two SCSI connectors and you can chain devices together by using the second connector, rather as you would the Thru socket in a MIDI setup.

Because of the speed of data transmission along a SCSI cable, it is vitally important that both the first and last device in the SCSI chain are terminated, to prevent data corruption caused by signals reflecting back from the end of the line. All Akai samplers are internally terminated, and as they only have one SCSI connection, they obviously have to be at the start (or the end) of the chain. From here you can connect and go through as many as seven other devices, but it is essential that the last device is terminated. Any hard drives or other devices in the middle of the chain should be un-terminated, and you can check in the documentation that came with your hard drive to see whether it is normally terminated or not. Many hard drives these days give you the option to terminate or un-terminate via DIP switches, and some even automatically terminate themselves if they detect that only one SCSI connector is plugged in. If there is no built-in means of termination, you can buy stand-alone SCSI termination blocks which simply plug into the spare socket on the last unit in the chain.

Each device within the chain has to

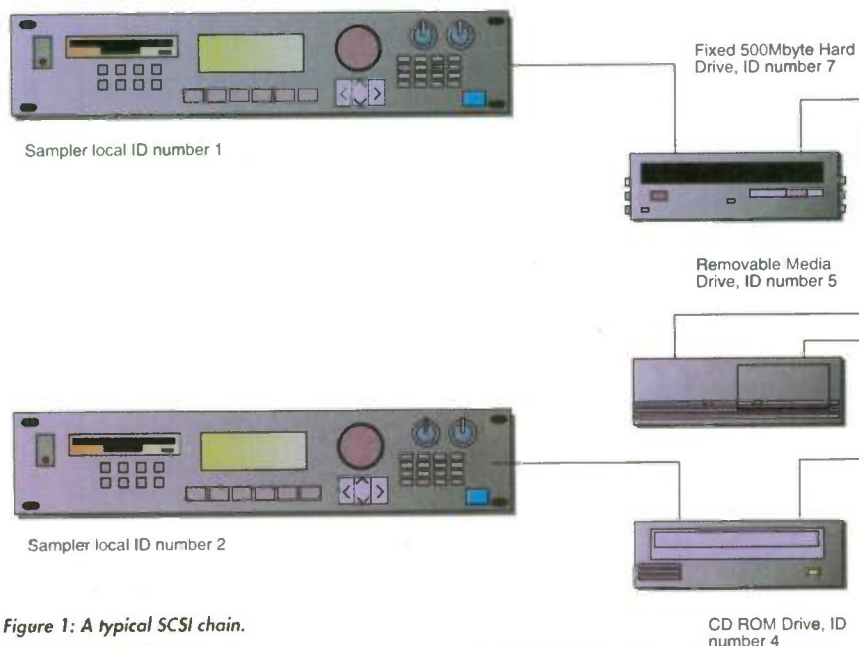


Figure 1: A typical SCSI chain.







## Sampler SCSI & CD-ROM Compatibility Problems

- ▶ be allocated a different SCSI ID number between zero and seven: no two devices can share the same ID or the system won't work. To use another MIDI analogy, it might help to think of them as a number of monophonic synthesizers that all have to have a separate MIDI channel number. In the case of modern Akai samplers, the CPU (Central Processing Unit) defaults to a local ID number of six, and on boot-up, as a matter of course, it starts looking for a hard drive resident on ID number five. If you want to change these ID numbers, you can, and if you're working with more than one sampler, you may find you have to (see below).

Most hard drives have a small switch on the back (and in some cases a series of DIP switches) which allows you to specify the ID number. For your sampler to address an external hard drive, the SCSI ID you set in the sampler must match that of the drive you are looking to load from or save to. This works fine for a simple setup of a single sampler and hard drive combination, but if you have more than one Akai sampler and a couple of hard drives in a chain, you have to allocate your ID numbers with care to avoid conflicts.

When you switch your sampler on, it searches for its operating system, first in the built-in EPROM, then in the SCSI chain, and finally in the floppy drive. This means that if two or more devices boot up in a SCSI chain all thinking they have the same local ID number, you are in for trouble. The best way to solve this problem is to first assign each sampler a different local ID number (on Akai S3000 series machines you can find this in the SCSI Drive Control Page by hitting Load then F5); once you've done this, allocate a drive number



Akai MPC3000.

for it to look for on boot-up, then re-save your operating system onto a spare floppy disk which you can keep permanently engaged in the sampler's disk drive. If you follow the same procedure for each sampler in the chain and make a note of which device is on which ID number, you shouldn't have too many problems (see Figure 1 for a typical SCSI chain).

### CORES AND EFFECT

The new generation of Akai samplers (the S3000XL series and the MPC3000) uses 25-pin 'D'-type SCSI connectors, but older units (such as the S950, S1000 and S2800) have the larger 50-pin Centronics connectors. This is also true of many hard drives and CD-ROMs, and Akai say that there is no difference in quality and reliability between the two systems. To connect a 25-pin sampler to a 50-pin CD-ROM drive, you simply need the correct converter cable with the appropriate plug on each end, or a converter socket, but what is vitally important is the type and quality of the SCSI cables you use. While some computer systems seem happy to work with virtually any SCSI cable, Akai samplers in particular seem to be rather fickle about what they will and won't work with. If you have a cable that your sampler doesn't like, you may get errors while trying to load samples, or you may find that the drive you're attempting to



Akai S3000XL.

### SCSI TIPS SUMMARISED

- **NEVER HOT-PLUG SCSI!** This can't be stressed enough. In other words, if you remove or plug in a drive to an Akai sampler, or indeed any SCSI host, while the drive or the sampler is switched on, you risk blowing the SCSI terminator fuse, and disrupting the sampler's power-up routine. This may cause the sampler to freeze and lock up, and if restarting it doesn't cure the problem, it's almost certainly a service centre job. The order in which you switch on the devices can be very important too; often a particular sequence of booting up is the only way to get a whole system

running reliably. It's best to start with the hard drives, then switch on your samplers last.

- **AVOID NUMBER CLASHES.** A SCSI chain must not contain two devices with the same ID number; each device must have its own unique local ID, and the chain must be terminated at each extremity. If the drive's not working, check that it hasn't been set to ID6 — this will clash with the sampler's own default setting, unless you've changed it. To change the default settings on boot-up, re-save your operating system to a floppy

after setting the new SCSI ID number and keep the disk in the drive.

- **BE METICULOUS!** Although it might seem like a lot of hassle to think of an original, creative and descriptive name for each sample you make, when you look back across more than 2Gb of archived sample data, will you really be able to remember what BD1 or Strings sounded like?
- **KEEP BACKUPS.** Back up whenever and wherever you can. It might be worth keeping a spare removable media drive cartridge or partition of a hard drive (or even a DAT backup) of the sounds that you simply couldn't

live without. We've all experienced that terrible empty and helpless feeling of knowing that precious data is gone, lost forever. In this respect multiple smaller removable drives may be more secure than one large fixed drive.

- **BUY DECENT CABLES.** Cheap SCSI cables can be a false economy. Check to see if your cables have the magic words 'individually screened cores'. If not, you risk reliability problems.
- **SPEED THINGS UP.** If there are certain CD-ROM samples that you use on a regular basis, save them onto your hard drive, as they'll load up much faster.



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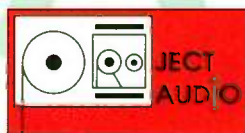
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# Sampler SCSI & CD-ROM Compatibility Problems

## MIDI VIA SCSI

Akai samplers run SCSI 1 and, as you may be aware, Windows 95 runs SCSI 2. This has caused a few problems for PC-based *ReCycle* and *Sound Forge* users, who rely on SMIDI transfers to operate these packages. There are currently two (rather technical) approaches to this problem: either use a DOS layer to drive your SCSI card, by disabling the Windows driver in the Device Manager, renaming the WINASPI.DLL and WNASPI32.DLL files (in the system folder) to XXXX.OLD, and entering, for example, the ASPI2DOS driver in the CONFIG.SYS file. Or, if that doesn't sound like your idea of a perfect Monday morning, Akai are creating operating systems for the current 3000XL series which will include the Windows drivers — release date to be advised. Otherwise use Windows 3.1 if you can, or transfer via MIDI (if you've got a spare afternoon or two). Of course, this isn't a problem for Mac users.

► connect is not recognised at all.

There are two main types of cable: the moulded cable and the flat ribbon cable. Ribbon cables are principally designed for use within computer devices and don't need to be as robust as external cabling. Moulded cables, on the other hand, are the thick round sort that have stronger plugs and can much better withstand repeated plugging and unplugging. By its very nature, SCSI requires that each conductor in the cable is individually screened, but some manufacturers make cables with only a single ground for all the connections. As stated earlier, your PC or Mac might be happy with this, but your sampler may not be so forgiving. Remember that all the SCSI devices in your chain are effectively connected on the same circuit, so if just one of your cables is a rogue, the chances are that it will screw up operations throughout the whole chain.

With this in mind, ribbon cables, which run alternately signal and grounded wires across the cable width, are often more reliable (providing they don't have to be moved about too much), but it's worth noting that this kind of cable doesn't have external screening, so it's best to keep them away from other cables to prevent interference getting in or out.

When I was asking around for SCSI stories for this article, SOS's own Martin Walker was very helpful in raising a number of points, one of them being that buying all your cables from a single manufacturer (although this is not always easy if your studio expands over the course of a few years) sometimes helps maintain uniform impedance, and therefore minimises the mismatches and reflections that cause SCSI errors. One further point to keep in mind is that the SCSI

seems to be that, just as with any other connectors in your studio setup, it hardly ever pays to cut corners and buy the cheapest cables you can. Insist that the spec of the cables you buy features Individually Screened Cores; this is important to find out beforehand, as it's generally impossible to tell what kind of moulded cables you have bought just by looking at them!

## COMPATIBILITY

if you abide by all of these wiring guidelines and are very careful with your choice of cabling, why is it that you can still get problems? One opinion that I seem to hear quite a lot from Akai users is that older machines such as the S1000 and S1100 tend to be tolerant of a much wider range of cables and drives than the newer units — an observation perhaps compounded by the fact that it would seem lomega Zip drives (one common Akai stablemate) are not all the same and are said to contain slight differences in the firmware that is shipped with each unit. Though this can hardly be blamed on Akai, it is apparently not uncommon to buy a brand new Akai and Zip drive combination only to find that it blankly refuses to work, leaving everyone scratching their head.

Another potential fly in the ointment is that the ever-increasing speed of more modern external CD-ROM drives could actually exceed what your Akai sampler can handle, and may prevent their use altogether. Unfortunately, it seems that there is no easy or immediate solution to this problem; so far the only sensible advice seems to be to try before you buy. The last thing any music shop wants is hoards of angry customers knocking at the door demanding refunds, and many stores will now only recommend drive, cable and sampler combinations that they know to be reliable. If this isn't the case, I don't think it is too much to ask that they spend 20 minutes taking you step by step through the best way to set up your SCSI system (including the cables) in the shop, before you part with the readies.

## FORMAT CAPACITY

Owners of Akai S900s and S950s will undoubtedly be aware that the IB109 SCSI interface fitted on their machines will only recognise and work with a maximum of 60Mb of hard drive space. The MPC60 can also only recognise 60Mb, but the newer MPC3000 and 2000 modules have been considerably upgraded to work with up to 739Mb. From the S1000 sampler onwards (including the S1100, S2800, S3000, S3200, S2000, S3000XL and S3200XL), Akai fitted their samplers with the much larger hard-drive capacity of 512Mb, but many users might still find half-a-Gig capability somewhat limiting. If you think back to the days when the first S1000 modules came out, most hard drives were between 40 and 80Mb and the thought of a Gigabyte hard drive for under £300 was still the stuff of games designers' wildest dreams — Akai obviously felt at the time that the 512Mb limit would be enough. ►



specification states that the total length of all the cables and devices in your chain must not be greater than six metres. That's not to say, though, that if you have SCSI problems, just swapping cables around within your setup won't solve them. Editor Paul White reports frequent SCSI problems with his S2000, which are always solved by changing SCSI leads, sometimes back to the ones that were there last time it failed! The order in which external devices are connected also seems to make a difference.

My own setup works perfectly providing I have specific cables in specific places in the chain. If I remove cables or swap them around (even keeping the same SCSI chain order) I run into problems. To sum up, the simple rule of thumb



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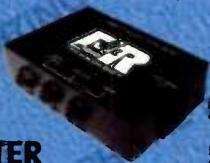
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## Sampler SCSI & CD-ROM Compatibility Problems

► These days, of course, all that has changed, — the way that the computer peripherals market is going, I'm sure it won't be too long before they're giving 120Gb hard drives away free with breakfast cereal — but many Akai users are left with the prospect of only being able to use hard drives no bigger than 512Mb. Akai have maintained this limit on their current range of samplers to permit retrospective compatibility with older machines, and in the majority of cases, 512Mb capacity should still be adequate.

For those of you thinking of using a Gb hard drive with an S-series sampler, hoping that it will work happily using only half the storage capacity, I'm afraid you'll probably find it's not that simple. Akai seriously advise against this, claiming that although it might sound like a good idea in theory, in practice the nature of the way Akai data is stored to disk means that you may well run into some defragmenting access problems. Or, to put it in more friendly muso-speak: *it won't necessarily work!* If, therefore, you are an Akai user and you want to create the ultimate 15Gb archive of your sound library, what should you do?

Well, at the moment you essentially have just two options, if you discount backing up to DAT: get a removable drive (such as the Iomega Zip, or Syquest EZ Flyer 230), or use Akai's own Mac-based sample editor/librarian *MESA* to create a library of sounds stored on your computer's hard drive. Although it's currently available only for the Mac, Akai tell me that a PC freeware version is soon to be posted on their web site. However, the PC version of *MESA* has been promised for so long now that I can distinctly smell frying bacon mingling with aviation spirit! [*Pigs might fly, in other words — Simultaneous Translating Ed*] Also it's possible that Akai may be releasing a newer operating system (as a floppy disk update) when the PC version of *MESA* comes out — this has been hinted at by AL Digital, who are part of the development team. This may also improve the Akai's SCSI reliability a little, but only time will tell.

### SAMPLE CD-ROMS

When other sampler manufacturers claim that their machines are Akai-compatible, they usually mean



Iomega Zip drive.

that their machines will address, acknowledge and load S1000-formatted data via SCSI (with the possible exception of the Kurzweil K2000, which will also load S3000 format samples). The S1000, probably because it was one of the first truly affordable stereo samplers to establish itself as an industry standard, quickly became the most popular format for sample CD-ROM producers. Of course, the S-series has come a long way since then, and so have the amount and complexity of the data saved to disk by a modern sampler. Manufacturers such as Emu, Roland and Kurzweil each have their own distinctive ways of dealing with the basic blocks of recorded sample data, and, naturally, different sample architectures all have their own unique terminology — which is usually the biggest headache for any samplist looking to hop between machines on a regular basis. For instance, what Akai refer to as Programs, Emu call Presets and while some users like to edit a Sample, others might be more used to truncating a Tone.

As far as the end user is concerned, the current *glasnost* between rival sampler manufacturers can only be a good thing, mainly because it allows much more open access to other manufacturers' sound libraries. For the most part, sample CD-ROM manufacturers have opted to stick with producing discs using the S1000 format as a sort of common denominator. Not to say that the S1000 is the principal instrument used in the creation of these sound libraries (in fact in most cases it's not used at all), rather that most sample CD-ROMs are edited and processed entirely in the digital domain, before being burnt onto the master in an S1000-friendly way.

The current range of Akai S-series samplers (plus the MPC2000/3000) also supports both Roland and Emu sound libraries via SCSI, and importing sounds in this way is, generally speaking, a glitch-free and straightforward exercise. You might occasionally get minor anomalies — drum kits that load up with the portamento switched on, or filter settings turned down to a minimum — but for the most part you should get positive results. If in doubt, ask your sample CD-ROM supplier, as they will probably be aware of any cross-compatibility problems relating to specific discs. Discs that don't present samples and programs in the way you might expect often have sleeve notes with specific instructions, so do read these before proceeding.

SO5

Thanks to Ed Morris from Akai Technical, Jason Creasy from Time and Space, and Martin Walker.



Akai S1000.

### AKAI SCSI SPECIFICATIONS

Model	SCSI Capability	Maximum SCSI Hard Drive Capacity/Mb	Connector Size
S900	No	N/A	N/A
S950	Optional (IB-109)	60	50pin
S1000	Optional (IB-103)	512	50pin
S1100	Optional (IB-103)	512	50pin
S3000	Optional (IB-301s)	512	50pin
S3000i	Standard	512	50pin
S3200	Standard	512	50pin
CD3000i	Standard	512	50pin
S2800	Optional (IB-301s)	512	50pin
S2800i	Standard	512	50pin
S3200XL	Standard	512	25pin
S3000XL	Standard	512	25pin
S2000	Standard	512	25pin
CD3000XL	Standard	512	25pin
MPC2000	Standard	739	25pin
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# SOUNDS OF THE '70s

## FREEFORM ANALOGUE TECHNOLOGIES PCP330 PROCODER

*Following on from their Freebass TB303 clone, FAT's new PCP ProCoder is another take on a classic instrument of the past — that mainstay of many a disco, electro, and Kraftwerk track, the analogue vocoder. CHRIS CARTER absolutely refuses to make silly robot voices with it.*

The FAT ProCoder PCP330 is a new dedicated 1U rack vocoder from the same stable as the Freebass TB303 clone (reviewed *SOS* March '97). The PCP330, however, is an all-analogue device, with no MIDI or digital capabilities. The technical spec, while not on a par with top-end models, is nevertheless pretty impressive; it employs an 11-band voicing system that can also be pushed into service as a filter bank. In keeping with the analogue philosophy, there are separate controls for each function; a total of 19 knobs on the front panel. Eleven of these knobs are vocoder/filter level controls, and the rest are for adjusting the input and output levels, and the Sibilance and internal oscillator settings (of which more in a moment). To keep the audio signal as clean as possible, the ProCoder also features a couple of peak-reading LEDs, a compressor on the inputs to help prevent overdrive, and a noise gate on the outputs to keep the noise floor low.

Interfacing with the outside world is handled by four quarter-inch jack sockets, and an XLR microphone input on the rear panel. The labelling for these rear-panel sockets is confusing, as it doesn't relate to the terms normally employed in vocoding, or indeed to the labelling used on the front panel of the ProCoder, as we shall see! From left to right, the connections are as follows: the Unvoiced In jack, the mono vocoder Out jack, the Synthese In jack, and finally, the two Analyse In sockets, one of which is a quarter-inch line-level jack, while the other is the mic-level XLR. To understand the function of these

connections, it's first necessary to know a little bit about how a vocoder works.

### THEORY & OPERATION

At its most basic, vocoding is a little like ring modulation, in that the vocoder takes two different input signals (known technically as the Carrier and the Modulator) and makes a third signal that is derived from combining the two. This is done by analysing the input sources, and using analysis and synthesis circuits to control banks of filters and VCAs (11 of each, in the ProCoder's case). The effect of this is to superimpose the characteristics of the Modulator signal (usually, although not always, a voice, hence the term **v**ocoder) over the Carrier (which is usually an instrument). If you use a voice as the Modulator and a synth note as the Carrier respectively, the end result is the instantly recognisable 'robot voice' vocoder effect; with a voice (Modulator) and a guitar (Carrier), you can create 'talking guitar' effects (for more on the theory behind vocoders, see the article all about them back in *SOS* January '94).

Getting the ProCoder up and running is pretty painless, partly because it has an internal sawtooth oscillator (or sawtoot, as the manual insists on calling it); this acts as the Carrier signal so that you don't have to supply one if you don't want to. The oscillator is a basic affair, with a range from 15Hz to 600Hz (set using the front-panel VCO Frequency control). Although it's referred to as a VCO, the oscillator can only be swept manually, and can't be controlled by an external control voltage keyboard signal or an LFO, which is a





shame. However, the oscillator means that all you need to do to generate a vocoded sound is supply a Modulator signal, which is done via one of the Analyse In sockets on the back panel (XLR or jack, depending on whether your chosen Modulator is a mic- or line-level signal). If you wish, you can also supply your own Carrier signal, and this is done via the Synthese In jack (plugging anything into this jack automatically disables the internal oscillator).

As already noted, the labelling for these jacks is misleading — one wonders why they couldn't have been labelled Modulator In and Carrier In, particularly as the relevant level controls on the Procoder's front panel are labelled Modulator and Carrier (the same dual terminology persists in the manual, incidentally). Anyway, if the front-panel Modulator and Carrier level controls are set approximately mid-way, and all the vocoder and filter level controls are set to maximum (which I suppose could be regarded as a default setting), all you need to do to obtain the familiar vocoder sound is plug a signal into one of the Analyse In jacks, use the internal oscillator as a Carrier, and bingo — the vocoder sound emerges from the Out jack on the rear panel. The vocoding theory might sound complex, but obtaining the sound is a doddle. There is an irritating hindrance, however; there are no graduations marked around the control knobs, which makes it very difficult to make a note of any particularly good settings you come across.

The only control I haven't explained so far is the Sibilance level knob. This controls a sub-section of the vocoder called the VUD or the Voiced-Unvoiced Detector, which is used to detect any sibilant

content in the Modulator signal (the one from the mic/line input). If the circuit finds any, it superimposes a non-harmonic noise signal over the harmonic vocoder sound. This feature would normally be used with a microphone and voice, and in this case, it adds intelligibility to the vocoded vocal. However, it works just as well (even better, some might say) with non-vocal sources, particularly rhythmic sounds. Unusually, the VUD also allows for the internal noise generator to be overridden by yet another external audio source, which comes in via the Unvoiced In jack on the rear panel; so the PCP330 is actually a vocoder with the potential for *three* audio inputs. This certainly opens up even more creative sound-shaping avenues, and might well be unique. Of course, getting the PCP330 to produce decent sounds depends a lot on the input material you choose. You can't expect to get those more unusual and wacky sounds straight away; you need to spend some time experimenting.

### THE FUN PART

I've always thought vocoders sound a lot more interesting when the Modulator signal is *not* a vocal signal, as this simply produces that totally clichéd voice box sound. I may be in a minority here, especially considering the current vogue for '70s sounds, but I stuck to my guns, and for this review, I only used a mic a couple of times to supply a vocal Modulator — and that was just to check that the XLR mic input socket worked as it should. It does, and there's plenty of gain available, if needed, via the Modulator Input Level control on the front panel.

During the course of the review, I used almost

### pros & cons

#### FAT PCP330 PROCODER £299

##### pros

- Versatile and easy to use.
- Capable of producing some great sounds, with the right source material.
- Good audio quality; even the distortion sounds OK!
- A separate control for everything.
- XLR socket for mic input as well as jack.
- Built-in oscillator.
- Three independent audio inputs.

##### cons

- No on/off switch.
- No footswitch socket.
- Poor build quality.
- The styling actually makes the legending impossible to read in some lighting conditions.
- No graduations on knobs.
- No external CV input for internal oscillator.
- Expensive considering there's no MIDI, CV or footswitch control.

##### summary

The PCP330 is a versatile, great-sounding machine, capable of producing some extraordinary and unusual effects, and is only let down by its poor build quality and price. Try before you buy.

**SOUND ON SOUND**



# FAT PCP330

▶ anything that had an output signal to drive the various vocoder inputs, including the following: a digital synth, an analogue synth, a Roland TB303 Bassline, a drum machine, drum pads, fuzz guitar, samples and sample loops, an effects unit, a radio, a TV and a PC soundcard. The fun part is trying out the various combinations of these, which often result in some unexpected results and happy accidents. An interesting input combination I came up with was feeding a TB303 through the Modulator (Analyse) input, an evolving synth pad through the Carrier (Synthese) input, and a hi-hat pattern through the Unvoiced input. By adjusting the Sibillance level (which behaves a bit like a frequency-dependent noise gate) it was possible to go from a smoothly changing, vocoded bubbly bass sound, to a chopped-up, hard-edged rhythm (although I discovered this effect by accident, it is described in the manual as a way of 'rhythmatizing [sic] a static sound'). And by adjusting any of the 11 filter levels, it was possible to reduce or accentuate the bass, mid or top-end ranges of the overall sound.

Although the PCP330 includes a compressor to reduce the likelihood of overloading the inputs, I still found it quite easy to push the vocoder into distortion, but because this is an analogue unit, this isn't an entirely unpleasant experience, and I can imagine some people using this feature to produce some suitably grungy lo-fi vocoder sounds.

The ProCoder manual contains some useful instructions on how to configure the vocoder to produce other non-vocoder effects, including various types of pseudo-filter sweeps, the 'rhythmatizing' effect mentioned above, and frequency-dependent distortion. This last effect works by feeding the same signal into both the Analyse and Synthese inputs; you can then tune the distortion across different frequency bands by adjusting the individual filter levels.

## STRIKE UP THE BANDS

A few years ago, I used to have a Roland SVC350 vocoder, which was also an 11-band unit, and I currently use the vocoder on the Korg Wavestation AD, which only has about six or seven bands. While the Roland unit sounded very warm, and the Korg sounds clean, neither have the strong, vibrant tones of the PCP330. The ProCoder's output mixing options are also comprehensive, with level controls for the Carrier, Modulator, VCO, overall vocoder output and the filters, which allow for some complex layering of timbres. The ProCoder can also pack quite a punch at the bottom end when processing drum loops and bass lines; just occasionally, it can sound a little too resonant in the mid section, although this can be eliminated with careful

tuning. But beware of introducing the Sibillance (Unvoiced) effect too quickly, as it can change your sound quite alarmingly from a gentle chorus-like effect to a loud 'sandpaper scratch' very rapidly.

## THEY DON'T BUILD 'EM LIKE THEY USED TO

Though there's no denying that the PCP330 sounds great, as far as build quality goes, it's a bit of a duffer. As soon as I unpacked it, I knew something wasn't right — for a start, the top and bottom plates of the case aren't fixed to the frame, but sit loosely in grooves and rattle about, especially if you put the ProCoder anywhere near a loud monitor or bass bin. There's also sharp, unfinished burring on the edges of the aluminium front panel, giving the overall impression of a Maplin self-assembly kit. Furthermore, from a practical standpoint, I know FAT are trying to recreate a '70s look, with suitably blocky lettering in shocking pink, but if you view the unit from the wrong angle, or in anything other than bright light, the legending is almost illegible. You just don't get a feeling of pro-quality construction from the PCP330, which is a bit ironic for a unit called a ProCoder!

## CONCLUSIONS

As I've said, the PCP330's sound is particularly strong, and the device offers more than enough controls to shape and tweak the sound (although the lack of graduations on the control knobs is a problem). Also, it does make a change to see a manufacturer coming up with something a little different, instead of cloning the same old bass synths, drum machines and filters. But I have to say that I think the £299 price is on the high side, particularly as there's no MIDI, CV or footswitch control. Couple this with my reservations about the build quality, and I'm afraid I can't recommend the PCP330 as wholeheartedly as I would have liked to. FAT do need to pay some attention to their quality control with regards to the ProCoder's casing, because (to adopt a metaphor) it doesn't matter how good the engine is if the bodywork is in poor condition. Taken as a whole, it looks like FAT have cut too many corners with the PCP330; it just doesn't come across as good value for money. All I can say is try one before you part with your cash.

SOS

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*Cubase VST was the MIDI + Audio sequencing sensation of last year on the Mac, offering built-in digital effects with no additional hardware required. Now, after much work, Steinberg have succeeded in porting VST to the PC — at the same price, and, once again, with no additional hardware required. JANET HARNIMAN COOK is suitably impressed.*

## FEATURES & COMPATIBILITY

*Cubase VST v3.5* is a true 32-bit native Windows 95 application, and will not run in 16-bit Windows (3.1 and earlier). The program supports multiple MIDI ports, and may use not only standard Windows MME-compatible soundcards, but also the new generation of multi-driver, multi-channel I/O cards, like the Korg 1212 and the forthcoming Lexicon and Event cards. Although *Cubase VST* will recognise multiple Windows MME soundcards, Steinberg do not recommend their use, because of the synchronisation difficulties that can occur between individual cards. Depending on the power of the PC, up to 32 audio tracks are available. Audio can be recorded directly into *Cubase VST* or imported in Windows WAV or Mac AIFF formats, and support is provided for MTC, MIDI Clock and SMPTE to synchronise external devices such as ADATs, stand-alone hard disk recorders, analogue tape decks and VTRs. *Cubase VST* offers an unlimited number of MIDI tracks to work with, and the MIDI timebase can be set to 96, 192 and 384ppqn (pulses per quarter note), which works out at 1/1536th of a whole note at maximum resolution.

## THE PACKAGE

*Cubase VST* for PC ships with an installation CD-ROM, two printed manuals, registration documents, and the copy protection dongle that connects in-line to the PC printer port. The CD-ROM also contains *Cubase v3.05*, which is included for those who do not require the VST facilities or wish to run the program in Windows 3.n. Various other utilities are bundled on the CD-ROM, including Style track resource files, Studio Module device drivers, demo tracks, libraries of drum and mixer maps, Interactive Phrase Synthesizer (IPS) examples; DNA Groove Quantisation templates; and the installation files for Adobe's *Acrobat Reader*, which is used to

## pros & cons

### STEINBERG CUBASE VST v3.5 £329

#### pros

- Stunning VST audio facilities.
- Excellent MIDI recording and editing.
- Fantastic value for money.
- Great fun to use.
- Wonderful real-time DSP effects and DirectX support.

#### cons

- Many manuals in inconvenient electronic format only.
- Needs VST window save function.
- Initial compatibility problems with some soundcards and older versions of DirectX plug-ins.
- Needs a very powerful PC to get the most out of VST functions.

#### summary

Steinberg *Cubase VST* is a music production powerhouse that positively purrs with power. When you consider the features it offers for the price, you have to conclude that it's also stunning value for money.

**SOUND ON SOUND**

It is not difficult to see why Steinberg's *Cubase* is so popular: its dazzling functional versatility, combined with a great user-friendly interface and support for the PC, Mac and Atari platforms have made *Cubase* the favourite of both audio professionals and enthusiasts alike.

*Cubase VST v3.5* marks a quantum leap forward for audio on the PC, by providing up to 32 channels of CD-quality digital audio, each with up to four independently configurable EQs per channel; two fully-featured professional real-time effects racks, each with four totally independent effect slots; expandable effects capability with optional DirectX plug-ins; a fully-fledged audio buss system for use with the latest generation of multi-channel I/O audio cards that will also enable interconnection with external rack processor hardware; extensive automation (every VST action is recordable); and an on-board sample level Wave editor. Add to this the benefits of 32-bit code and greater Windows 95 integration which sharpen up the overall look and responsiveness of the program, and what we have is something very special indeed.



view the supplementary electronic documentation. Installation was fast and without incident, and if, like me, you are upgrading rather than installing *Cubase* from scratch, preferences and defaults will be carried over from your previous version.

## LEARNING THE BASICS

Despite being a huge and powerful application, *Cubase* enjoys a well-deserved reputation for being stable, easy to work with, and highly conducive to creativity. The program is user-friendly and intuitive, with easy access to the more common functions; newcomers ought to find the basics quick to learn, and should soon be producing musically worthwhile results. But getting to grips with the wealth of features beneath the surface of the program requires a better system of manuals and tutorials than

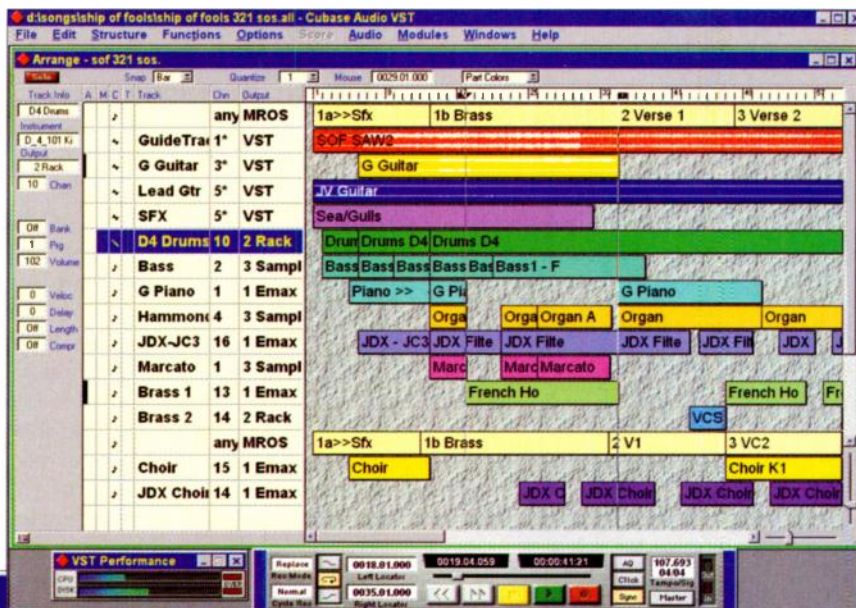


Figure 1:  
*Cubase VST v3.5, now with 32-bit code. This is the Arrange page.*



Figure 2:  
*Cubase's VST channel effects rack.*

currently ship with version 3.5, and I admit to feeling dismayed when I opened the package and realised not only were the excellent CD-ROM tutorials that shipped with version 3.0 absent, but the only printed manuals provided were a brief 'Installation' booklet and the 284-page 'Getting Started' manual. These are well-written, and will ably guide the newcomer through the preliminary stages of learning *Cubase VST*, but any further assistance must be derived either from the incomplete and skimpy on-line Windows Help, or from the retina-destroying electronic manuals. I feel especially sorry for all new users who attempt to learn the advanced score creation facilities of *Cubase Score VST* and *Cubase Audio VST* from the electronic 'Score Layout and Printing' manual, which is over 500 pages long. I can appreciate that the mammoth task of updating, reprinting and distributing the full set of *Cubase VST* manuals is both time-consuming and expensive, but electronic manuals are not an acceptable substitute for printed material when you are learning an application, and are only viable as a reference source for occasional use. I hope that

Steinberg will reconsider this policy, which is bound to prove a nightmare for both users and their Technical Support department. The alternative might be to supply a white stick and a Labrador with each new package...

## USER INTERFACE

*Cubase VST's* user interface is a wonderfully creative space in which to work, and places the minimum barrier between the recording musician's ideas and inspiration, and the realisation of these ideas in recorded form. At the program's heart is a classic easy-to-use WIMP (Windows, Icons, Menus, Pointers) environment of great sophistication: most editors feature a clear graphic layout with drag-and-drop editing, and it is possible to perform most edit and file routines without first stopping playback. *Cubase* can be operated almost entirely with the mouse and menus, although as all power-users are aware, top speed will only be attained when mouse activity is complemented by the numerous keyboard shortcuts that are available.

The *Cubase* graphic environment has been ►

## NEW FEATURES AT A GLANCE

- A maximum of 32 channels of digital audio, each with up to four independently configurable EQs (a maximum of 128 in total!).
- Two fully-featured professional effects racks, each with four totally independent effect slots.
- Expandable effects capability with optional DirectX plug-in effects.
- Fully-fledged audio buss system for use with the latest generation of multi-channel I/O audio cards.
- Extensive VST automation — every VST action is recordable.
- 32-bit native code and greater Windows 95 integration.



# Steinberg *Cubase* **VST v3.5** for PC

## MODULES

Modules are supplementary *Cubase* applications that you have the option of loading should you choose: *Cubase* VST has eight of them, including the new Arpeggiator, SysEx editor and CD Player; the Styles module provides auto-accompaniment-type features; the Studio module enables you to load the patch names from your MIDI Instruments so that they appear in the Inspector; the MIDI processors allow you to create MIDI-based delay effects; the AVI Monitor lets you sync Windows AVI video files with *Cubase* playback; and the SMPTE Display provides a scalable SMPTE time and Measure window.

▶ given a makeover rather than a facelift for version 3.5, although this is not too surprising, as it was already of a high standard. If you browse around, the first things to catch the eye are the new red *Cubase* VST icon, the 'brushed silver' transport bar, and the VST windows, which are particularly well designed; I love the simulated plasma level metering and tasty use of colour. The user interface has now shaken off its previous excessive greyness, and windows are generally much easier on the eye, partly because text and window backgrounds now take on the values defined in Windows 95 Display Properties/Appearance. There are still one or two loose ends, however; when you zoom in on the Arrange window, the fonts in the track list do not rescale sympathetically, and consequently names may appear truncated; additionally, Track and Part names are still limited

to 10 characters, but at least the program does support Windows 95's long file names, which is a great help.

## THE ARRANGE WINDOW

The Arrange window displays the overall structure of your song, and the page layout — which is based on the form of a multitrack tape recorder — displays coloured rectangular MIDI and audio parts arranged as linear tracks that scroll across the horizontal timeline during recording and playback. The Track definition columns determine the track type (you can have MIDI, Drum, Audio, Mix, Group, Chord, Styles or Tape tracks) and its default characteristics. Each Track and its constituent Parts also have an Inspector that provides additional parameter controls; the MIDI Track/Part Inspector contains velocity, pan, offsets and dynamics, together with defaults for MIDI channel, bank and volume, but does not include effects (MIDI controllers 91-96) or user-defined controllers. Parts can be cut, copied, erased, merged, muted, and renamed — and as a *Cubase* song can be made up of multiple arrangements, it is also possible to cut and paste data between these. *Cubase* also features Ghost parts — the equivalent of *Logic's* Aliases and *Cakewalk's* Linked clips. These are a form of cloned MIDI or Audio part, and if edits are applied to one Ghost, the same changes happen to all the sibling Ghosts. This can be very useful; imagine, for example, that you have an audio part containing a guitar theme that occurs several times throughout a song. If you make Ghost copies of the original part, and then apply a reverb envelope to one of them, the reverb will be applied to all the other Ghost parts whenever they are played. Another similar type of control over multiple parts can be achieved by summing the Parts together as a Group; then, edits applied to one element of the

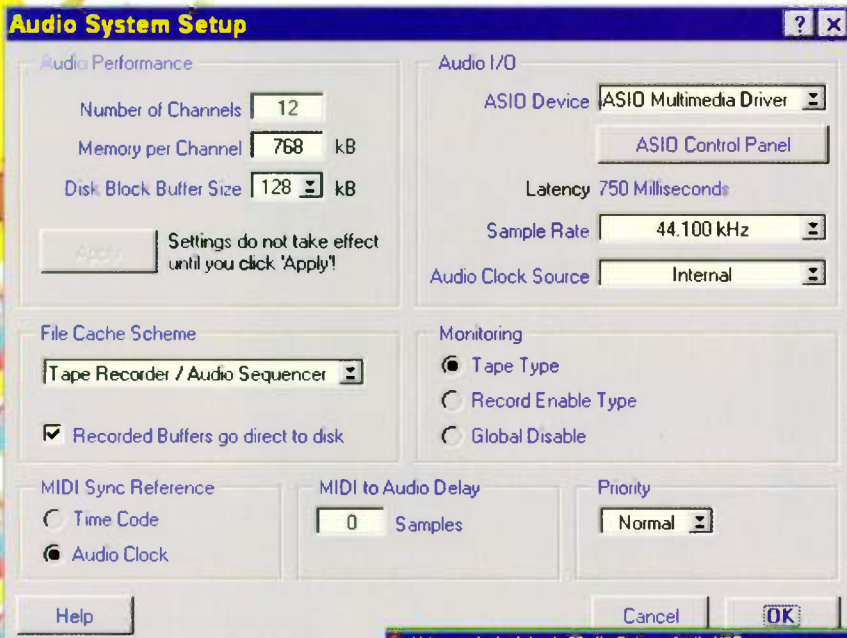


Figure 3: *Cubase* VST v3.5 supports up to 32 audio tracks and Windows MME soundcards.

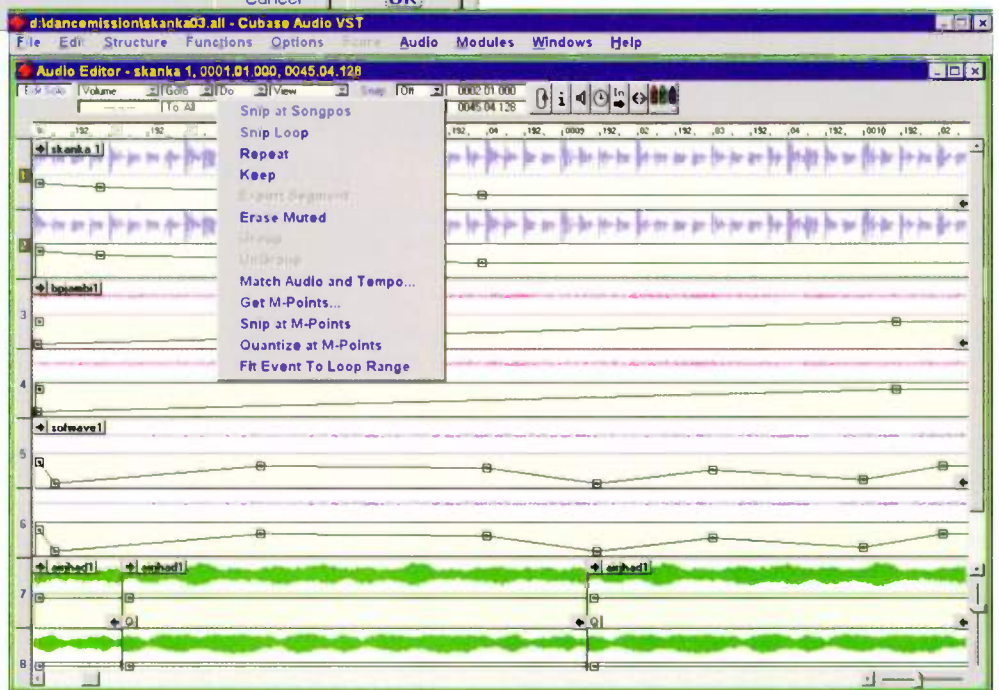


Figure 4: The Audio editor displaying multiple waveforms, volume curves and the Do functions pop-up menu.



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# Steinberg *Cubase* VST v3.5 for PC

## CUBASE SCORE VST & CUBASE AUDIO VST

*Cubase Score* includes all of the functionality of the standard *Cubase VST* package, plus professional scoring and printing with up to 32 staves per page (64 split). Other features include:

- 8-voice polyphony per part.
- Full-page editing.
- Scaleable overview and printing.
- Text and lyric modes.
- Lead sheet mode.
- Drum notation and guitar tablature.
- Auto-layout graphics and text with over 100 dynamics and articulation symbols.
- Graphic note heads and accidentals.
- Editable brackets/braces.
- EPS file-format export facility.

*Cubase Audio XT v3.05* has all the features of *Cubase Score v3.05*, but adds extended support for the following legacy digital audio I/O recording

hardware systems: the Akai DR8 and DR16, Digidesign Session 8 and Audiomedia III, and Yamaha's CBX5. Although ASIO drivers are being developed for Audiomedia III, it is unlikely that the other devices will be capable of VST support. The current *Cubase Audio VST v3.5* package consists of *Cubase Audio XT v3.05* (with continued hardware support) and *Cubase Audio VST v3.5* (which is functionally identical to *Cubase Score VST* and does not support the hardware). Got it?

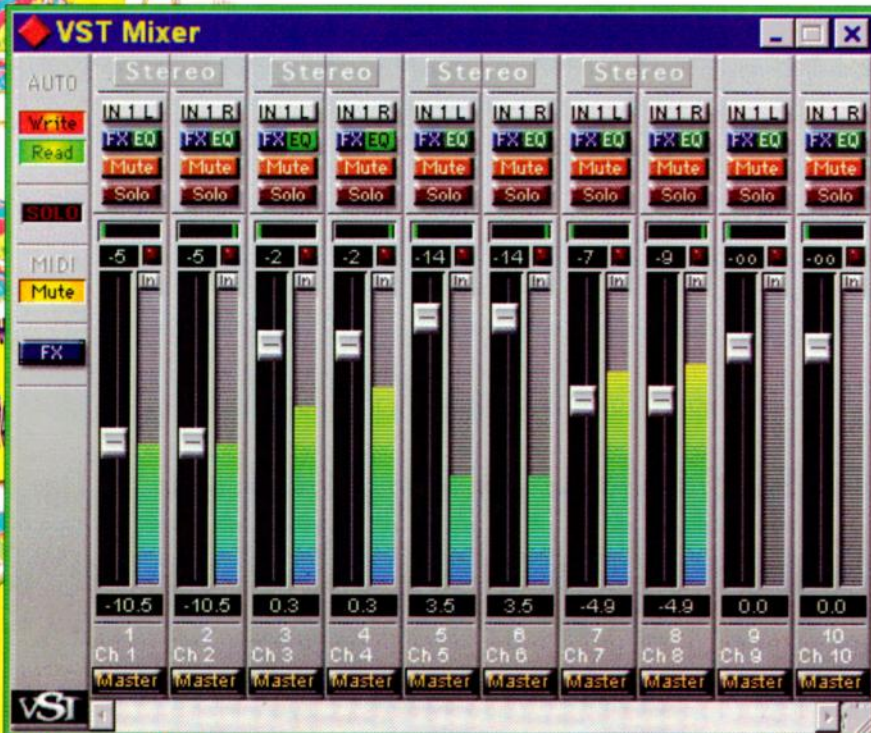
For a limited period only, *Cubase Audio VST* is bundled at £599 in the so-called Producer Pak, together with a full version of Steinberg's superb *WaveLab v1.6* (which includes sophisticated audio editing and Red Book CD burning), together with Waves' *AudioTrack* — the versatile compressor and EQ plug-in. The usual cost of this lot would be well over £1200 so this is an unmissable deal, but hurry, as stocks are limited!

- ▶ Group will affect all the others (this could be used, for instance, to control the overall volume level of the Grouped parts in a chorus).

### GLOBAL CONTROL

The Transport bar controls record and playback functions, and also displays information about the current status of the two locators, punch functions, metronome, Master track (see below), and the synchronisation, auto-quantisation, and cycle functions. *Cubase VST* also has a wide range of global control features that allow you to edit your song data from a number of complementary perspectives; for example, Song sections can be quickly re-ordered from the excellent macro edit routines of the Structure menu. Another aid to

Figure 5: *Cubase VST* features extensive real-time mix automation including effects parameter sequencing. This is the VST Monitor Mixer.



global editing is the Master track. The main function of this is tempo and time signature regulation; if any song has a constant tempo and time signature, the Master track will only contain a pair of entries for these events. However, you may want both parameters to vary during the course of the song, in which case you may edit the Master track either in text form in the Master track list editor, or with simple drawing tools in the Master track graphic editor. The Master track also displays two other types of event: Match Points are used to match the tempo of audio to MIDI and vice versa, and Hit Points are used to align music and audio to visual cues for video and film post-production, to sync *Cubase* to live music on tape and finally, to create a tempo map that allows MIDI events to track the tempo changes of music recorded without a metronome. Tracks can be time-locked to the Master track, to allow events such as sound effects to retain their timing integrity and stay in sync regardless of tempo changes. Last but not least of the global control features is *Cubase's* usual powerful array of quantisation functions, allowing you to correct the timing of inaccurate playing, or create dynamics changes that affect the feel of your music.

Curiously, *Cubase* lacks a markers system: the *Cubase* locators are great as far as they go, but are simply positional markers and do not include the text descriptors that could be used to distinguish cue points and song sections. A partial fix is to build a dummy Track and use its Part names as marker tags, but of course this is only visible from the Arrange window, and is a poor substitute for a good set of markers that would also be visible in the edit windows.

### MIDI EDITING

*Cubase VST's* recording and editing facilities are astonishing, including Editors to perform everything from simple recording procedures to sophisticated information-rich editing functions. MIDI can be edited as a text-based event table in the List editor, and the Logical editor enables you to make changes based on mathematical criteria. The Score editor presents MIDI note events as standard Western notation and the famous *Cubase* Drum editor lets you build a custom super-kit using mapped drum voices from multiple instruments on any MIDI port or channel in your rig. In fact, the only things that let down the Drum editor are the irritating dialogue box that informs you that there is a double-defined note in the drumset, but does not tell you which one it is (!), and the measly maximum eight-bar view that makes it difficult to see at a glance the relationship between the drum pattern that you are currently editing and its variations throughout the remainder of the song or song section.

The Key editor is very powerful, makes good use of colour, and can include MIDI data from multiple tracks — note information appears as rectangular blocks on a piano-roll grid with MIDI controller data displayed in the graphical pane beneath.



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# Steinberg *Cubase* **VST v3.5** for PC

## SYSTEM REQUIREMENTS

*Cubase VST* requires a PC with a Pentium 133MHz processor or faster, with a minimum of 16Mb of RAM (32Mb is recommended). The review PC was an Intel Pentium 200 with a VX motherboard, 256K pipeline burst cache, 48Mb of RAM, a 3.8Gb hard disk and a 2Mb Trio+ PCI graphics card running 1024 x 768 pixels in 64,000-colour mode. The review machine ran 18 tracks of audio before slow screen redraws made the addition of further tracks impractical.

▶ The MIDI Mixer is a versatile editor which can be configured to emulate the control surface of a multitrack mixing console with MIDI mix automation snapshot/recall functions, and can even act as an editor for MIDI devices such as synthesizers and effects units. The MIDI Mixer provides an invaluable real-time overview of MIDI controller activity, but can be rather fiddly to set up. To help you get started, Steinberg provide a good selection of mix templates on the installation CD-ROM.

The remaining editors are the General MIDI editor, which includes extended parameter control features for Roland GS and Yamaha XG instruments, and the aforementioned Interactive Phrase Synthesizer, which is a species of super-arpeggiator and can be a useful ambient composition tool.

or stereo) from the Inspector, and cue your source, then hit Record. If you are recording to a soundcard with more than two inputs, the procedure is the same, but you set the incoming channel to 'Any'.

## AUDIO EDITING

When audio is recorded or imported into *Cubase*, it appears as Parts on audio tracks in the Arrange page, and it can be edited in the same way as ordinary MIDI tracks. If you double-click on an audio Part, the Audio editor opens automatically (see Figure 4 on page 218). This is where your recorded audio is assembled and edited into finished tracks. It consists of a graphic view of the audio track split into sub-divisions known as Lanes, in which the audio event waveforms are displayed. The use of lanes strikes me as unnecessarily cumbersome, as in practice usually only the top lane (or lanes if the Track is stereo) will contain events (although I do tend to use the lower lanes occasionally during editing, as temporary storage areas for split wave segments that I am not ready to discard; the only thing to remember is that if audio events overlap across the lanes, then the first segment to play will mute all subsequent events until it has played through, as only one audio segment can play at any time).

Each audio event has draggable graphic Start and End Inset handles, which provide a quick method of removing unwanted portions of audio from the beginning and end of samples. Audio events may also be grouped, so that edit operations carried out on one event affect all members of the group, the same as MIDI events. As in previous versions of *Cubase*, audio events can be scrub-auditioned, looped, resized, copied, tempo-matched, muted, assigned Q-points (these are used to determine quantisation and snap position), and repositioned by dragging or kicking.

The only complaint I have about the Audio editor concerns the ruler numerics, which are a tad hard to read and need clearer divisions, but I was pleased to find that the bug in the Audio editor in previous versions of *Cubase* has now been fixed; the cursor now remains in view when you zoom in or out (previously, it would often disappear).

*Cubase VST* also has its own sample-accurate Wave editor, which is opened by double-clicking on the waveform display in the Audio editor. If several parts on different tracks are selected, the Audio editor opens as a multitrack display, and it is then possible to edit between tracks. Beneath the wave display is the dynamics pane, which displays volume and pan curves, and the aforementioned Match points.

It should be noted that edits performed to a selection, segment or file in the Wave editor are destructive (ie. they make *permanent* changes to the audio data on the hard drive, and cannot be undone if the processing is unsatisfactory); consequently, it is good practice to make a backup first! Off-line processing can similarly be applied to selected parts in the Arrange window, events in the



Figure 6: Each Audio channel may have four effects sends and four parametric EQs.

## AUDIO RECORDING

*Cubase VST* has extensive audio recording and editing facilities, and all audio appears in the Arrange window as mono tracks — stereo sound files occupy consecutive linked tracks, and are distinguished by an asterisk following the channel number in the track channel list. This differs from the way that audio was handled in previous versions of *Cubase*, where mono or stereo audio parts could co-exist on the same track. All audio parts in a song must share a common sample rate, and audio in WAV and AIFF formats can be imported from the File menu. The Import Audio dialog provides the opportunity to audition the sound file before it is loaded, but no information about file size is given, and *Cubase VST* can neither read nor edit the text embedded in WAV files, which is a pity, as this would enable details of edit procedures and other session information to be stored with the audio data. Recording audio from a single mono or stereo source to a standard Windows soundcard is a simple affair; you create a new track (just double-click on a blank area at the foot of the track list) and, if necessary, change the track type to Audio from the C column. Next, select the incoming channel and file format (mono

## ASIO HARDWARE SUPPORT

ASIO — Audio Stream I/O — is the proprietary *Cubase VST* audio card driver system, and it is supported by various I/O devices, such as Digidesign Audiomedia III, the Korg 1212, and the forthcoming Lexicon Studio. For this review, I used a Turtle Beach Pinnacle, Turtle Beach Fijl, Creative Labs AWE64 Gold, and the Creamware TripleBOARD audio cards, while running the ASIO Windows MME driver that ships with *Cubase VST*. Only the twin I/O TripleBOARD proved problematic — I had to adjust my video card settings to prevent stuttering when playing back via the analogue output. I contacted Creamware UK who acknowledged the problem, and promised a fix in the next driver update.



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# Steinberg *Cubase* **VST v3.5** for PC

- ▶ Audio editor, and to files or segments in the Pool or in the Wave editor. The processing functions are selected from the Audio menu/Processing list, and consist of Reverse, Silence, Fades, Invert Phase, Quieten (a -6dB cut), Normalise and Pitch-shift/Time-stretch (sadly, DC Offset correction is not included). The remaining audio editor is the Pool, which acts as *Cubase's* sample manager and keeps tabs on all the audio files and derived segments that are used in the song.

A handy new feature introduced in version 3.5 is the Prepare Master function, which discards any unused sections of the original audio source files and creates new packed sound files, thereby conserving disk space. A further innovation is that audio events can be viewed and edited in the List editor; this could be used to edit a sequence of completed songs for transfer to CD via a stand-alone CD Recorder such as the HHB CDR800.

track List editor, but the lack of mix event filters and graphical editing makes this a very difficult task to perform with precision, although it is possible to achieve more accurate results with the Logical editor. The system busses are used with audio cards that feature multiple I/O, and enable you to connect to your favourite outboard hardware effects, and return the processed output back into *Cubase VST*.

In addition to this outboard effects buss, effects can be applied in real time to the individual channel and Master outputs. Each audio track has its own Channel Settings window (see Figure 6, p.222), which is opened by clicking on the audio Track Inspector or the FX/EQ buttons in the VST Mixer. This window contains a duplicate of the channel strip from the VST Mixer, plus four effects busses and four bands of full parametric EQ each with Gain, Frequency, Level and Q controls.

*VST* ships with six high-quality, on-board mono-in/stereo-out channel effects modules: *Wunderverb*, a surprisingly good reverb with simple three-parameter control; *Espacial*, a second reverb with a greater degree of parameter control; *Choirus*, a stereo chorus; *Stereo Delay*; *Autopanner*, and *Electro-Fuzz*, a virtual footpedal-styled guitar distortion unit. However, as *Cubase VST* supports DirectX, you can in theory patch in any DirectX-compatible third-party plug-ins to both the Channel and Master effects sends. In practice, it will take a little time before software developers update their plug-ins to run in the VST environment — my PC crashed when I attempted to run effects from the *Cakewalk CFX* range and *QTools/AX* — but the *Cubase VST*-compatible *Waves Native Power Pack* appeared on the Internet whilst this review was being written, and there are VST versions of Steinberg's own *Loudness Maximiser*, *DeClicker*, *DeNoiser*, *Magneto* and *Spectraliser* in the pipeline. Patches can be edited and saved as user presets in all effects and the current parameter settings are saved with the song automatically.

To reduce processor overheads, effects and automation can be added to an incoming signal during recording, and the resultant mixed and effected audio mixed down (possibly with other tracks) to a new composite sound file, freeing up tracks and effects processing. This is performed using the Export Audio function under the File menu, and any required file-format, bit-rate and sample-rate conversion can be carried out at the same time.

Apart from the all-important master faders, the VST Mixer's Master Section also includes four stereo insert points that access the Master Effects, and the buss sends (see Figure 7). Only two Master effects modules are included with *Cubase VST v3.5*, the *Stereo Wizard*, a stereo-width enhancer, and the *Scorpion* which displays a real-time, single-channel waveform display in a wacky retro oscilloscope cabinet, complete with rust stains on the case screws! It is not possible to patch the VST channel effects into the Master section, but DirectX-compatible plug-ins (those that work with VST, that is...) can be patched in, and it was

## SYNCHRONISATION

*Cubase VST v3.5* will synchronise to external devices using timecode (SMPTE, EBU, MTC and VITC) or MIDI Clock, and can act as either master or slave. Steinberg recommend avoiding sync when running audio tracks, as drift will inevitably occur between MIDI and audio.

Figure 7: Up to four effects modules can be patched into the Master output, and multiple I/O cards can be used to provide an external buss to outboard processors.

## VST — EFFECTS & AUTOMATION

The VST (Virtual Studio Technology) architecture sets out to make your PC the command centre of your entire studio, and marks the debut on the PC platform of non-destructive, real-time audio effects parameter automation — a facility that was previously the domain of high-end Macintosh TDM systems (and the Mac version of *Cubase VST*, of course!). The VST modules, as on the Mac version of this program, are visually very appealing — congratulations are due to their designer Frank Simmerlien. At the heart of the VST functions is the Monitor Mixer (see Figure 5, p.220), which displays multiple audio channel strips, each consisting of Volume and Pan controls, Solo, Mute and MIDI mute switches, and routing controls to the main outputs and the system busses (see below), together with shortcuts to the VST effects modules, the channel EQs, and the mix automation Read and Write buttons.

If you click on the last of these buttons and start sequencer playback, any changes you make to the volume, pan, mute, solo, MIDI mute and VST effects parameters are recorded as individual Audiomix events — and by enabling Write and Play together, it is also possible to play back and overdub or replace events. During playback of previously recorded automation, the virtual sliders, switches and knobs animate to reflect the recorded changes. Mix automation events appear as an Audiomix track in the Arrange page and can be edited in the Audiomix





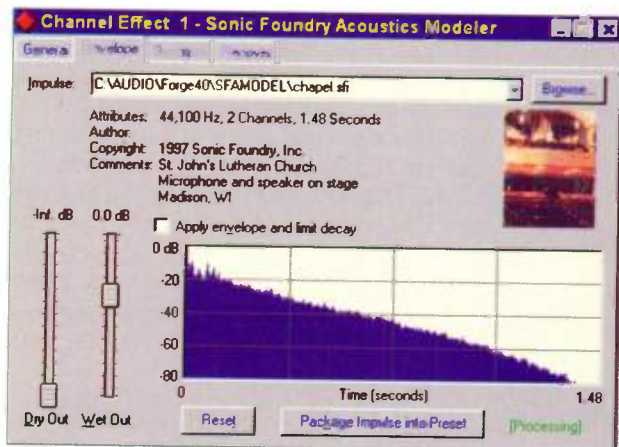


Figure 8: Cubase VST v3.5 supports DirectX audio plug-ins, such as this Acoustics Modeler from Sonic Foundry.

a real thrill to run Waves' L1 Ultramaximizer and TrueVerb, and Sound Forge's Acoustics Modeler (see Figure 8, above) under Cubase VST.

### THE FINAL WORD

I really enjoyed running Cubase VST during the course of this review — it's lovely to work with, and is surely destined to become the planet's favourite sequencer. However, its unparalleled configurability and processing power do come at a price; you need a very powerful PC to make the most of it. I also encountered the occasional bug — my test PC crashed on two occasions when I attempted to switch from the Master track List view to the Graphic view. The most required improvement is some way of saving the positions and activity status of the VST windows, which are currently lost whenever the song is closed, and must be re-opened and repositioned from scratch with each boot; the answer could be the introduction of user screen sets, like those in Emagic's Logic Audio and IQS' SAW Plus, but even a simple 'Save workspace' facility would be fine. A more modest improvement (but a nonetheless exceedingly useful one) would be a simple 'Save as next' keyboard shortcut function, which would take the last saved file, eg. 'Song01.all', and automatically increment the last file digit to save it as 'Song02.all', for example.

Still, Cubase VST's shortcomings are few, and (apart from the manuals issue) they pale into insignificance in the context of the package's low price and the features it offers. In short, wow!

SOS

Many thanks to Simon O'Donnell and Marco Paris for additional testing.

£ Cubase VST £329; Cubase Score VST £499;  
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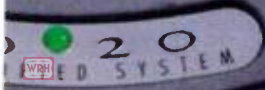


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**D**ACS is a small British company based in Gateshead who have built up a substantial reputation by constructing custom equipment for audio professionals. Recently, they have branched out into the open market with some very high-quality, fastidiously designed studio and stage signal

on the left sets the gain in coarse 6dB steps calibrated from +20 to +62dB, and next to it is a much smaller knob providing a continuous gain trim of between 0 and +10dB. This control has 19 markings around it (if you imagine the dial as a clock face, the markings are located on every hour and half-hour position between six and three o'clock), so it's an easy matter to reset a channel's gain to a logged position with remarkable accuracy.

The third rotary control is a three-position switch offering flat (a point I'll return to shortly) or bass rolloff from 80Hz or 30Hz, with a gentle 12dB/octave slope. The controls so far described all have a solid feel to them, and look expensive — a point I'm making only because the last

# LOUD & PROUD

DACS MICAMP  
DUAL-CHANNEL  
MIC PREAMP

*Tyneside-based DACS have been building high-quality equipment for people on a one-off basis for years, but now they've launched a range of equipment that anyone can buy. HUGH ROBJOHNS explains why he'd rather buy British.*

operational control is a cheap-looking toggle switch! In fact, this control (which simply inserts a polarity reversal in the signal path) is far from cheap, with its gold-plated contacts — but it does look out of place on the otherwise very high-class panel. Perhaps miniature versions of the mains



devices under the banner of the Clarity Range. Currently, the new range contains two products: a 4-in, 4-out headphone amplifier called the HeadLite, and the subject of this review, the dual-channel MicAmp. DACS boast of sonic and functional clarity in their products, and claim to use high-quality (ie. expensive) components where they are important, but they nevertheless keep overall costs down to reasonable levels by not wasting money on cosmetics.

## THE BOX

The MicAmp is certainly a striking piece of equipment. Built into a substantial steel 1U rackmounting case, the unit has a lilac-coloured ovoid graphic on the front panel, which contains all of the operational controls. The large illuminated red mains power switch is situated on the right-hand side and is vaguely reminiscent of Focusrite's Red modules — a not unnatural association, as it turns out...

To the left of centre, each channel provides four controls and two indicators. The large rotary switch

power button would look more the part?

Between the filter knob and the phase switch are two indicators — at least it *looks* like there are just two until a signal is passed through the channel, and then you realise that there are four — the top one is divided into three in a manner reminiscent of the old Mk I Ford Cortina tail lights, or the roaming eye of the Martian ships in the original *War of the Worlds* film [or a *CND sign*, for the benefit of our younger readers — Ed]. The lower indicator (marked with a '!') glows bright red when the channel is overloaded, and remains illuminated for a few seconds just to make sure you see it.

One third of the upper, divided indicator is green and indicates the presence of an input signal. The next section glows yellow when the signal reaches +5dBm, and the third part is red and illuminates at +13dBm. Although the metering idea is not new, this arrangement of LEDs is most unusual, attractive, and very effective. Everyone who saw the review machine commented on it, which has to be a good thing from DACS's point of view.

## pros & cons

### DACS MICAMP £1169

#### pros

- The stunning sound quality makes this a bargain at the price.
- Phenomenal amounts of detail and resolution.
- Eerily quiet noise floor.
- Attractive and ergonomic control panel.
- Hand-built with quality components.
- Unique tri-LED level metering.

#### cons

- Toggle switch on front panel looks out of place.

#### summary

This product is an extremely high-quality mic preamp with a totally neutral character. Attention to detail in every aspect of its design has paid dividends in the sonic quality.

**SOUND ON SOUND**



## CONNECTORS

The rear panel also contains a few unusual features. Each channel has not one, but two XLR input connectors. One is labelled Phantom, the other Non-Phantom. Their functions are hopefully self-explanatory, and they are provided so that the large DC-blocking capacitors (needed to protect the input stage from the 48V phantom-power supply) can be removed from the signal path for dynamic or self-powered (ie. non-phantom-powered) mics. It has long been argued that capacitors in the signal path affect audio quality, and this dual-input arrangement allows the capacitors to be avoided if required.

In fact, the Non-Phantom input is connected directly to the first input transistors, and has a frequency response that descends all the way to DC if the bass rolloff filter is left in its flat position (this also explains why the 30Hz position is much more useful than it might at first have appeared). The Phantom input is flat to 20Hz, and then the effect of those DC-blocking capacitors is to introduce a very gradual 6dB/octave rolloff.

Both inputs are electronically balanced, as is the channel output, which is also presented on an XLR. Between the audio connectors for the two channels is a very large and sturdy binding post which provides the signal earth, should you wish to tie this to a technical earth in a studio installation. The only other connector on the rear panel is the IEC mains inlet with an integrated fuse and voltage selector.

## HARDWARE

The internal workings of the DACS MicAmp are not what I was expecting. The unit is obviously hand-built with five separate circuit boards, all interconnected with a neat wiring loom. Each channel has a main amplifier board and a subsidiary metering card, and the power supply section has its own PCB.

The input and output connectors are chassis-mounting Neutrik XLRs, with screened wiring to the main circuit boards of each channel and all earths are taken back to a single 'star' earth point on the rear-panel earth terminal.

The input circuitry uses three SSM2220 chips 'piggy-backed' on top of one another. These chips contain matched low-noise transistor pairs, and by paralleling three of them in this way, DACS have achieved stunningly low input noise and a remarkable degree of 'openness' in the sound

quality. There are trimmers for both middle and high-frequency common mode rejection, plus another for accurate output balancing, and aside from the input transistor packs, all other active components are Burr Brown OPA604As — very high quality audio-optimised amplifiers.

It is immediately obvious that DACS have spent the budget wisely on the MicAmp. Although high-quality components are used throughout, critical components have been very carefully specified — high-value polyester capacitors on the Phantom inputs, silver mica capacitors across the amplifier feedback loops, and high-quality self-cleaning switches on the gain controls. A great deal of attention has also been paid to the mechanical design to ensure that the circuit boards can't be put under stress — the XLRs are not PCB-mounted, but wired, and the switches and pots are all mounted through supporting plates with long control shafts to minimise any flexing actions.

current, and that apparently has a lot to do with both the eerily silent background, and the astonishing level of detail that this unit produces. This was the second thing that struck me — given a good microphone, every nuance of the original sound source is faithfully captured and amplified.

Until I played with the MicAmp, I believed the Focusrite Red preamps to be amongst the finest ever made. Well, they remain so in my book, but the DACS is definitely up there with them. According to Philip Hobbs (who makes recordings for Linn Records, Gimell Records, and Hyperion),



## IN USE

The MicAmp is very easy to set up and use, as there are very few controls involved and the metering is very clear. The ability to wind in 72dB of gain is unusual — very few professional mic preamps provide this much gain, but it is surprising how often it is needed in real-world location recordings. Gain-matching across the two channels was remarkably accurate, and I had no problems in setting the unit up for working in stereo. The high-pass filter sounds completely transparent, even at the 80Hz setting, and I found I would leave it at 30Hz when using ribbon and self-powered mics (simply to remove any sub-sonic signals), but run it flat when using phantom-powered devices (which are effectively filtered below 20Hz by the input stage anyway).

The first thing that struck me on listening was how quiet the MicAmp is. In the specifications for the unit, under 'Noise' it says 'negligible' — and it really is! I gather the triple-transistor-pair input stage is run with a very high quiescent

the DACS "perform significantly better than the Reds". I was not in a position to make a direct comparison, so I can't confirm this bold statement, but the MicAmp is certainly extremely accurate, clean, and faithful, and yes, it has all the clarity that DACS promised when they named their new range.

If you are on the lookout for a very high-quality dual mic preamp, you have to try this one alongside the other established quality products such as the Focusrites and the Amek RCMA, or even the refurbished classic Neve front ends. It's simply stunning!

SOS

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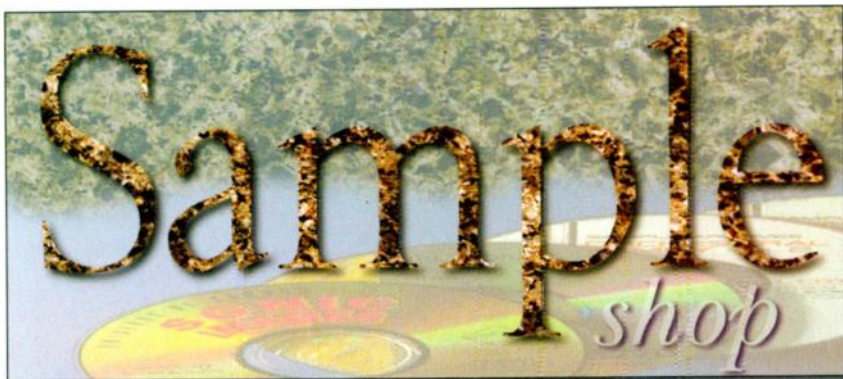
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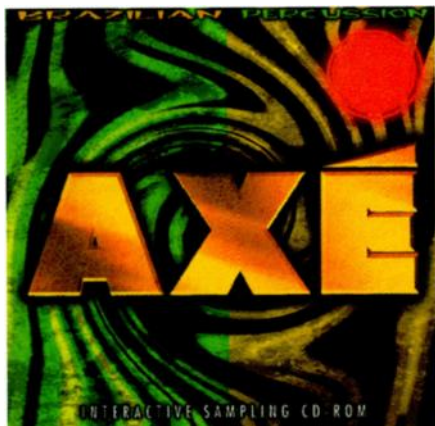
## Our regular look at the hottest new sample CDs and CD-ROMs.

### AXE

PC/MAC INTERACTIVE  
CD-ROM



Now here's a surprise: a PC/Mac format interactive sampling CD-ROM stuffed full of what it claims are 20 million different grooves of Brazilian percussion presented as both WAV and AIFF file formats. Confused? So was I until I un-

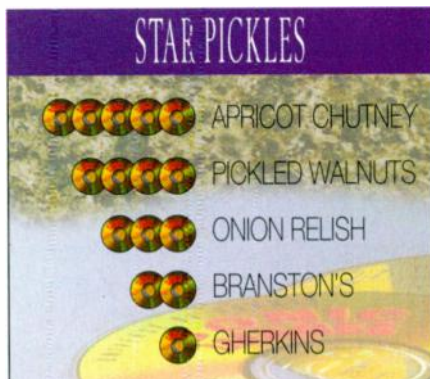


picked its plastic shrink wrap and thumbed it into my PC, and all was revealed... Essentially, Axe is a self-contained sample looping and arrangement software program bundled with more than 600 Brazilian drum, percussion, woodwind and vocal samples. Once loaded, the program allows you to access all the loops and grooves direct from the CD-ROM, and gives you a neat and entirely self-contained platform in which to audition the sounds as well as mix, match, layer and loop any number of them to create your own tracks. Setting it up is a doddle and the whole interface (as well as looking almost impossibly cool and futuristic) has an easy and uncomplicated air about it. You start by selecting a drum track from the menu listing all the instruments' bpm's, and off you go. Simply select a new recording track and drop in another instrument, vocal or percussion element; as the loops cycle round, dropping parts in and out on the fly is a piece of the proverbial cake.

Another dimension is the Auto Groovemaker page, a sort of randomising multisample jukebox which takes only vague song guidance

information from you (such as rough tempo, complexity, and style) and basically does the rest, chaining together odd loops and flying in the occasional instrumental solo, all the while triggering the correct loops to keep the Brazilian beats bubbling along.

This product represents a new area of the market for sample CD producers and one that, I feel, we'll probably be seeing a lot more of in the future. There are, however, a number of definite drawbacks, mainly concerning the interface itself: despite looking and feeling very good, it doesn't have nearly as much in the way of true interactivity as most professional users would demand. It is, after all, a stand-alone product, which when looping samples and creating tracks from its own bank of sounds does the job well enough; but asking it to interact with or be a part of another sequence package is almost certainly well outside its capability. Having said that, the sound samples themselves (despite having an almost exclusively percussive theme) sparkle and shine with authenticity. As an introduction to the world of sample looping and rhythmic song arrangement, I can't think of any other product that's as simple as it is fun to use. For first-time PC/Mac samplers looking for a cheap yet effective software package stuffed full of exciting and usable Brazilian loops and grooves, Axe is certainly something you can't afford to be without, but for everyone else it may even be worth the asking price just to get your hands on such an interesting and well-compiled set of South American WAV and AIFF samples. After all, it's not every sample CD that comes complete with an entire section of Apple Quicktime movies



featuring short films of real musicians recording the parts in the studio, is it? File under 'interesting but rewarding gimmick'. *Paul Farrer*

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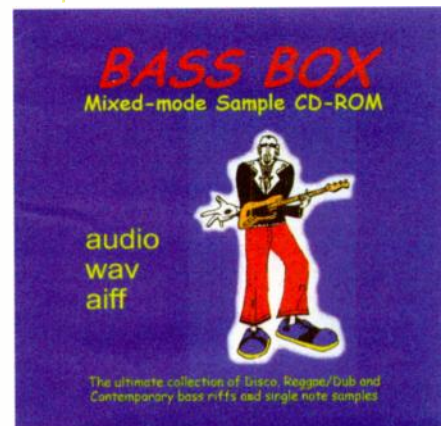
### BASS BOX

MIXED MODE AUDIO &  
PC/MAC CD-ROM



Bass Box is a mixed-mode audio and PC/Mac format sample CD showcasing the bass-playing talents of its creator and producer, Pat Cotton. It's an independent commercial venture, so you may also have seen it advertised in SOS's classified pages, where it sells for £30.

In common with a number of similar types of release, track one contains all the samples in WAV and AIFF file format, followed by a neat and very funky demo on track two before the audio kicks off between tracks three and 87. Dedicated entirely to the bass guitar, this CD divides its samples into four main stylistic categories: Disco, Reggae/Dub, Contemporary, and a comprehensive section at the end of the disc devoted to single-note samples. The three



main riff categories are then sub-sectioned into smaller groups, each featuring between four and 20 different sampled bass grooves. The grooves usually come in bunches of three all at the same tempo, but play the given riff in three different key signatures. As well as listing all the bpm's, the friendly colour-coded sleeve notes also show you the variations of playing styles (normal, slapped or pulled).

With regard to the samples themselves, the approach seems to be more of an authentic 'warts and all' style of recording technique. The riffs aren't heavily equalised, nor does there seem to be too much in the way of external processing such as chorus or compression. The result is that, while these sounds don't exactly burn out of the speakers and demand your sampler's immediate attention, much of the creative work on the sounds seems to have been left for users to work on themselves — either



leaving quite a bit of work to be done, or providing a fresh and open-ended approach, depending on how you look at it.

As far as the performances go, the riffs are packed with creativity and a good understanding of the cheesier side of disco and dub bass playing. What they occasionally lose in accuracy, the grooves more than make up for in variety and colour. As we all know, the sample CD market is a fierce and frightening place for the first-time independent CD producer, and in that respect hats off to Small Recordings for single-handedly pulling off a well-presented and musical release. How it stands up to the major competition from the US and the rest of Europe is best left up to the sample-buying public, but for a first-time effort, if *Bass Box* is by no means a one-stop shop for all your bass sample needs, it does offer almost intoxicatingly high levels of fun and usability. *Paul Farrer*

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## DEF HOUSE

AUDIO SAMPLE CD

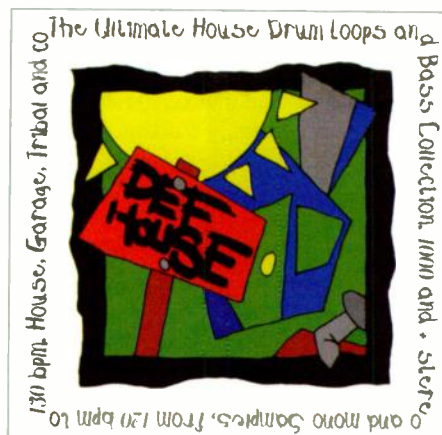


House, garage and tribal are the three main styles of dance music catered for in this 61-minute audio CD from Universal Sound Bank. While other CD releases tempt you with the promise of 'every kind of dance music style you could ever possibly want', one of the principal strengths of *Def House* is its focus and attention to detail within a specific dancefloor style and tempo set. The 600 or so drum loops all fall into one or other of these three categories and are listed along with their bpm's and music style. True to their house music heritage, the tempos range from just 120-130bpm, but this tight focus allows a good deal of stylistic movement across the 63 tracks of loops. Most of the loops are two bars long, and there can be anything from four to 12 loops in each track of the CD. Sonically speaking there's a wide range of quality, from scratchy lo-fi mono grot to pumping 'boom-tick' in abundance, and many of the loops feature a high level of vinyl depth, which all adds to the authenticity.

The layout of the loops on the disc seems to follow a pattern of starting quickly (about 130bpm) then getting slower towards the end (120bpm), before stopping altogether to make way for a host of classic analogue bass sounds. These take the form of single note samples from the likes of synths such the Minimoog, MC202, Prophet 5, and Micromoog, cover a fairly wide spectrum of squelch and fizz, and are pretty much the kind of standard fare you'd expect to find. One of the biggest drawbacks here is the extremely short length of most of the samples, meaning that you might have to do an awful lot of looping within your sampler if you want to play anything other than very staccato bass lines. Tucked onto the end of the disc is a small but usable collection of individual house drum

sounds: 24 kicks, 12 snares and a load of hi-hat and effects percussion.

In conclusion, it's hard to know what to think of this release in terms of who it's aimed at. The decision to focus entirely on house, garage and tribal music styles is to be highly commended, but unfortunately it isn't exactly a new idea. The loops are well varied but they come across more



as a potted history of what's gone before than a scorchingly hot release determined to break new ground and forge interesting and experimental sounds into what is, after all, a very sample-heavy genre. Admittedly, if you're a relative newcomer looking for a solid and user-friendly way into the house music scene, you'll find much of what you need in *Def House*, but dedicated remixers and DJs may find some of the sounds and loops in this collection a little bit old hat. Having said that, this release does have a very high 'bang-per-buck' rating and in a crowded and sometimes confusing sample marketplace, *Def House* is a worthy (if not entirely perfect) addition to the plethora of dance music products. *Paul Farrer*

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## PITBULL JUNGLE LOOPS



AUDIO CD UNIVERSAL SOUND BANK

For the uninitiated, 'jungle' is a high-energy form of dance music that's been generally accepted as one of the most pioneering areas of dancefloor music production in the last decade. Taking its influences from such diverse sources as house, jazz, acid, and even ska styles, in the last three or four years that jungle has been with us its effect on music has been considerable. It's not surprising, therefore, that sample CD producers Universal Sound Bank should follow this trend and create an audio CD (also available in Akai format CD-ROM) dedicated entirely to the genre.

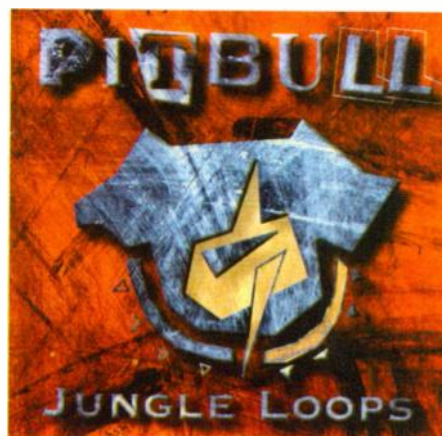
*Pitbull Jungle Loops* is an 86-track 70-minute

journey into the wilder and more experimental side of contemporary jungle production. By its very definition jungle has always had a raw and grainy texture to it, and this collection of over 400 drum loops doesn't disappoint in either quality of sound or programming musicianship. The 34 tracks of loops have three categories — intelligent, hardcore jungle, and drum and bass — and each track contains 12 different loops.

The tracks start at 170bpm and work their way down to 150, 5bpm at a time. The loops usually consist of a two-bar phrase, and fly out of the speakers at a terrific pace, so you really have to pay attention when you're sampling them!

After the drum loops, the rest of the disc (tracks 36-86) is taken up with what seems like a veritable Aladdin's cave of individual jungle drum and percussion effects. Starting with the bass drums and moving across the entire range of snare, hi-hat and effects sounds, these are also logged according to their categories (intelligent, hardcore or drum and bass). They deliver all the vinyl warmth and hiss you would expect if you had gone through your favourite 12-inch hardcore dance mixes with a very hungry sampler and a copy of *ReCycle*, which is pretty much what must have happened here.

As a viable source of contemporary jungle drum loops and individual sounds *Pitbull* rates very highly indeed. It is perhaps, then, a shame that the scope of this disc isn't wide enough to include at least a few bass, vocal and synth samples to complete what would otherwise have been an excellent package. Of course, the age-old argument that anyone with the patience to sample, edit and program thousands of individual drum and percussion sounds from an audio CD



like this would be better off spending their time learning the ways of the Jedi knight with Master Yoda in a swamp somewhere is perhaps well founded, but for the majority of users this CD will represent good value for money, with an experimental edge that keeps it one cut above your average collection of drum loops. *Paul Farrer*

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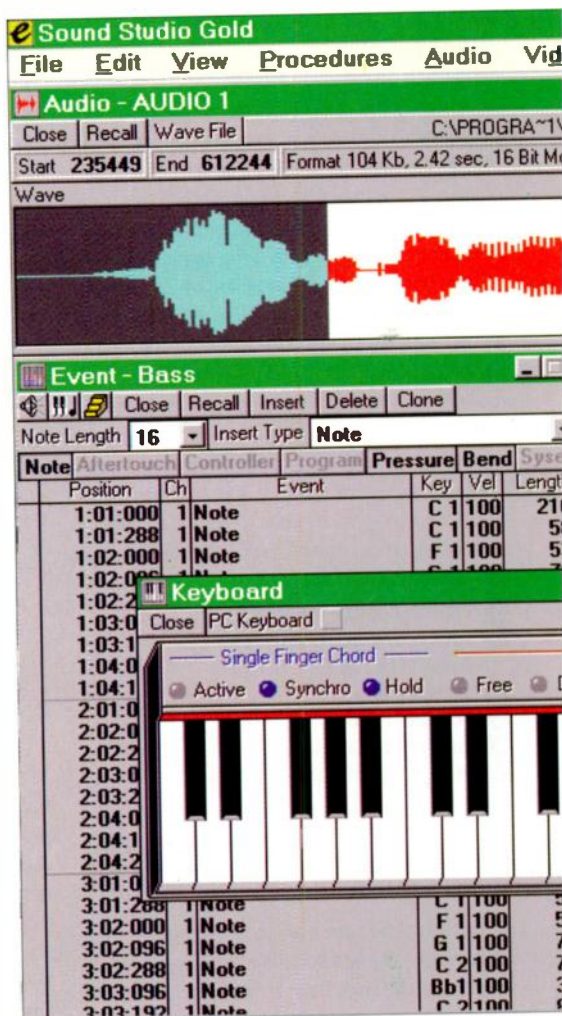


With Sound Studio Gold, Evolution refuse to let budget sequencing mean budget features. MARTIN WALKER examines a grown-up package at a baby price.

The Evolution Audio software was reviewed as part of the Music Creator Pro package in the January '97 issue of SOS. Besides its MIDI features, it also allowed playback of a single mono or stereo WAV file, but had no built-in digital audio recording facilities. *Sound Studio Gold* is somewhat more ambitious, since it supports audio recording of one mono or stereo track at a time, and playback of up to 16 audio tracks alongside up to 256 MIDI ones. You don't need a machine capable of running NASA control either, since (allegedly) a 25MHz 486 can scrape through — although if you intend to try simultaneous audio recording and playback with a duplex soundcard, this does seem rather optimistic; a 100MHz Pentium would seem a more suitable starting point. The program will run in Windows 3.1 as well as with the newer Windows 95 operating system, and if you're using an older machine, this is good news.

#### IN CONTEXT

*Sound Studio Gold* sits at the top of the Evolution range. Apart from *Evolution MIDI*, which isn't on commercial sale and only supports 32 MIDI tracks,



## EVOLUTION SOUND STUDIO GOLD PC SEQUENCING SOFTWARE

doubt as to what does what — suffice to say that as a seasoned *Cubase* user, I quickly found my way around!

The main Track window features the now standard part-based approach, and includes features such as Parent/Child patterns (the Parent is a real part, the Children are ghost copies which take up little extra space, and follow any changes in the Parent). Right-clicking the mouse button brings up a small tool menu, with arrow, pencil, eraser, mute, knife, and glue tools: their operation is pretty self-explanatory. All the normal click and drag mouse operations are available, and the only thing I missed was visible note events in the individual parts.

For tweaking individual parts, the selection of editors is comprehensive, and from the Track window, a small vertical strip of buttons in a floating menu provides single-click access to all the other editors. The Piano Roll is keyboard based, with a main note window above, and a smaller window beneath showing one of a selection from note velocity, aftertouch, pitch-bend, and a host of other MIDI controllers. The Event editor is MIDI data-based, and has clickable headings to display or filter out selected types of data, so that you can narrow down your editing to more specific areas. The Drum editing window provides the familiar

# new Gold dream

all the rest of the range will run up to 256 tracks of MIDI. Both *Evolution Audio* and *Evolution Audio Pro* will play back a single mono or stereo audio track, but the *Pro* version allows multiple-staff score editing (as opposed to a single staff on the lower-priced version) as well as many of the more advanced features of the flagship *Sound Studio Gold*. These include the Chord Wizard (a "quick and easy way to lay down a backing track for a song in a number of preset styles"), MIDI Clock, SMPTE/MTC Sync support, lyric-editing facilities, and multiple editing windows. *Sound Studio Gold* adds to this feature list the 16 audio tracks, real-time audio delay, echo and reverb effects, as well as control of audio pan and volume, AVI support, and a host of other related goodies.

#### ON THE RIGHT TRACK

From the moment the first screen display appears, anyone who has used a sequencer before will sense a feeling of *deja vu*. There is a certain familiarity about most of the layout, and the unfamiliar bits use some well-designed graphics that leave you in little

#### pros & cons

### SOUND STUDIO GOLD £150

#### pros

- Loads of features.
- Up to 16 tracks of audio.
- Basic built-in real-time audio effects.

#### cons

- No note display in Parts.
- Dreadful demos!

#### summary

A well-specified budget MIDI + Audio sequencer package that is excellent value for money.

**SOUND ON SOUND**



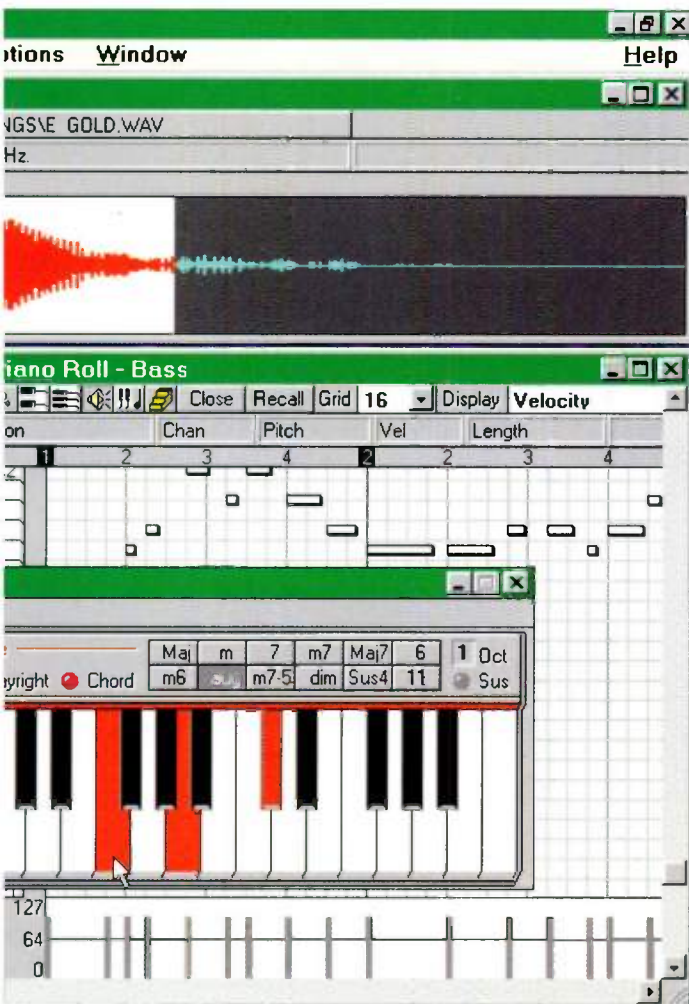


Figure 1: Sound Studio Gold's editing facilities are comprehensive — Piano Roll, Event, Score and Drum editing are provided, as well as basic audio editing. The Keyboard window also shown here is a useful aid when writing Chord Tracks.

vertical list of drum and percussion instruments.

The Score editor has a traditional staff display, and while it isn't likely to be used for providing printed parts for the London Symphony Orchestra, it offers a perfectly usable environment, particularly for those wishing to work with simple classical scores. You can even use the Lyric editor to add words to a song, and these will then 'light up' in time with the music playback. Apparently, many commercial Karaoke MIDI files contain embedded lyrics, and I personally think this is a great idea — keeping the words as text only is a far better idea than allowing people to actually sing along.

There are so many editing options available that the Fast Menu can be extremely useful. This allows you to store the 10 functions you use most often on a small floating menu of buttons; to call up a function you then simply click on its button, which can save a lot of time. Considering the huge number of buttons and options available, it might also have been useful to have ToolTips (those little descriptions that appear in many Windows programs if you pause the pointer over a button), but the button graphics are well designed, and most of their functions are fairly obvious.

Further windows include the Mixer, which provides volume sliders, rotary pan, reverb and chorus controls, plus Mute and Solo buttons, mimicking a small mixing desk. These operate on MIDI channels only, and adjust the appropriate MIDI parameters. The Conductor window allows you to change time signature, key signature and tempo during the course of a track, with a graphic display. The Keyboard allows you to enter note data using a mouse or the PC keyboard, and also gives a useful selection of chord shapes, for single-finger chords (don't laugh: sampled



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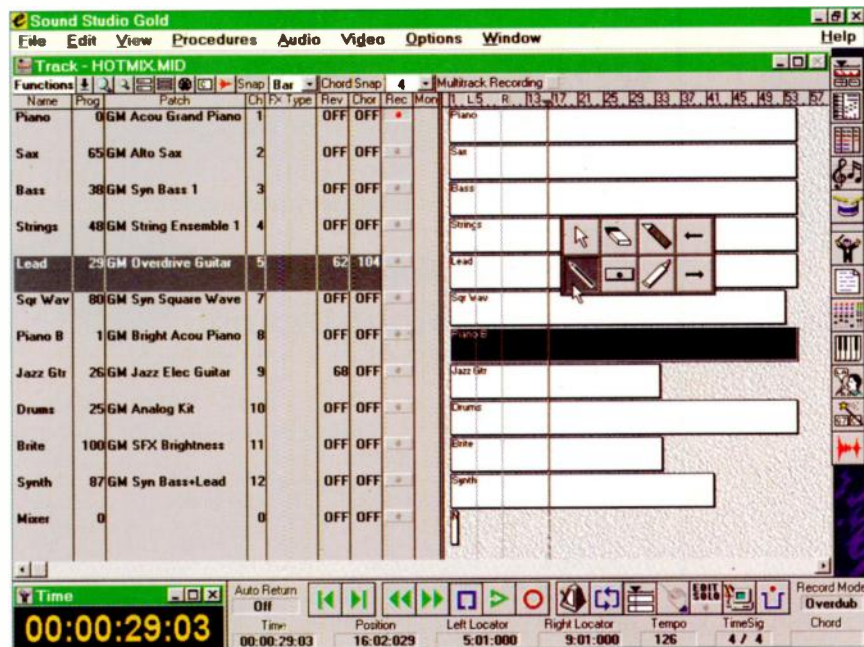


Figure 2: The main Track Window will look very familiar to anyone who has used any other modern computer sequencer, right down to the right mouse button bringing up a toolbox.

- ▶ chord stabs are used in this way in much modern music). Extra features on this Keyboard also form part of real-time Chord Track recording.

## ALL THIS AND AUDIO TOO

Recording an Audio track is easy. After you click on the Record button on any audio track, the Audio Input Monitor window appears, allowing you to check incoming levels and select stereo or mono recording. If your soundcard supports full-duplex recording, you can also play back previous audio files while recording the new one. Once you have finished recording, editing options are fairly basic — you can alter start and end points, top and tail the good bits from a longer take, swap left and right channels on a stereo take, normalise levels, and apply distortion (which “adds a rough edge to the sound”). Multiple audio tracks can also be bounced down to a new track.

Each audio track has a volume slider, pan control, Mute and Solo buttons in another page of the Mixer, as well as two buttons marked Depth and Delay, which replace the Reverb and Chorus buttons of the MIDI channel mixer. These control a particularly intriguing feature at the price: there’s an extra column, labelled ‘FX type’, in the Track window for audio tracks. This offers real-time delay, echo or reverb, basic treatments achieved by multiple replay of the audio part: delay is a single repeat, echo has several repeats, and reverb emulates the real thing by using multiple flutter repeats. Delay times can vary from almost instantaneous up to 700ms, and a wide range of basic sounds can be coaxied from the two controls.

## THE FINAL MIX

Apart from a slight delay before hearing results when changing audio mix settings, *Sound Studio Gold* worked very well for me. There’s an awful lot on offer here, especially for the price. Frankly, the demo songs don’t do the package justice, and bear no relation to 99% of the music that potential purchasers are likely to want to produce. I was using ‘Flight of the Bumble Bee’ as a demo for the Atari 800 back in the early ‘80s, and it was corny even then! This is a shame, since *Sound Studio Gold* is far more capable than its demos suggest.

Unlike many so-called ‘budget’ sequencers, *Sound Studio Gold* is a top-of-the-range product for Evolution, but at a budget price, and therefore does not suffer from an arbitrary feature set — everything you are likely to need is included in this one package. And a peep at the Evolution web site shows that the company support their customers well — a Users Group is already up and running, and there are FAQs (Frequently Asked Question files) and update patches available for all their software.

To sum up, multitrack audio recording on a sequencer at this price would be good going, but the inclusion of basic real-time effects makes *Sound Studio Gold* even more of a bargain.

SOS

## BUDGET RESTRICTIONS

It must be extremely difficult to market new PC sequencer packages. Most professional musicians will opt for one of the big two (Steinberg *Cubase* and Emagic *Logic*) for compatibility with other users and studios, or use another package if it has unique top-end features that are particularly appropriate. At the budget end of the market, many sequencers are effectively given away with soundcards, undermining their real value to the musician. In addition, manufacturers with higher-end packages in their range must

tread a fine line — if they cut down the feature set too much, the resulting budget program will never compete with other products at similar prices. On the other hand, if they leave too much in, or — heaven forbid — add a feature not found on the more expensive product, they face the wrath of everyone who paid more for the ‘professional’ version.

However, for manufacturers who specialise in the budget end of the market, the opportunity exists to provide a wider range of basic features than the cut-down versions of

professional packages, while still remaining at a budget price more suitable for an entry-level product, and this is obviously the reasoning behind Evolution’s *Sound Studio Gold*. Getting the feature set right is a difficult balance, particularly where editing is concerned. This is one area where budget sequencers often face a tricky choice, and many only provide score editing, and no event editing. This is fine for teaching traditional notation, but not very useful for those with a limited background in music theory. Evolution’s *Sound Studio Gold* scores a big plus here by providing both.

**E** *Sound Studio Gold* £149.99; *Evolution Audio Pro* £99.99; *Evolution Audio* is available in the *Music Creator Pro* package for £119.99, including keyboard with 49 full-sized keys, pitch-bend and mod wheels, and cable. Prices include VAT.

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# LEVEL-HEADED BEHAVIOUR

## OBTAINING MAXIMUM LEVEL ON YOUR DIGITAL RECORDINGS

*If you're burning CDs at home, you'll obtain the best quality if your audio data is at its highest possible average signal level. Most people yawn at this and reach for the normalisation button on their audio editor, but, as CRAIG ANDERTON explains, unless you're careful, you could be doing your material a disservice...*

So, you want the highest average level possible on your home-produced CD. Why? Because everyone else does. In fact, there are a whole class of tools — compressors, normalisers, level maximisers, you name it — designed to do just that. After all, loud is good, right? Given two identical sound sources, people invariably identify the one that's slightly louder as better (consumer alert: when buying speakers in a hi-fi shop, check whether the brand the shop wants to push is slightly louder when compared against other speakers).

Frankly, I'm tired of recordings that use only the upper 6dB of a CD's dynamic range. Dynamics should be a part of music, and I always thought part of the beauty of digital recording was its wide dynamic range. Silly me! Apparently, the point of digital recording is to be as loud as humanly possible.

However, there is a way to put some serious average level on a CD without totally destroying the

dynamics. It takes a little more work, but try this technique and see if it doesn't produce a result that's ultimately more satisfying than alternative methods.

### SO WHAT'S WRONG WITH COMPRESSION?

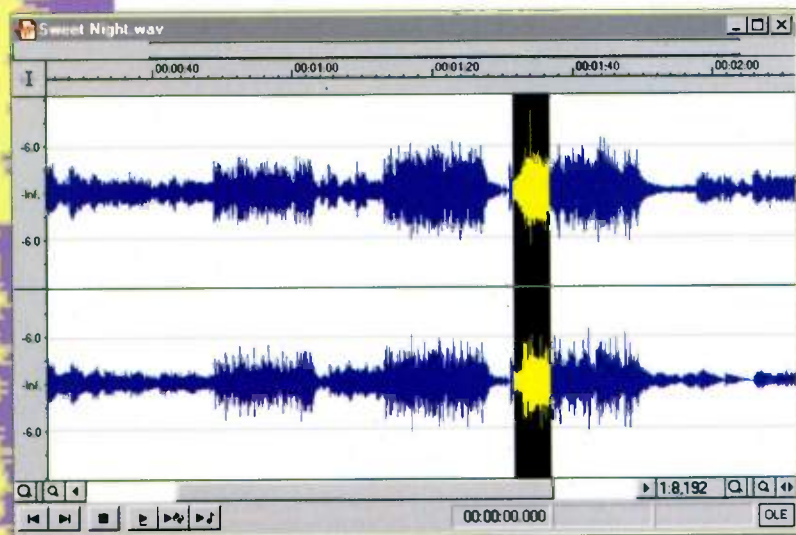
Electronic compression is useful, but comes with a price: breathing, pumping, increased noise, and transient mutilation. Add compression to a languid lead guitar track and it can sound very cool. But while a subtle amount of limiting can definitely help during the mastering process, over-compression can drain the life out of the song. This is particularly the case with programme material, where compressing loud sections alters the softer elements in those sections as well. If you're looking for an ultra-compressed sound, you're probably better off compressing each track individually and mixing them together, rather than compressing the final stereo master.

Multi-band compression is much better, because it separates the signal into multiple frequency bands and compresses each one individually. This just about eliminates pumping and breathing because, for example, a heavy-duty kick drum isn't going to affect the high frequencies in your mix. When compressing programme material, this is my technique of choice. Still, there's always a slight squashing that's hard to avoid, and is inappropriate for many types of material. And since any type of compression will bring up noise somewhat, it's worth remembering that multi-band compressors have just that many more bands capable of adding noise.

Software-based compressors (that usually run as plug-ins for digital audio programs) are a completely different kettle of fish. Because they don't have to work in real-time, they can analyse the signal and react to peaks instantaneously. This cleans up a lot of problems inherent in real-time compression, but it's not a panacea. Pumping and other problems are still possible.

One reason why people like analogue tape so much is because it provides several benefits of compression without the side-effects. Not only do signals gently saturate the tape, there's some added harmonic interest that helps overcome the apparent loss of high frequencies often noted with single-band compressors. (This occurs because there is more energy in the low end than the high end of most programme material, so as the low end triggers compression to reduce the gain, this reduces the high end gain as well, even though it

Figure 1:  
Note how a single transient (in the highlighted area) reaches the maximum available dynamic range. As a result, normalisation cannot bring up the overall level any further.





doesn't really need compression. Side-chain processing can solve this problem, but that's another story for another time.) Despite this, tape has hiss, modulation noise, distortion, and all the other drawbacks that made people want digital in the first place. There must be a better way.

## WHY NORMALISATION ALONE ISN'T ENOUGH

Normalisation is a digital signal processing function that's available in a lot of digital audio editing software (for example *Sound Tools*, *Sound Forge*, *Alchemy*, and so on). It scans through the programme material for the highest level, and if that level doesn't reach the maximum available dynamic range, the software boosts the overall signal so that the peak hits the highest level possible. For example, suppose you record a track of music and the highest peak registers at 6dB below the maximum available headroom. Normalisation brings the entire track up by 6dB. (Incidentally, most normalisation functions allow normalising to some percentage of the maximum available level; it needn't always be 100%.) There are some problems, though:

- Because normalisation boosts the entire signal, the noise floor comes up as well.
- Normalisation has nothing to do with a song's average level, only the peak level. Yet when balancing levels between tracks in the process of assembling a master tape, it is the average level that is usually most important. This is one reason why most mastering engineers recommend that you do not normalise each individual song.
- Excessive use of amplitude-changing audio processes such as normalisation on linear, non-floating-point digital systems can cause so-called 'round-off errors' that, if allowed to accumulate, impart a 'fuzzy' quality to your sound. If you're going to normalise, it should be the very last process — don't normalise, then add EQ, then change the overall level, and then re-normalise, for example.

Despite these potential problems for the unwary, in many cases normalisation can indeed help put the highest possible peak level onto CD. But this won't help very much if the average level of a track is relatively low, yet there are one or two major peaks that hit the maximum available dynamic range. Here's the answer.

## THE LEVEL/NORMALISATION CONNECTION

If you look at a typical two-channel mix, you'll often see a few peaks that are considerably higher than the average signal level (see the highlighted section in Figure 1). When you normalise, these bump up against the maximum available headroom and essentially set a limit on how high the rest of the signal can be.

Bringing down the level of those few peaks prior to normalisation can increase the overall signal level a lot more. Here's how.

1. Identify the areas with the individual peaks (such as the one shown in Figure 1), and work on one area at a time. Some software will even help locate peaks for you — a very polite thing to do, in my opinion, and it certainly makes the process go faster.
2. Highlight the peak that you want to cut down to size. The region containing the peak, which you're going to edit, should have its boundaries on

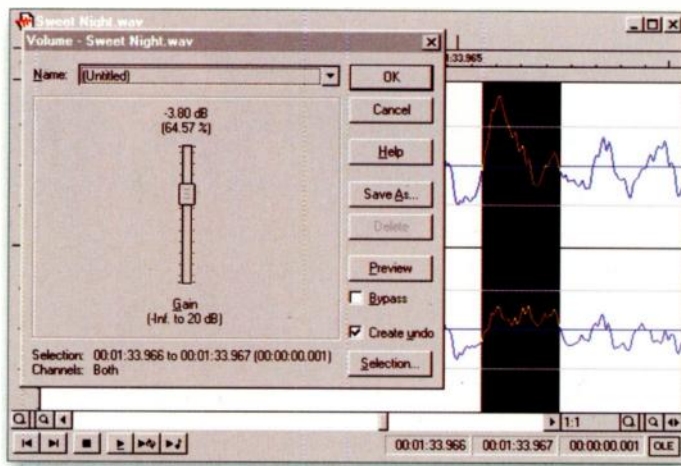


Figure 2: Zoom in on the transient, define it as a region for editing, then use your editing software's volume or scaling option to cut it down to size. In this example, reducing the indicated waveform's level a little under 4dB will bring the peak in line with the rest of the signal peaks.

Figure 3: After normalising the track, the average level is significantly higher compared to the file shown in Figure 1 — with no compression, distortion, or other gimmicks.



zero crossings. In other words, the amplitude at each boundary should be 0 (as shown in Figure 2).

3. Use the program's volume or scaling function to reduce the excessively loud peak, so that its level is in line with the other peaks. If the peak is only a half-cycle wide, just process that peak. If it is a full cycle, scale both halves of the cycle simultaneously.

4. Perform the same process on other excessively loud peaks in the song.

5. Finally, normalise the entire song.

Figure 3 shows the final result. Note how the second version has a much higher average level, but most of the signal remains completely untouched — only the 'rogue' peaks are affected. This preserves the transient response, increases the level, and avoids the undesirable side-effects of compression.

## WRAPPING UP

Another point to ponder: the idea of lowering peaks, rather than normalising the entire song, is a very 'analogue tape' sort of concept. When mixing down to analogue, if you hit the tape with lots of level, two things happen: the tape saturation simply 'absorbs' spikes like the ones shown in Figure 1, and the lower-level signals seem pretty loud, because you're feeding the tape with a hot signal. Clipping the spike does cause distortion, but if it's only for a few milliseconds, your ear isn't going to notice it, especially since tape distortion is so 'soft'.

Granted, it takes more work to seek out and tame individual cycles using this method than it does to just set a compressor's in/out switch to 'in', but the results are worth it. Try it, and I think you'll agree.

SOS



# Off the rails

DIRK CAMPBELL • COMPOSING FOR TV

*Composer and multi-instrumentalist Dirk Campbell is a successful TV music writer who refuses to toe the corporate line and never watches television. He talks to DAVE STEWART about the complexities of an industry that offers substantial rewards to those strong-minded enough to take on its challenges and contradictions.*

**A**lthough they may occasionally irritate, British TV ads are acknowledged to be among the best in the world. The latest Eurostar ad is particularly sophisticated, involving a brace of flying businessmen and complex, multi-layered split screen visuals. Listen to the soundtrack, and you will hear a pair of female voices hovering over a powerful 'Eleanor Rigby'-style string orchestra. The music is the work of Dirk Campbell, a composer and multi-instrumentalist, and it's the latest achievement in a career that has never quite run along established lines.

It began in the early '70s, when Campbell played bass in bands that were trying to overthrow the Establishment by playing insanely complex music. The Establishment did not fall, but merely shrugged its shoulders and invested in glam rock. Somewhat miffed, Campbell quit the music scene and worked in graphic design for a few years, though he continued to expand his musical horizons by studying the folk music of Ireland,

Greece, Turkey, Persia and Armenia. A graduate of the Royal College Of Music and classically trained French horn player, Campbell became an expert on ethnic wind instruments and a self-confessed bagpipe addict. For a while, music was relegated to a hobby, but after writing two film soundtracks for a friend, Dirk found himself drawn back to his former profession. Now, he tries to reconcile his deep and original musicality with the commercial concerns of '90s TV music.

## GETTING STARTED

**How did you get involved in TV music?**

"I started in 1989, as a direct result of my association with the film maker David Anderson, at that time a student at the British Film School. We were friends — and fellow Morris dancers, but that's another story! I did a score for his animated film *Dreamland Express*. There was no dialogue in the film; it was all music and sound effects. This gave me the freedom to look at the rough cuts and say, 'Hmmm, I fancy some music there'.



I didn't think much would come of our collaboration, but David suddenly turned up one night brandishing this BAFTA award he'd received. We were both totally stunned by it! After that he used me on two more of his films, *Deadsy* and *In The Time Of Angels*." **Did this inspire you to look for more TV work?**

"It was more a case of I just couldn't bear doing graphic design any more. After *Deadsy*, David Anderson asked me to do the music for a TV ad he was filming. I was completely out of my depth. There were all these people from the agency milling about, telling me what to do, drinking coffee... I didn't know what was going on. But what I wrote seemed to go down OK: people seemed to like it."

### FIRST TAKES

**Tell us about your early jobs.**

"My first TV ad was for the Electricity Board's 'Shower Electric' campaign. Seems a bit dangerous to me, I'd rather use water. Anyway, it was quite an eccentric ad, with household utensils like mops and monkey wrenches dancing around. Luckily for me, the creative team were interested enough in the ad to go and listen to a few albums to select a suitable music style. They asked me to do something along the lines of Paul Simon's *Graceland* album, with black South African singers. It was like falling off a log for me, because I grew up with African township music in Kenya. I wrote 40 seconds of music for guitar, bass, African percussion and three female African singers singing monosyllables — 'hé, ho'. [*No, not 'it's off to work we go'.*] There was no demo, we just went straight into the studio and mastered it. Never happens these days — you have to demo everything."

**What equipment were you using then?**

"Virtually none, zero. I had a piano, an old acoustic guitar and a Portastudio. It would be nice to think you don't need much equipment

"The formula of a simple operatic tune harmonised in thirds over a heavy ethnic drum track has become a cliché in advertising, but I was the first to do it."

in this line of work, but I only got away with it on that job because the director was a friend of mine. My next ad, for Pilsbury Dough, was a Tom-and-Jerry-style cartoon soundtrack. It was really terrific fun, because every single visual cue was underpinned by some funny musical effect, like a brass fall, violin glissando or xylophone arpeggio. I scored that for a 30-piece orchestra. I don't use a copyist — I write out all the orchestral parts myself, which is quite arduous. Next time I write for an orchestra I'm definitely going to get some notation software to make my life easier!"

### THE TRIBAL TENDENCY

**Though you started off fairly classical in style, many of your latter-day ads feature tribal drumming and ethnic instruments.**

"That all started with a Christmas ad I did for Bailey's Irish Cream. The director, who had worked in Kenya for a few years, wanted African tribal music, and when he heard I'd lived in Kenya, he was convinced I was the right man for the job, even though he'd never heard a note of my music! I played a couple of frame drums, the bodhran and the bendir, neither of which comes from Africa, and multitracked myself singing Nandi tribal noises: 'ughh', 'mnnnn', and so on. The ad also had to feature the Barcarole from

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## Dirk Campbell Composing for TV

► *Tales Of Hoffman* by Offenbach [*he sings a familiar, rather trite tune in 3/4*], usually sung by operatic mezzo-sopranos. The formula of a simple operatic tune harmonised in thirds over a heavy ethnic drum track has now become a cliché in advertising, but I was the first to do it. I suppose the idea originated from that '60s album *African Sanctus*. Lately the trend has been to reverse the roles and have fake ethnic singing over orchestral music. Miriam Stockley does a lot of that vocal work; she's a very good improviser."

### Are your drum tracks programmed or played?

"Usually a mixture. I might start off with a played *dumbek* pattern, and add programmed



Dirk mixes programmed drums from his Roland S760 or Korg Wavestation with rhythms he plays himself on the dumbek — Greek and Turkish versions are shown here, alongside a dabul (Turkish double-headed drum), a tabor, naqar (pottery drums), kraksh (metal castanets) and bells.

drums from the Wavestation or S760. To get a deeper, more authentically African sound, I'd add hand drums like the Senegalese *boukarabou*. Their skins are thick, traditionally animal skins, and they have a nice, meaty sound. If I want a continual drum pattern, I'll record me playing hand drums on the Fostex DMT8, pick a couple of good bars and loop it with the S760. Sometimes my tracks stay tribal-sounding, but occasionally, as in an ad I did for Purdeys, they develop into something more electronic and urban. I like working with voices: either a solo female, or several male voices doing quasi-tribal chants. I also use ethnic winds such as the *suling* or *ney* flute, which I always play myself. On a practical note, it's sensible to keep things in the sampled/sequenced domain for as long as possible, because you often get asked for last-minute changes. If you'd committed everything to tape, you'd have to start again."

**With samplers, workstations and specialist CD-ROM sound libraries, you can have the sound of any instrument you choose. How do you decide which sounds to use?**

"As I said, I had very little equipment when I started doing TV music. I scored my first job, *Dreamland Express*, for string quartet and piano because it seemed to go with the vulnerable, rather personal quality of the film. Nowadays I have more equipment, and anything's possible, but I tend to get a bit overwhelmed by the range of sound possibilities. In a way, there's no such thing as instrumentation any more, because someone will say 'Can we have a synth sound or a brass chord coming in there, or maybe some sound design effect?'. With sampled sounds, there are no budgetary limitations either. But I think it is a good discipline to limit yourself to using certain sounds, because it creates a continuum which will lend consistency and a recognisable style to the film. I saw one car ad that I thought was very brave, because it employed just a single kit cymbal making different sounds. Very minimalist."

### Is it necessary to have a formal music education to work in TV music?

"No, a lot of people work instinctively with sounds without knowing the names of notes or chords. I did a session for one guy who was completely musically illiterate, he didn't even know what the keyboard black notes did! I'd say that at least fifty percent of advertising music is done by people with no knowledge of music theory."

### Film music editors sometimes edit the music so that the end product is quite different from your original conception. Does this bother you?

"You have to become detached. I've learned that you can't afford to have any proprietary feelings about what you do, because if they don't like it, they bin it. So you learn very quickly to have this dual attitude — while you're doing it, you're trying your best and putting a lot of yourself into it, with as high standards as possible. Then you give it to your client, and it no longer belongs to you. Anyway, I'd rather they chopped it about a bit than didn't use it at all!"

## THE FOOD CHAIN

### TV music seems to involve a quite complicated hierarchy. Can you explain how it works?

"Yes, it's very confusing. There are about seven or eight levels of command. Let's say Kellogg's UK decide to do a 1998 ads campaign. Their marketing director contacts the account handler at the advertising agency which handles all Kellogg's advertising. They agree on a new marketing angle for the cornflake, and decide what their 'spend' (advertising outlay) is going to be. The ad agency's creative director then gets involved, and selects a 'creative team' from within the agency, usually a writer and an art director, who come up with a concept for the ad campaign. Finally, they hire a film company, who appoint a director to shoot the TV ad. A week or two before 'playout day' — that's the day when they have to deliver the ad to the broadcasters — everyone decides the ad isn't quite working, and they start thinking about the music. They contact about six music production

## SHOW REELS & RECORD DEALS

How can a would-be TV composer get a break?

"Agencies like anything that's new and original, and if you're a new composer on the scene, word soon gets round. You need to get together a show reel, which is the TV equivalent of a demo tape. My first show reel consisted of one ad and two short films. I collected a lot of names and sent out about 20 VHS copies to ad agencies, though nowadays they tend to expect Umatics, and I got a few calls back. You don't necessarily have to show them ads you've done — if you haven't done any, you could play them an album that sold well, or got great reviews. As with record company demos, you don't need a lot of tracks: just one good one could be enough. This could also work the other way round — if you do a high-profile TV ad with impressive music, it could lead to record company interest and a record or publishing deal."



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# Dirk Campbell Composing for TV

## ON THE RECORD

### • MUSIC FROM A ROUND TOWER

Dirk owns a large collection of ethnic instruments, mainly winds and percussion. These sometimes appear in his TV ads, but come to the fore on his wonderful solo album *Music From A Round Tower* (1996). This work was built up slowly over a period of four years, and represents for Campbell "a blend of most of the elements that give me pleasure: minimalist, middle and far Eastern, African tribal, weird synth sounds, early Mike Ratledge (*Soft Machine*), Stravinsky, plus a lot that comes from

me!". The album, originally conceived as one long piece, is ambitious in its range of sounds (Campbell jokingly estimated that he'd need 254 musicians to perform it live) but disciplined and superbly composed.

As with any album of originality, people have been having problems finding a convenient pigeonhole for the music, one likening it to Steve Reich, another claiming it was 'contemporary chamber music with a strong ethnic feeling'. Campbell himself simply describes it as 'New Music', but reviewers agree that it is music of depth and intelligence.

### • SELECTED DISCOGRAPHY

With Egg: *Egg* (1969 — Deram 844 168-2), *The Polite Force* (1970 — Import, Deram POCD 1844), *The Civil Surface* (1975 — Virgin CACD 1510).

With National Health: *Missing Pieces* (1996 compilation — Volceprint VP113CD).

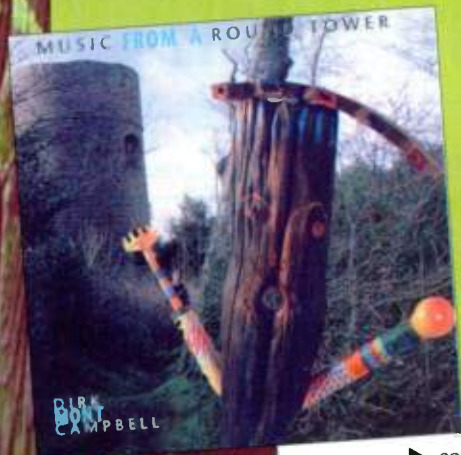
Solo: *Music From A Round Tower* (1996 — Volceprint/Resurgence RES120CD).

### • CONTACTS

Volceprint/Resurgence: PO Box 5, Derwentside, County Durham DH9 7HR, UK.

Dirk Campbell & Dave Stewart: Broken Records, PO Box 4416, London SW19 8XR, UK.

Web pages: <http://www.davebarb.demon.co.uk/>



► companies who specialise in music for advertising, brief them about the ad, and ask each of them to submit a demo. The music company decides which of its composers is best suited to the brief, and asks him or her to write something. If it's a very lucrative job, such as a jingle for a commercial television station, they might ask all their composers to have a stab at it. The trouble with that is you're up against 25 other writers!"

### Do they pay for demos?

"There ought to be a demo budget, but there often isn't. Big multi-national campaigns with huge budgets seem to expect demos for nothing, but if they accept your idea, the pay is good. One thing I've noticed is that the director often has a mate, a favourite composer in one of the music production

companies. Once you know who this mate is, you have a much better idea of what the winning brief will be, because the film director very often has the final creative say. You find out the other guy's style, and try to do a much better track in that style. It's quite political; you have to be aware of your competitors' strengths and weaknesses."

### Do TV composers need an agent, or is it possible to work freelance?

"I was very keen to get an agent. I didn't like being on my own — I felt insecure and vulnerable. At first I didn't know a lot about the money, the

"Ironically, my first agent only got me one job; all the others I got myself but still had to pay them commission!"

political structure, and so on. I got on the books of a music production company, on an exclusive basis but with no written contract. That's generally the way it's done: there's not a lot of point signing something. Ironically, my first agent only got me one job; all the others I got myself but still had to pay them commission! But the main benefit was that they were able to increase my fees considerably, which I don't think I could have done on my own. For a couple of years I was on the books of Ronnie Bond, who I liked a lot. He was the man behind 'You can't get better than a Quickfit fitter', and 'Tasty, tasty, very very tasty', though that always embarrassed him. He comes from the Mile End Road school of ad songwriting, but he's a really great guy, very ethical and kindhearted. We made a strange team, me the supposedly off-the-wall, arty music writer, and him a big soul and rock & roll fan." ►

## THE DOSH

### • COMPOSER'S FEES, RECORDING BUDGETS & MUSICIANS UNION RATES

Dirk: "For my Pilebury Dough ad, the music budget was 16 grand. Of that, about half went on recording, split between the studio (2K) and the orchestra (6K) — that's about £200 for each orchestral player. The remaining 8K was split between me and my agent. These are 1990 rates, but they give an idea of where the money goes — however, it would be unrealistic to expect all ads to pay the same, as the budget depends on the length of the run and whether the ad is used nationally or regionally. Some music production companies still pay the composer a relatively small composition fee and keep the lion's share of the money, but I don't do that kind of deal any more. If you're getting started, it's something you might have to put up with until you get more established."

The MU's current TV recording rate is £214.15 per player for a three-hour session.

### • MUSIC AGENT'S PERCENTAGES

Some agents of 'applied music' (that's media music to you and me) seem to operate on stratospherically high percentages. An exclusive arrangement with a composer means the agent will still take a cut (up to 35%) of a job even if it was originally sourced by the composer. If the agent finds the work, the cut can go up to 50%, and these percentages may extend to the publishing revenue (see below). On paper this seems excessive, but music agents are often involved in all stages of the job from the initial briefing to the final mix, and can sometimes bridge the comprehension gap between ad agency and composer.

### • USAGE FEES

These are monies paid by broadcast companies for use of a composition. The PRS's TV rates, current at the time of writing but subject to review, decree that a composer should receive £41.16 for 30 seconds' usage of advertisement 'background music' on ITV.

That's the good news. At the other end of the spectrum, Channel 4 have to stump up a mere £7.17 for the same usage. As a rule of thumb, don't expect to get rich from usage fees alone unless you write the theme tune (which attracts a 40% higher, 'featured music' rate) to some long-running ITV soap series.

### • PUBLISHING

It is a fact of life that more and more TV companies now demand a share of the composer's publishing revenue, which can lead to difficulties. One writer lost a job worth £15,000 because his publisher, with whom he had signed an exclusive contract, refused to give away a percentage to the TV company. In principle the publisher was right to make a stand against this coercion, but defending ethics can be expensive. With music agents and TV companies both demanding their pound of flesh, TV writers would be well advised to establish guidelines over this difficult area before signing a publishing deal.



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# Dirk Campbell Composing for TV

## FAVE EQUIPMENT

Unlike many of his colleagues in the industry, Dirk has resisted amassing a huge arsenal of equipment, and cheerfully admits to being 'not technically minded'. He uses his home studio mainly for demos, and masters all his TV ads in commercial studios. After some arm-twisting, he agreed to talk about his key pieces of gear.

- Alesis Quadraverb
  - AT4033 Audio Technica cardioid capacitor microphone
  - Behringer Compressor compressor/gate
  - Two Beyerdynamic M210 microphones
  - DAC 4Mb Syquest drive
  - Emu Proteus 2 Orchestral sound module
  - Fostex DMT8 VL 8-track hard disk recorder
- "Many useful edit functions including copy and paste; also acts as a synchroniser, with tempo changes, song position pointer, and so on. Internal memory expanded to one hour. Excellent sound quality."



- Korg SR Wavestation
  - Lexicon Alex
  - Mackie 1604 mixing desk
- "Very quiet with good EQ range, takes up a remarkably small amount of space. I also find the mute button which routes the signal to an alternative output very useful. One can sample, for instance, while monitoring the sample back through the desk with effects added."
- Photo CD CD-ROM drive
  - Roland S760 sampler with 32Mb memory
- "Like all Roland gear, impossible to understand at first, but, like French wine, becomes a little more mellow with every passing year. Good sound quality and some very useful functions, though I'm not convinced about its time-stretching."
- Roland W30 sampling workstation
- "I use this as my main sequencer. A very compact keyboard which possesses most of the useful functions of other more powerful sequencers and samplers, plus some that they don't have, such as the 'sub-tone' function which enables you to employ a sample in a variety of different ways simultaneously without using extra memory. One excellent feature: it doesn't crash. A lot of the best Roland samples are available on this machine, including all the S550 sounds. My album *Music From A Round Tower* was composed on the W30."
- Two "fantastic old hi-fi speakers"
- "Given to me by a German friend who deals in old hi-fi. I don't know what they are as there is no label on them anywhere, but the sound is completely natural."

The composer also added some unprintable remarks about the poor quality of his amplifier, while admitting to being "too stingy to buy anything decent. Anyway, I do most of my monitoring on headphones".

*Dirk keeps gear to a minimum — top to bottom, Emu Proteus 2, Korg SR Wavestation, Alesis Quadraverb, Lexicon Alex, Roland S760, and Behringer Compressor; on the left, the corner of his Roland W30.*

## UNDERSTANDING THE CLIENT

All the TV composers I know agree that the hardest thing about the task is working out what the client wants — they ask for a 'key change' when they want a tempo change, and so on.

"That's right. TV music is all about problem-solving. The clients say contradictory things like, 'We want the music to be very cheerful and enlivening, but at the same time deep, profound and mysterious, stimulating but relaxing', all these opposites. And they always start off with 'We don't want it to sound like music for advertising, we want it to be original, different and radical', before eventually caving in and asking for something that sounds completely standard and middle of the road. At the end of the meeting, they say 'Well, I hope I haven't confused you too much!' It would be a lot more honest if they admitted they didn't know what they wanted, but that only happens one time in a hundred. I used to take all this seriously, but I must admit, I don't take any notice of them now."

**It seems that misunderstandings abound.**

"Most of the time there's some terrible confusion going on. One minute you think they're asking for something in the style of Steve Reich, the next they're talking about drum and bass. None of these people, with their visual background, are musically trained enough to be able to discuss the different elements that go into a piece of music, but I've learned the hard way not to confront them — I just quietly stick to my guns and do what I think the ad needs. In a demo I did for Nescafé, the director asked for some Celtic music, so I wrote an Irish melody played on a fiddle. When he heard it, he said 'It's too Irish — we're not supposed to be in Ireland!'. The 'Celtic' thing was a red herring. I've had to learn not to interpret their words too specifically. They're just throwing phrases at you in a sort of scattergun effect."

SOS

## THE WHOLE WORLD IN HIS HANDS

Dirk's collection of world instruments includes:

- FLUTES  
Suling (Indonesia), Ney (Turkey), kaval (Macedonia/Bulgaria), Irish whistle, Irish low whistle, bansuri (India), panpipes (South America), 3-hole whistle (England).
- SHAWMS  
Shenai (India), sorna (Persia), zourmas (Greece), zurna (Turkey), ghaita (Morocco).
- REEDPIPES  
Zummara (Egypt), duduk (Armenia), mezoued (Berber), balaban (Persia).
- FREE REED  
Melodeon (England).
- TRUMPETS  
Nafir (Morocco), didgeridoo (Australia), kudu horn (Kenya).
- BAGPIPES  
Gaida (Greece), tulum (Turkey),

- plob (Scotland), uilleann pipes (Ireland), Praetorius (Early German).
- STRINGED  
Nyatiti (Kenya), bouzouki, laouto (Greece), violin, cello, steel-string guitar.
- TUNED PERCUSSION  
Balafon (West Africa), sansa (East Africa), bowls (India), prayer bowl (Japan).
- DRUMS  
Naqqara, bendir (Morocco), bodhran (Ireland), daf (Persia), dumbek (Turkey), toumbelek (Greece), davul (Turkey), req (Egypt), tabor (England).
- PERCUSSION  
Kraqsh, dakhare (Morocco), cymbals (China), sistra (Egypt), leg bells (England), rain stick (Central America).





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Although there are many companies large and small who build IBM Compatible Computers, very few will build them specifically for Music and Hard Disk Recording. Our Max Systems range of PCs are built for Musicians and Audio Professionals who can well do without the hassle of buying a standard PC and configuring it for music applications.

### Quality Components

Of all the possible things you can want a PC to do, hard disk recording is one of the most demanding. Two weeks of hard disk recording will give a hard disk as much use as one year of office work; the computer's RAM memory and processor is constantly in use. We use only the components that we know can cope with this level of usage.

### Upgradable and Expandable

As the software boffins add more and more 'Real Time DSP' functions into their programs, you will almost certainly want to upgrade your Processor and RAM in the future. Max Systems PCs use 'auto-sensing' motherboards capable of using all variants of Intel, IBM, Cyrix and AMD processors up to 266MHz with the latest matched DIMMs memory. In computer terms, they're as future proof as they can be!

### Help and Support

Unlike any other piece of your musical or recording equipment, a computer is not normally manufactured for the sole purpose of producing music and audio. Only 2% of Apple Macs and only 0.5% of Intel PCs are sold to users of music and audio applications. Your chances of getting the correct type of technical support from an ordinary computer reseller or manufacturer are not good. With a Max Systems computer it's a different story. Our machines are built and configured by people who understand the particular problems associated with music and hard disk recording. We don't just build them, we use them for all the same programs that musicians do, and we know the programs inside-out.



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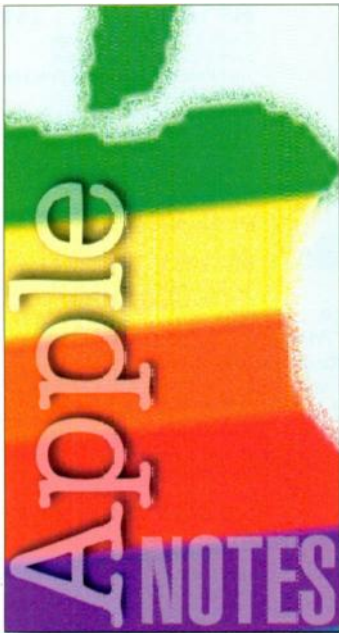
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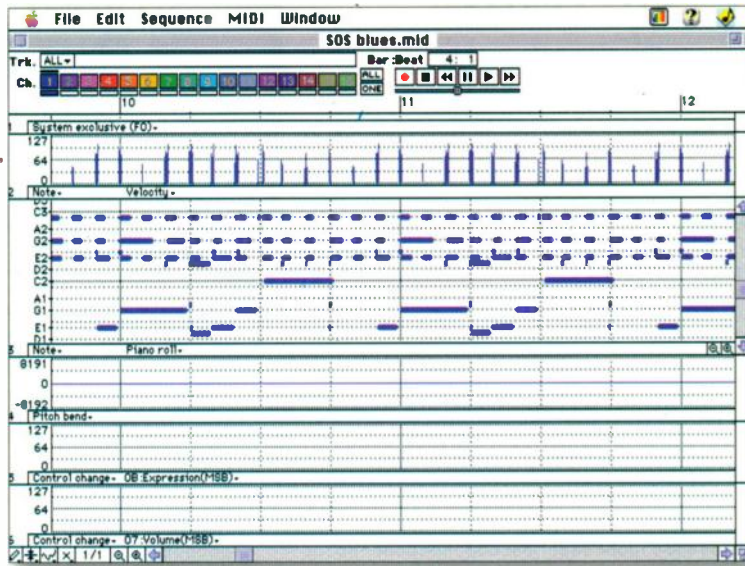




**Why is no-one giving Mac sequencers away for nothing? MARTIN RUSS dives into the sobering world of shareware and freeware.**

**I**t all began with an email from a reader. They asked if I knew of any freeware or shareware MIDI sequencers for the Mac, because they had searched around and found only one, which seems to be less than perfect...

I know exactly what they mean. In 10 years we've gone from simple intuitive tape recorder emulations to extremely sophisticated Digital Audio and MIDI sequencers which are so complex that they can require days of learning before you become competent at using them. And unlike the Atari ST, the Mac has never had much MIDI freeware and shareware written for it. Perhaps some of the problem lies in the way



*It's all out there... although it looks like commercial software, MIDIGraphy is a \$20 shareware sequencer; and there's plenty more where that came from (see table, right)!*

that the Mac does MIDI. On an Atari ST, you wrote bytes to a location and they appeared at the MIDI Out; you read bytes from another location and they were received at the MIDI In. You needed to change a few variables here and there to alter buffer sizes, but it wasn't difficult at all. And as a result, lots of people, myself included, wrote lots of MIDI software for the Atari ST.

On the Mac, things are slightly different. Persuading MIDI bytes to appear at a standard Mac MIDI interface requires a little bit more programming, and in a Mac there's always a set way of doing things through an Apple-defined interface. Things get more complicated if you want to use the Apple MIDI Manager, and even more taxing if you want to use Opcode's OMS or MOTU's FreeMIDI. Instead of simple reads and writes, there are complete protocols to be negotiated. This tends to put amateur programmers like myself off a little bit, because it requires a large investment of time to get to grips with. As a result, Mac MIDI software is rare, especially freeware or shareware.

But it does exist. A few years ago, the logical place to look for it would have been a Mac shareware disk supplier, but these have been

largely replaced by two modern phenomena: the cover-disk CD and the Internet. Music magazines, which have to fill up 650Mb of CD every month, don't take long to run through just about every decent bit of MIDI, music and audio related freeware or shareware — although there are always lots of commercial demonstrations. There are also some specialist suppliers of collections of shareware and freeware on CD-ROMs. And on the Internet, it only takes a few minutes to find almost anything using a search engine — although downloading a couple of Mb can take a little longer with a modem connection. A bit of searching on the Internet, or failing that, buying up some cover disks at a car-boot sale, should provide plenty of stuff to investigate.

I've assembled a table showing some of the sorts of things that you may well find, and a few of the columns need some explanation. The 'size' is the size of the main application itself, which often gives a guide to the sort of complexity you can expect. The PPC/68K column shows if I was able to discover anything about its PowerPC compatibility — I'll soon be able to test this myself. The OMS, QuickTime column shows possible interfaces rather than required ones.

**APPLE NEWS IN BRIEF**

**• QUICKTIME 3.0**

Apple's forthcoming new version 3.0 of QuickTime is already winning awards in the television, media and computing worlds. Whereas many other developers are concentrating on one platform and a single operating system (Microsoft perhaps?), QuickTime continues to improve its cross-platform capabilities and support for a wide variety of digital media file formats. So QuickTime 3.0 is claimed to support all the major video and audio file formats, platforms and operating systems — including WAV, AIFF, Sound Designer II, AU, MPEG Layer 2, MPEG, AVI, OMF, DV, OpenDML files, many still image file formats, many animation file

formats, and MIDI files, and runs on Windows 95, Windows NT 4.0, Mac System 7.x, MacOS 7.6, and MacOS 8. (Hmm, no UNIX though!)

QuickTime forms the basis of the QuickTime Media Layer, which includes QuickTime VR and QuickDraw 3D. Used for both professional video editing and the creation of many CD-ROMs, QuickTime is believed to comprise more than half of the video content found on the Internet.

The 'QuickTime Gazette' is a newly launched bi-weekly Internet-based newsletter which concentrates on QuickTime and its related technologies. It aims to provide an up-to-date look at the happenings around the world related to Apple's QuickTime and the QuickTime Media Layer.

**• D-SOUNDPRO 3**

The latest update to this shareware sample editor is now available on the net. The shareware registration fee is \$39 (or only \$10 for registered users of version 2.x — including me!).

New features from 2.5.2 include:

- WAV file format support (including loop points).
- Support for Emu, Kurzweil, Roland and SMDI samplers.
- Digital oscillators for mono/stereo wave generation.
- DSP-style effects.
- New Virtual Keyboard.
- AmpENV ADSRs.
- Mac keyboard can play sounds.
- Link D-SoundPRO samples to a sequencer.
- Zoom In function on the Loop

**Floating window.**

- Moving cursor in the sample window.
  - Info Window, with real-time loop and position markers.
  - Wave x-axis units can be in msec.
- And, of course, more bugs have been found and fixed.

**• APPLE EXPO**

5-8 November will see the annual Apple Expo in the Grand Hall, Olympia, London. You can expect new Macs, controversy over cloning, lots of bargains if you scout about, and very little music or MIDI software. As usual, I'll wander about on one of the days to see if there's anything that catches my eye — so say hello if you see me. £15 on the day, but free if you pre-register: 0181 240 5055 or via the web site.



For more details on Mac shareware, see page 6 of Crosstalk in our October '96 issue, and Mark Tinley's article on sample RAM in September '96.

## POWER!

It had to happen. After resisting the inexorable advance of the PowerPC chip, my humble Centris 610 is beginning to look distinctly old-fashioned and a little bit tired, and (the final straw this) was recently described as 'quaint'! Hi-tech music magazine columnists have their limits, but when my Mac is put down like that, then I see red — and my favourite Mac dealer sees money!

So, I started the usual preparation for a major purchase. Did I have the money? Hmm — it looks as though more people will have to buy my book on *Sound Synthesis and Sampling...* Could I justify it? Perhaps. Would it look underpowered alongside a dual Pentium II MMX tower with a 17-inch monitor? Definitely not. What should I buy? Ah, the \$64,000 question.

What you require of a MacOS computer for use in music is rather different from what most other computer power users want. Graphics accelerators and millions of colours don't matter much when you only need 256 colours at most but as large a screen as possible. Networking gossip about Ethernet and 10-baseT is much less important than decent serial ports. *RAM Doubler* isn't quite such a useful accessory when timing is critical. Hard drive performance is probably considerably more important than the price, and a CD-R drive is arguably more attractive than a plain CD-ROM reader. Fancy user interfaces are almost unimportant when you spend almost 100% of your time in one or two big applications, and so having a multi-threaded Finder is much less important than the consistency of real-time operation. Processing power and stability are vital, since no-one likes waiting or losing hours of work in an instant.

So what did I go for? Well, despite the ongoing Apple saga, I decided to stay with my

first love and scanned the Mac magazines' in-depth reports, looking for those critical words: 'expandability' and 'better performance than expected for the price'. I also applied the old computer maxim of 'buy the best you can afford — now!'. Taking into account all the price reductions in the pre-Apple Expo/November new releases period, I went for a PowerMac 7300, which met all of my requirements with one hugely embarrassing exception: it comes bundled with Microsoft *Office!* If it wasn't for the fact that some aspects of its performance are on a par with, or better than the 8600 which costs almost twice as much, then the 7300 would have been rejected. As it is, I'm tempted to try and remove the infection so that I can retain my '100% Microsoft-free site' status.

The next few Apple Notes will almost certainly document the transition from 68K to PowerPC, and perhaps even to MacOS 8 when the upgrade arrives. Some of my best-loved utilities and gadgets may well not survive... I'll keep you posted.

SOS

NAME	SIZE	NOTES	TYPE	PROCESSOR	SYSTEM	INPUT AND OUTPUT	WARE
All MIDI 1.1.2	38K	Drag & Drop File Type & Creator changer	File-type Utility	PPC 68K	7.0+ 7.1+ 7.5+	QT 2.1+	
Arnolds MIDI Player 2.8b	283K	Simple MIDI File player	MIDI File Player	68K	7.0+ 7.1+ 7.5+	MIDI Mngr QT 2.1+	
Beyond Demo V2.3	450K	Before <i>Metro</i> was <i>Beyond</i>	Sequencer	68K	7.0+ 7.1+ 7.5+	Snd Mngr 3.1+	Demonstration
Bol Processor 2.6.1	588K	Algorithmic music generator	Generator	68K PPC	7.1+ 7.5+		Shareware
Convert Machine 1.1.1	252K	Audio file converter	Audio Processor	68K PPC	7.5+	Snd Mngr 3.1+ QT 2.0+	Shareware \$10
Csound		Synthesis & audio processing	Synthesizer	PPC 68K	6 7.0+ 7.1+ 7.5+		Freeware
CyberMozart 2.7.5	1600K	Mozart's Dice on a computer (uses SuperCard)	Generator	68K	7.0+ 7.1+ 7.5+	OMS QT 2.0+ MIDI Mngr	Shareware \$30
Cybernetic Composer 1.0	366K	Jazz, Rock & Ragtime generator	Generator	68K	7.5+		Freeware
D-SoundPRO 3.0	2900K		Sample Editor	PPC 68K		OMS	Shareware \$39
Hyper-Music-Writer 2	228K	Editing environment for HyperCard music (uses HyperCard 2.2)	Notation	PPC 68K	6 7.0+ 7.1+		Shareware \$5
Lemur Pro 4.01	618K	Analysis & Synthesis engine	Synthesizer	PPC 68K	7.0+ 7.1+ 7.5+		Shareware \$20
MetroDemo 3.1	654K	<i>Beyond</i> became <i>Metro</i>	Sequencer	68K PPC	7.0+ 7.1+ 7.5+	OMS MIDI Mngr QT 2.0+ Snd Mngr 3.1+	Demonstration
Midi2Tex 1.1	81K	MusicTex preprocessor (uses MusicTex)	Notation	68K			
MidiFile Converter 1.02	25K	File Type & Creator changer	File-type Utility	68K	6 7.0+ 7.1+ 7.5+		
MIDIgraphy 1.2.5	330K	Comprehensive multitrack graphical-based sequencer	Sequencer	PPC 68K	7.0+ 7.1+ 7.5+	MIDI Mngr OMS QT 2.1+	Shareware \$20
Midi It! 1.2.6	222K	Neat GUI File Type & Creator changer	File-type Utility	68K PPC	7.0+ 7.1+ 7.5+		Freeware
Midi Jukebox 2.3	191K	Simple MIDI File player with animated accompaniment	MIDI File Player				
MidiKit 2.3	234K	Batch MIDI File processor	File-type Utility	PPC 68K	6 7.0+ 7.1+ 7.5+		Shareware \$12
MidiTyper 1.04	49K	Drag & Drop File Type & Creator changer	File-type Utility	68K	7.0+ 7.1+ 7.5+		
MidPlay 1.0.4E	110K	Chainable MIDI File player	MIDI File Player			MIDI Mngr	
MiniTrax 1.54	132K	Very early MIDI sequencer	Sequencer	68K	6		Freeware
MusicWorks 1.1 MIDI	54K	A never commercially released version of the classic early Mac music program	Sequencer	68K	7.5+ 7.1+ 7.0+ 6		Freeware
Out of Phase 1.3	786K	Software wavetable/wavecycle synthesizer	Synthesizer	PPC 68K	7.5+ 7.1+ 7.0+ 6		Freeware
Player Pro 4.5.1	1200K	Actually a MIDI & MOD file player	MIDI File Player	PPC 68K	7.0+	MIDI Mngr	Shareware \$99
PushBtnBach 1.5.1	2300K	Bach minnets on demand (uses SuperCard)	Generator	68K	7.0+ 7.1+ 7.5+	MIDI Mngr QT 2.0+ OMS	Shareware \$30
RICE 1.0 beta	402K	Chamber music generator	Generator	68K PPC	7.5+		Freeware
SMF Type Caster 1.0b3	42K	Drag & Drop File Type & Creator changer	File-type Utility				
SMF Utilities 1.0b8	75K	File Type & Creator changer and resource mapper	File-type Utility				
SndSampler 3.4	540K	8 and 16-bit Mac sound editor	Sample Player	68K	7.0+	Snd Mngr 3.1+	Shareware \$20
SoundHack 0.888	348K	Sophisticated and powerful	Audio Processor				Shareware \$30
SoundTracker 2.01	240K	Actually a MOD player/editor	Sample Player	PPC 68K	7.0+		Shareware \$30
Sound Sculptor II 2.2	612K	Tape-metaphor playback & tools	Audio Processor	68K PPC	7.0+ 7.1+ 7.5+	Snd Mngr 3.1+	Shareware \$30
TrackPac-Lite	1248K	SDII file compressor/expander	Audio Processor	PPC 68K	7.0+		Freeware
TrackStar Z*2E	960K	A MIDI Tracker: MOD-like edit & control (uses MaxPlay)	MIDI File Player			OMS MIDI Mngr	Shareware \$79
Vamp 1.01	150K	Plays MPEG layer 3 audio files	Sample Player	PPC	7.0+		Shareware \$10



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Roland XP80	£139	£52.33	Yamaha MU80	£55	£20.62	Fostex D5 Dat player	£87	£32.83
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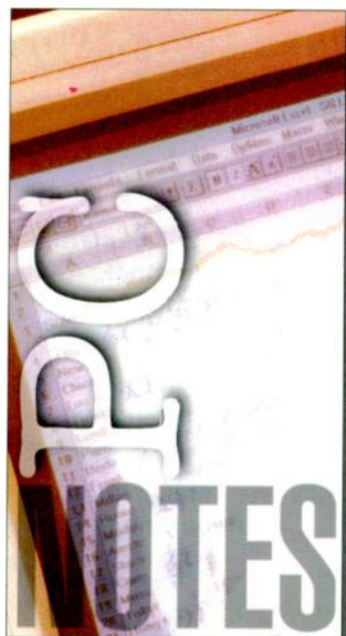
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**Upgrading is becoming a regular task for many PC owners. MARTIN WALKER gets stuck in once again, looking at hard drives, memory expansions, and faster processors.**

Anyone who has been following my contributions to the PC Musician section, and in particular 'Bottleneck Blues' in the August issue, will already know that the speed of your hard drive is what primarily determines how many tracks can be played by a HD recording system. My hard drive (Quantum TM 1Gb) is rather slow, so I thought it was about time I dug into my piggy bank again. The Maxtor Diamond Max range of drives is the darling of the PC magazines at the moment, and regularly near the top of many EIDE speed polls. However, every time I mention a specific model, it seems to be superseded, so please check. There are several sizes in the range, but the two most popular are the 2.5Gb version (model 82560A4), which can currently be bought for £150 including VAT and delivery, and, if you want more space, a juicy 5.1Gb version available at £260 (model 85120A8). Soundscape tested the 5.1Gb version in their HD recording system, and it was the fastest unit they have seen to date. I ordered a bare 2.5Gb drive, rather than a kit, so the box arrived containing only the drive, a leaflet, and an invoice.

Once I opened up my PC, I saw that the ribbon cable attached to my current drive had no extra connectors along its length for adding additional drives. Luckily, since I intended to completely replace the existing Quantum drive, rather than run both drives side by side, I only needed to get them both running together temporarily, to run

the *DriveCopy* software that I mentioned last month. Thankfully, I noticed that the cable connecting my CD-ROM drive to the rest of the system had the same number of pins, so I was able to use this to get both drives up and running, by connecting up the new one as Primary Master, and the old one as Secondary Master. Following the procedure I explained last month in 'Installing A New PC Hard Drive', I installed the new drive (it took about half an hour), used *DriveCopy* to copy across the entire contents of my old drive (another half an hour), and then removed the Quantum altogether. It was a bit nerve-wracking rebooting for the first time, but *DriveCopy* had worked perfectly, and the new drive simply carried on from the old. The only applications that needed re-installing were *Sound Forge*, Steinberg's *WaveLab* and *Cakewalk Pro Audio* — I suspect that DirectX plug-ins were the common cause of this. If you ever download upgrades over the Internet, this is a reminder that it is worth hanging on to them: in the event of a re-install, you will need the same update files again.

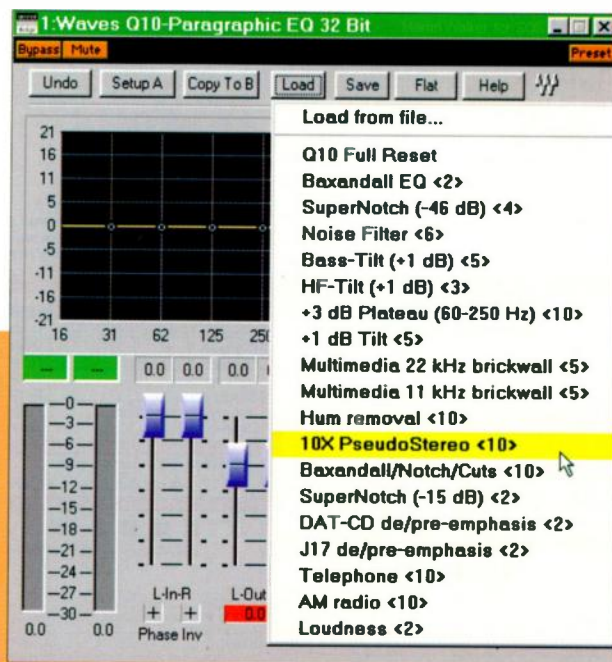
With any drive over 2Gb, partitioning must be carried out, otherwise your drive will simply appear as a 2Gb device, the rest being ignored by Windows 95. Choosing the size of partitions requires a little thought, but luckily I have *Partition Magic*, which makes adjustments easy, even when there is existing data stored on the drive (see 'Essential Accessories For The PC Musician' in the April '97 issue for my review of this wonderful utility). Partitions from 256-511Mb use 8k clusters, those from 512-1023Mb use 16k, and from 1-2Gb they use 32k. To maximise hard disk space, I decided to adjust the C: partition

size of the new drive to 1018Mb. This just scrapes in under the top limit for a 16k cluster size, and so there is a lot less wasted space with all the tiny files on this partition (where all the applications live). *DriveCopy* had left this partition as 1.2Gb (32k clusters), and with 400Mb of existing data, the reduction to a 1018Mb partition with 16k clusters immediately gained me 67Mb of extra space. The remainder of the drive (about 1.4Gb) I left as a D: drive, since although this uses 32k clusters, the wastage is likely to be much less, as I will use this for stereo mastering, and a small amount of HD recording. This involves relatively few files, which also tend to be much larger, so storage efficiency should be much higher.

The performance of the new drive was every bit as good as I expected. Overall benchmark tests showed a system improvement of about 5% (you would get a similar overall improvement upgrading from a 166 to a 200MHz processor), but running the HD benchmark test in *Nuts & Bolts* showed that whereas my old Quantum TM had a data transfer rate of 5.7Mb/second (and average seek time of 10.5ms), the Maxtor Diamond Max managed 6.8Mb/second (and 9.5ms). This is a 20% improvement, and the *Cubase* performance test confirmed this figure — the time taken by the hard drive on my Pentium

## THE NEW WAVES

Waves have now released yet another update to their excellent *Native Power Pack*, for both the PC and Mac. The good news is that the new version 2.3 update is completely free to owners of previous versions, and can be downloaded from the Waves web site (<http://www.waves.com>), although the PC version is a hefty 2.6Mb. Apart from the inevitable unspecified bug fixes, there are several new features, including new presets for the *TrueVerb*, *C1* compressor and *L1 Ultramaximizer*, as well as integrated Save, Load and Delete options for user presets. In the list of DirectX plug-ins, the *S1 Stereo Imager* now appears in an additional incarnation without its normal 'shuffler' (which widens stereo width at bass frequencies). This provides a way to use most of the useful features of the full *S1*, but with about 20% less processor overhead. The help files themselves are much improved, which is about time, considering that no manual



The latest version of Waves' Q10 paragrophic EQ, as seen from Steinberg's *WaveLab*, showing the new Load/Save buttons and factory presets.

was ever supplied.

The fixed factory presets now also appear in the Load options. *WaveLab* owners never previously saw these factory presets at all, so this will be a lot of help to them, but *Sound Forge* has always separately provided access to these, so this means that there's now the minor cosmetic irritation of several duplicated buttons, such as Save and Help. It seems that the main reason for the huge jump in version

number, from 1.3 to 2.3, is the possibility of full automation for every control in the Mac TDM bundle, but at the moment this doesn't seem to apply to the PC version. The other big advantage for Mac owners is access to freely downloadable Setup Libraries, which feature a huge number of presets, particularly for the Q10 paragrophic EQ. These are not currently available to PC owners, but I'll let you know of any further developments.



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**Hi-Fi World**

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**Future Music**

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**Hi-Fi World**

'All DCC recorders will accept a digital input at 32, 44.1 & 48kHz, which is good news for anyone who wants to transfer a DAT collection to DCC. DCC's ability to handle any sampling rate you can throw at it might even precipitate a glut of second-hand DAT machines!'

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▶ 166MMX to play back a single stereo audio track dropped from 120ms to 99ms. As we saw in 'Bottleneck Blues' in the August issue, HD recording relies heavily on the hard drive itself, so this is effectively a 20% improvement in HD recording speed, which should leave significantly more time for the processor to be able to provide more EQ and FX now that the PC version of *Cubase VST* has finally appeared! You can contact Maxtor on 01483 747356, and visit their web site at <http://www.maxtor.com>.

## POWER TO THE PEOPLE

Talking of processor power, it seems that many people are now thoroughly confused by the proliferation of new processors appearing on the market. Since the dreadful publicity associated with the launch of Intel's MMX range just after Christmas, only a tiny amount of software has actually appeared that specifically takes advantage of its special features, and sales of MMX processors have not been quite as frantic as Intel might have liked. Now that both AMD and Cyrix have released 'MMX bashers' in the shape of their K6 and MX series, Intel have attempted to encourage more people to upgrade to MMX by dropping some processors altogether, and slashing the prices of others. Entry level is now the Pentium 166MMX (the standard 133MHz, 150MHz and 166MHz have been axed). So, if you were thinking of upgrading, you may get a pleasant surprise when you enquire about price, with the 166MMX now hovering at about the £110 mark, and the 200MMX at £190.

For musicians, this is great news, since it still seems that most music software works better with the Intel Pentium range. Steinberg claim that



If you've been tempted to connect your PC to an Akai sampler (see last month's PC Notes), you will no doubt be delighted to find that an enterprising Akai owner has set up a FAQ that covers this very subject. 'Ice's Akai FAQ Page' can be found at <http://members.planet.it/freewww/icecool/akifaq.htm>, and it's a mine of information, relating to Akai samplers, PCs and SCSI.

an MMX processor will give a 10-15% performance improvement with their new *Cubase VST 3.5 PC* (see 'In the Pipeline'), and Seer Systems have also measured the performance of their *Reality* software synthesizer with a range of processors. Compared with the speed using a standard (non-MMX) Pentium 200MHz, the AMD K6 233MHz performed at only 93%, and the Cyrix MMX200 at 46%! Switching from the standard Pentium 200MHz to the MMX version produced a further 33% improvement.

## THANKS FOR THE MEMORY

As always, the trend for all computers is to be faster and bigger, and thankfully memory prices are lower than ever. However, with more and more applications providing EQ, effects, and even physical modelling synthesis in real time, the minimum requirements for RAM are always on the increase. One problem to watch out for is that many PC motherboards only have four SIMM sockets for memory, and since these are used in pairs, you only get one chance to

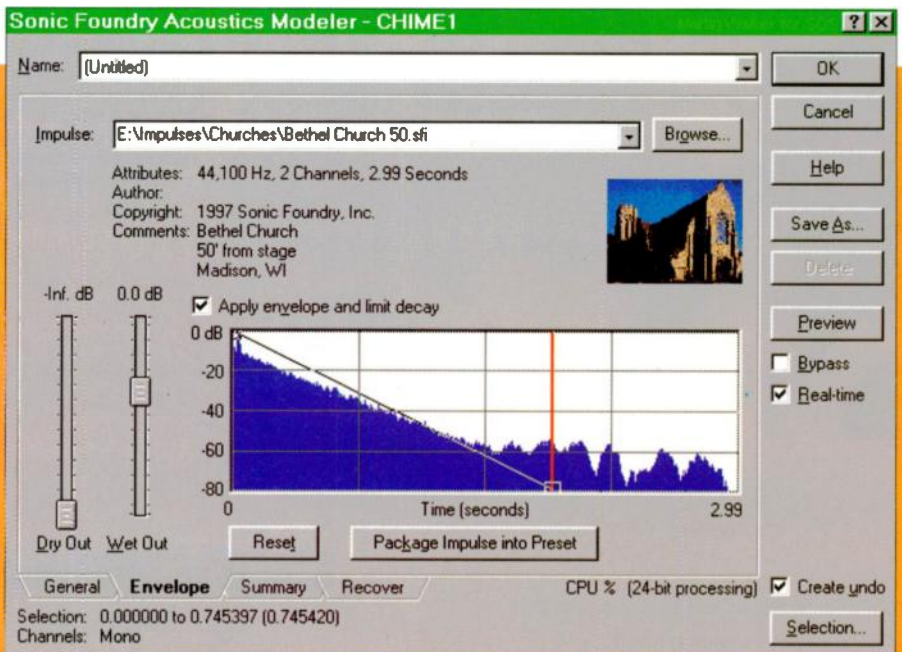
upgrade before you run out of sockets. If you have a PC with 16Mb installed, and are thinking of expanding your memory, it is well worth considering an additional 32Mb (a pair of 16Mb SIMMs), to provide a total of 48Mb, rather than adding a pair of 8Mb SIMMs for a total of 32Mb. The reason? Both *Cubase VST 3.5 PC* and the *Reality* software synthesizer require a minimum of 24Mb RAM, and recommend 32Mb or more. I suspect that 48Mb or 64Mb will be commonplace by next year, and the only way for someone with a total of four 8Mb SIMMs to expand is to remove an existing pair and replace them with something bigger. Go for bigger ones now — 60ns EDO RAM can currently be bought for about £42 for 16Mb SIMMs (only £84 to add a total of 32Mb).

If you want to take advantage of the latest software developments, computer ownership is starting to resemble those speciality acts that spin plates balanced on poles — just as you replace or supplement one part of your system to give it a boost, another component starts to become a bit shaky.

## IN THE PIPELINE

Good news this month for anyone waiting patiently for further ways to add EQ and effects in real time from their favourite sequencing package. Although *Cakewalk Pro Audio 6* pipped the others to the post (see the *SOS* review in the August issue), Steinberg's *Cubase VST 3.5 PC* should be actively shipping by the time you read this (Janet Hamiman Cook reviews the first official copy, received by carrier pigeon, on page 216 of this very issue). The new version 3.0 of Emagic's *Logic Audio* is also now promised a mid-October release, after its original September release was postponed, following a last-minute discovery of a way to significantly improve performance. I suspect that many people are going to be upgrading their processors to take advantage of all this potential.

As reported in this month's news pages, the *Acoustics Modeler* (sic) plug-in from Sonic Foundry has arrived, and looks most intriguing. Rather than providing a general reverb algorithm, this records the actual acoustics of real buildings, and then allows you to map them onto your own music. Not only is there a host of acoustics on the CD-ROM, but Sonic Foundry also provide the means for you to record your own.



Sonic Foundry's Acoustics Modeler.



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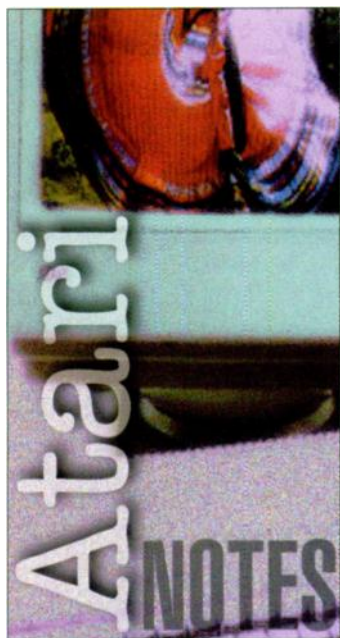
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83

Main Advert





The mathematical principles that produce beautiful images such as Mandelbrot sets can also generate intriguing music. **DEREK JOHNSON** looks at a program that could make your Atari go fractal...

There's still plenty going on in the Atari world: supercharged Falcon clones are being used for graphics applications, for example, and the thriving PD underground and companies such as Electronic Cow are doing their best to help keep things fresh. I continue to be regularly surprised by new developments in all areas of Atari endeavour, and this month I was fascinated to discover that Datamusic's five-year-old *Fractal Music* software has something of a cult following.

I actually found *Fractal Music* quite by chance, while looking for something completely unrelated on the Internet. Within the web page for Claus-Dieter Schulz's Fractal Music Project (<http://www-ks.rus.uni-stuttgart.de/people/schulz/fmusic/>) was a big run-down

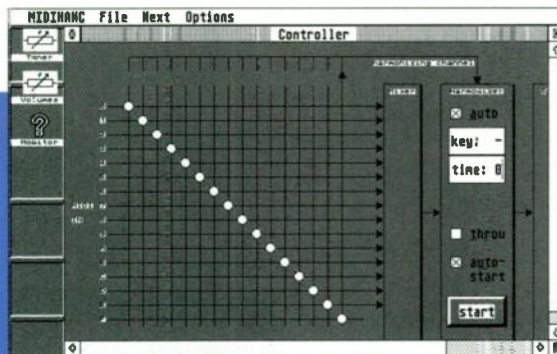


of *Fractal Music's* features, plus masses of information and links to do with making music the fractal way. Well worth a visit.

Author Chris Sansom reports a revival of interest in this program: he even knows of one person recently who not only bought a copy of the software but bought a secondhand ST to run it! But Chris only has a couple of dozen copies of *Fractal Music* left, so the situation is very much 'while stocks last'. He can, regrettably, offer no support, but there have been no bug reports since the latest version (2.52), so chances are you should have no worries. *Fractal Music* costs £79, including postage and packaging, and is available from Datamusic, PO Box 12669, London E5 8XS.

### FRactal FACTS

The software uses fractal geometry — which in the visual world is responsible for such arresting images as Mandelbrot and Julia sets — to create or process music. The key to fractal music is self-similarity, where musical parameters are repeated in nearly identical yet changing shapes. In the case of this software, 16 tracks are available, each of which can have its own MIDI channel, note ranges, velocity limits and other parameters. Pitch relationships, note lengths and velocity can all be 'fractured', producing results that sound totally random, yet are strangely related to your original data (if you didn't decide to have the software generate random data for you). Data on one track can be further processed onto itself or a new track: you

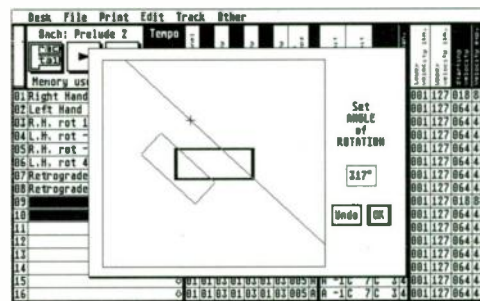


a friend or friends where one of you is influencing the tuning, while you play. This is definitely one to experiment with. If you feel the urge, give Floppyshop a call on 01224 312756.

MIDI Enhancer v1.4.

Fractal music fans should head for Claus-Dieter Schulz's web site for a goldmine of info (see main text for URL).

Using Fractal Music's edit screens to rotate data.



can rotate, reverse, invert, compress or expand existing data to produce new material.

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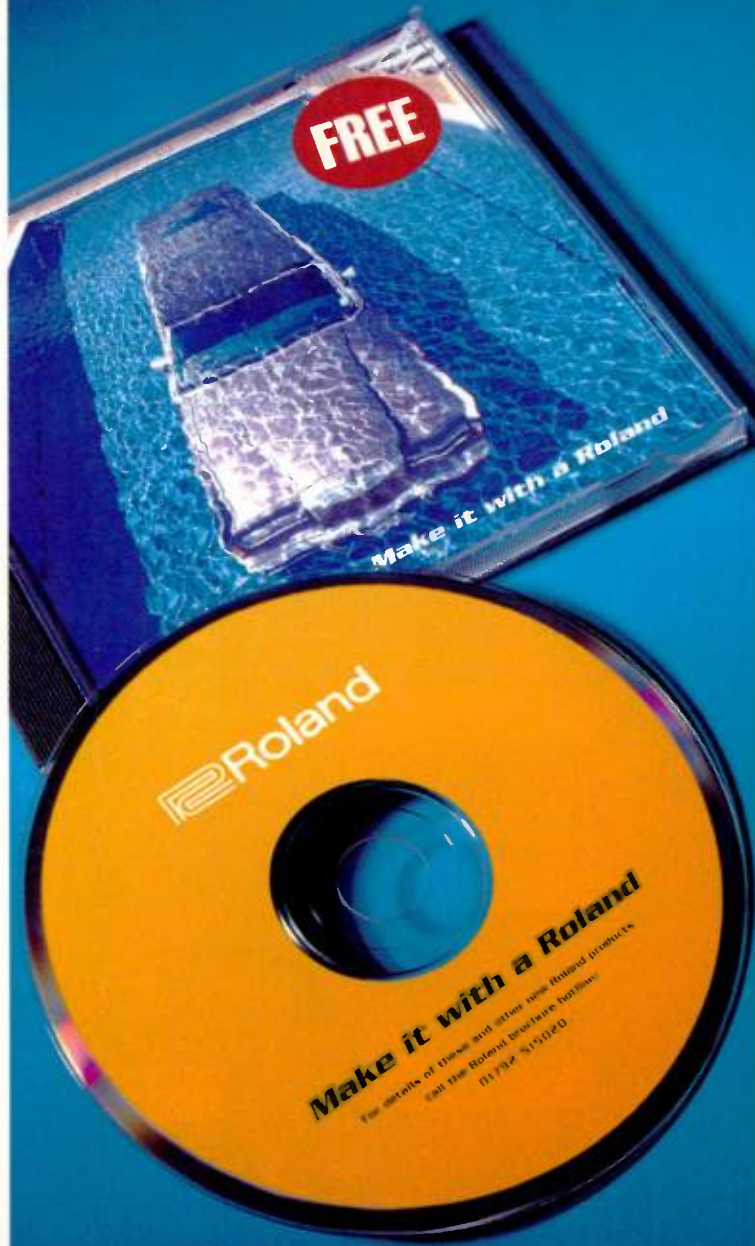
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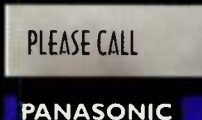
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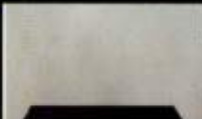
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# demo DOCTOR

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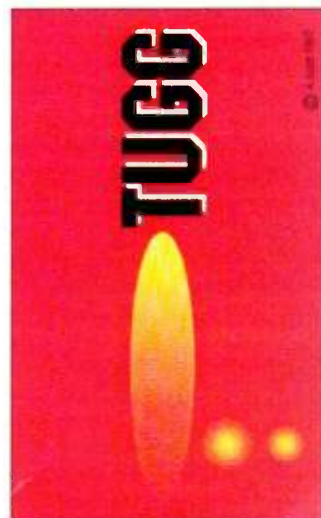
## TUGG

**Recording Venue:** Home

**Recording Equipment:** Foxtex DMT8 digital multitrack, Zoom 2020 and Digitech Studio Quad multi-effects, Technics hi-fi, Panasonic headphones, Sony DTC790 DAT machine, Drawmer compressor, Electrovoice MC100 mic.

Andy Scott (aka Tugg) generally starts the recording process with guitar or bass as the main idea for a song, leaving the vocal lines until quite late in the process. This is typical of the instrumentalist who sings a bit but isn't really a lead singer, and it's evident on the recording. The vocal is fairly understated in the mix and heavily treated with pitch-shift on the opening song. Andy does mention that he finds it difficult to record vocals but, to be honest, the best advice I can give him is to get a singer in to perform the main lines over what are otherwise well-written and recorded backings. Less effect on the vocal in the mix would also improve the clarity Andy is trying to gain by equalising the vocal.

Another problem he mentions is impatience with the process of recording. I can understand the need to keep things fresh, but Andy's really talking about the difference between a demo and a master recording. To conceive of a song, engineer, produce, play, record and mix it in a weekend to release standard is asking a bit much of one person. With productions as complex as this, more time is needed to make a song achieve its full potential.



So it's better to leave it as a demo.

Andy makes a good point about digital recording on 8-track, saying that on the analogue machine it was easier to make the sounds sit together and balance when sub-mixing. The detail and clarity of the digital 8-track does indeed mean that more care must be taken with EQ and levels but, providing the sound is good at source, problems later will be minimised. Gauging the comparative levels of instruments on a sub-mix is really a matter of practice. I would say that here Andy is doing rather well. The backing tracks sound well-balanced and all the sounds are punchy, even played back at low listening levels. □

## MACONHA

**Recording Venue:** Home

**Recording Equipment:** Foxtex R8 multitrack, Atari running Cubase, Seck 18:8:2 mixer, ART SGE effects, Shure SMS8 mic, Tascam DA20 DAT recorder.

Featuring in my favourite photo for ages, the Englishman and the Brazilian (Andy Hoggarth and Beto Trinidad) manage to look... well, strange! And this is reflected in the music, which begins with a minimalistic track entitled 'Invisible'. This manages to combine many things, including a neat rhythm incorporating kick-drum loaded with sub-bass, some percussion hinting at Latin America, and synthesized noises. Its appeal for me, I confess, lies partly in the fact that the music defies categorisation. However, that doesn't mean that it's uncommercial: given the opportunity, I think that Maconha could appeal to the same sort of market as, say, Portishead.

The soundscape is carefully managed on all

the tracks so the mixes sound good, even with the extremes of sub-bass kick-drum under flamenco clapping and heavily strummed acoustic guitar, as on 'Drunk Sober', which you might think stretches credibility to the limit! A minor point, but I do think that the guitar

could have been a bit louder in the mix on this one, and perhaps given more percussive attack by the use of excessive compression.

'Disappointment' is the final track on the tape and betrays in some ways the Achilles heel of the band: the singing. Both Andy and Beto have quite lightweight voices which don't really stand up to close scrutiny and are, I assume, intended more as instrumental textures. The spoken sections work well, but you can only play this card a few times. The best vocal section turns out to be a kind of round of sung and spoken sections developed near the end of this song. To develop the style they may well have to enter the realm of the sampler — or why not the tape loop?

Cleverly put together, with a fine mix, sense of fun and rhythm, this new sound deserves a bit of attention from record companies, if there are any looking for the 'next thing' any more and not merely revamping the old... □





## Laurie Bennett and The Models

### Recording Venue: Home

**Recording Equipment:** Fostex E16 multitrack, Soundtracs 16:8:16 mixer, Revox A77 tape machine, AKG C3000 and D190 and Shure SM58 mics, Lexicon Alex effects, dbx 163x compressor, Evans Super Echo.

Laurie Bennett and The Models see themselves as a studio band and have produced a CD to give to record companies. However, they will be promoting the CD on a tour this year so they do play live as well. In fact there's very little point in producing a CD



unless you're going to sell it live or are having a maximum run for family and friends!

The production has a fairly scrappy sound but a quirky English charm in the style of Syd Barrett, Kevin Ayers and, latterly, Madness. None of the playing is that tight either, and some of the tracks would definitely have had

more impact if the rhythm section was stronger. On the upside there are some interesting musical collages, such as the imaginative 'Kettles Boiling'. Naturally the kettle has been recorded, although it's difficult to tell whether it's been used as a percussion instrument or a noisy background hiss. Still, it joins the wok in a strange culinary workout.

Producer Laurie is guilty of using too much reverb: he likes to disguise his voice under a layer of reverb and slap-back delay. In some ways this borrows heavily from Suggs of Madness, especially on the song 'Edwardian Times' with its additional use of tenor and alto sax as a low throaty stab between sung lines. 'Hitchin' is another song where such an

association can be made in the production, and this time the chordal structure also has some similarities.

Laurie Bennett has been described (probably by himself) as 'a comic perception not readily available to many minds'. On the evidence of this CD, he could be right! □

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## PETRI'S EARTH TURTLE

### Recording Venue: Home

**Recording Equipment:** Fostex DMT8 digital multitrack, AKG C3000 and Sennheiser MD421 mics, TL Audio preamp, Tascam DA20 DAT recorder, Spirit Absolute 2 monitors.

A strange name for a band, but Petri comes from Finland ('where earth turtles are not known to exist'). The Baltic does freeze in winter, though — I know, I've seen it! The music is described as slightly psychedelic to 'earthly reggae'.

The first song, 'Walk Mama', has a minimal production featuring thin skank guitar, sparse dub bass, percussion and vocals. The groove is excellent and the vocals — treated with the merest hint of reverb — are well sung and delivered. They're also mixed nice and loud, and joined by a simple backing vocal set on the chorus. The melody owes more to Paul McCartney than

Trenchtown and the guitar style leans towards Eric Clapton, yet the overall sound is good. What impressed me most was that Petri didn't try to bury the song in overdubs, but concentrated on the feel. This has paid off.

Acoustic guitar forms the basis of the second song and has a slight boom on the low G (around 98Hz): this could have been dealt with by a bit of lower-mid EQ, or preferably noticed at source and the microphone moved. The guitar sound could also do with some more presence — part of which is being robbed by the use of a modulation effect on the guitar in the mix. Some boost at 10kHz would help. The main guitar is



also treated with too much reverb, and this minimises the effect of the reverb on the slide guitar; less on the main guitar would have increased clarity, too. Otherwise, it's well played and once again features a good vocal take sung in impeccable English by Petri.

'Part Of The Flow' sounds like a bit of a tribute to George Harrison, bearing the hallmarks of his songwriting and guitar-playing styles. The slap-back vocal treatment works very well on this song too, but for me the nicest thing about the general mix was the interaction between guitar and percussion. The main guitar sound has the scratchy, slightly woody timbre of a semi-acoustic through an amp, but with the fretboard miked up too. This turns into a sort of percussive texture with the addition of congas (or tabla) low in the mix, tambourine, and side-stick snare.

An impressive tape, which shows that you can make a recording with impact and punch in the bottom end without the aid of a drum kit. □



# demo DOCTOR

## QUICKIES

**PAUL K HURST's** opening track is a first attempt in the techno field and a bit of a slow starter. Stereo panning on the D50 begins the build towards the inevitable four-on-the-floor kick, and by the time that's in, ethereal strings are floating around towards the back of the mix. Having said that, it was good to hear a change of beat come in with the addition of a double kick around the third beat, with some nice rhythmic interplay from snare and hat. The balance of the mix is OK too, with a pleasant sound rather than an aggressive one. This 'gentle' form of techno seems to be Paul's forte, as the second title, 'Outernet Reality Girl', proves. He worries a bit too much about the noise from his demos and also about the clarity of the cassette, but believe me, the quality and variability of analogue cassette recording is taken into consideration in the Demo Doc column and he has nothing to worry about on that score! A good demo with good sounds and a good mix, although there were far too many tracks on the tape.

**KASHMIRE:** Six tracks on this demo, so I picked a few at random. 'Easy' is the title of the second song, and it has plenty of energy in the bandsaw guitar and vocals. Some of the drums (sampled from Black Box Music's *Rock History Drum Loops*) are a bit out of time where the fills and the back beat don't quite marry together, but the actual choice of loops is excellent for this upbeat



guitar music. I also liked the way the vocals were sunk into the mix on this track. It's obvious that some care has been taken with the production of the vocals in terms of level, as the third track on the demo, 'Time Of My Life', demonstrates. Higher vocals are the order of the day here but, sadly, they're very sibilant off the cassette — I hope this is not the case on the master recording. And while we're on the subject of levels, I noticed a tendency to mix the cymbals far too loud, and there are often crash cymbals without kick drums under them, which sound a little weak. When the band leans towards the Manic Street Preachers the sound is more contemporary than in the heavier material — but both are played and programmed with a vigour that's lacking on many of the demos we receive.

Pannist (that's Steelpan Performer to the likes of you and me) **GARY TROTMAN** writes that he is at present dealing with the concept of Caribbean Soca, incorporating other musical styles such as jazz, blues, samba and so on. The first track on the demo is an interpretation of Trinidadian Aldwyn Robert's 'The Iron Man'. Instrumentally the mix arrangement features steel drums alongside synthesized sound sources, and it works surprisingly well. As for the balance, I would have liked to hear the steel drums a bit louder because the real playing would have given more lilt to the programmed instruments, and the pans are the main instrument on the album, as I understand it. However, there's no doubting Gary's skill as a player as he tackles complex rhythms and arrangements with ease, whether incorporating Latin and cross rhythms on the self-penned (or is it panned?) 'Samaroo And The Renegades', or dealing in tunes by his favourite Aldwyn Roberts. I imagine that steel drums could be quite difficult to mike up and keep in check dynamically, but he's also done a fine job on the engineering, with no sudden jumps in level to upset the balance.

**THE ELEMENT:** Although most of Elemental Graham Smith's influences are instrumentalists, his music seems to cry out for vocals. Rooted in the '80s, the blend of melody, retro sounds and arrangements is in need of a Phil Oakey to carry it a stage further. Arpeggiators pop, bass lines octave jump and rhythms are, for the most part, straight down the line. The mixes are nice but a bit flat in the



way that test-card music can be, and the top end isn't as clear as it should be for music triggered and recorded direct to 2-track.

**TIC:** Leonardo Wood is the main man behind the scenes at TIC (Totally In Control). Previously into hip-hop, he's now turned his attention to house, although retaining the vocal samples from some of his previous tracks. But does it work? Well, it's obvious from the vibrato on the voice that the male vocal samples have been speeded up, and so they don't sound as good as they could. The recording is also a bit low-fi (for which Leonardo apologises in his letter), and this is most obvious in the lack of presence. Everything above 8kHz seems to be missing. Asked to comment on the track itself, I'd say that it needs more development, especially the synth loops; the beat is fine, though. More experimentation with filter and resonance controls wouldn't go amiss — and what about the odd bit of effect, such as phase or flange? Consequently, the snatch of hip-hop that followed on the cassette did sound a lot better than the house.

**ROBERT FENBY's** recording setup is centred on his trusty Korg X5, which produced the bass, rhythm guitar and brass sounds for the tape. He's also a fan of the X5 overdrive in varying degrees, but finds that it's best used on a mild setting, sometimes for its EQ more than anything else. This has been used to good effect on the brass and, of course, the organ sounds — of which he is rather fond. It's sharpened the brass right up, allowing it to sit in the upper-mid frequency area without getting in the way of the guitars or organ. Robert's vocals and playing are very good, and he's at his best on R&B workouts and ska where the energy of the performance really comes through. I would suggest that he works a bit on the snare sound just to vary it occasionally, as it's obviously the same snare hit every time and therefore sounds a bit mechanical. Layering another snare

under alternate beats might work. Failing that, try treating alternate snares with a different reverb. Otherwise a fine good-time tape!

**REFORM:** Philip and Robin's CD is entitled 'Beyond Our Wildest Dreams' and has been made partly as the fulfilment of a dream and partly to sell at gigs. On the first track the digital recording really has thinned out the guitar sounds, which are quite abrasive in the upper mids around 6kHz when in full flight. They also lack body, but this is true of all the sounds on the track. It's difficult to say at what stage in the recording process this has happened, but it could easily have been too much EQ or enhancer on the mix or in post-production. As the guitars weren't miked up, they're going to lack a little warmth for this rock-orientated production anyway — consequently they're too far from the bass guitar frequencies to sit well in the mix. The best-sounding mix was the third track, a tasty rock workout with some tighter drum programming, bass playing and nifty guitar fills.

**CONTROL Z:** Great dance backings from Leszek Gasiorek, which have all the right elements — a strong bass line, tightly married to



the rhythm track, and good use of echo and opening filter on the chordal keyboard backing the vocals. All these combine to give the track a good groove. Coupled with what sounds like a compressed, punchy production, this would be a contender if it weren't for the vocals. The weak female vocal occasionally lapses into dodgy tuning; to make the most of this singer Leszek really needs to track her up and pay more attention during the recording session to the vocal delivery. ☐

Last month, we incorrectly named Selma Leon as 'Selina' in her tape review. Our apologies for the error.



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# The X Factor

from e-LAB: Dance Samples at the Cutting Edge



### STRICTLY HOUSE

NEW RELEASE!! Are you a Remixer? A House Jockey? A PRODUCER? Maybe you are still looking for the Perfect Beat? STOP SEARCHING NOW!!! THIS IS "THE CLUB" SAMPLE CD!! "PUMPIN' HOUSE & GARAGE LOOPS 2 DA MAX" A COLLECTION OF TUFF & DEEP HOUSE LOOPS (120-130 BPM) plus the Loops come WITH VARIATIONS and the component drum SAMPLES. INSPIRED TO CUT SOME RUFF & GROOVY HOUSE TRAXX!! Audio CD. £59.95



### X-STATIC GOLDMINE 5

Due for release soon - the long awaited X-Static Goldmine Volume 5 - call for details! Audio CD. £59.95

### ALSO COMING SOON:

- SYNTHASIA 3 - LOOPLAND
  - VINYLISTICS VOLUME 3
- (Audio CDs. £59.95 each) Call for full details!



### X-FILES OF JUNGLE

Another in the new X-Files series from E-LAB in Sweden (makers of the X-Static Goldmine series). X-FILES OF JUNGLE features Drum 'n' Bass & Jungle LOOPS & SAMPLES. These Rollercoaster beats will set off your system like nothing else. Super-Fast beats for anyone looking for the underground sound of Jungle or Drum 'n' Bass. Loops, Samples, FX - they're all in there. Please call to check availability - scheduled release date of this HOT new title is Oct/Nov '97 (Call for latest news) Audio CD. £59.95



### X-TORTION 1

Warning! Only for the HeadStrong! Are you ready for an Adrenaline Rush? Are you ready to be kicked by the hardest Loops & samples ever? Pounding, Fast, Hard Techno/Gabber/Jungle/Industrial Loops that Bang the hell out of your Brains like nothing ever did before. Rough Pounding Kicks, Hysterical Transformed Vocals, SuperDistorted Heavy Synth Loops & Tones/Pads, Metallic Crunching Guitar Loops - the list is endless. Only buy it if you have the Guts to create harder stuff than Prodigy or Nine Inch Nails. Otherwise stay away!!!! X-Tortion is a Killer's Nightmare. Audio CD. £59.95



### X-FILES OF TECHNO

NEW! - and in stock NOW. Another unmissable CD from the makers of the X-Static Goldmine series. X-Files of Techno features ACID/HARDCORE/TECHNO LOOPS & SAMPLES - the styles which have been dominating Europe's underground scene for years. The TR909, TR808, TR303 are all in there - starting like crazy. These are the Hard beats of the The Underground Charts that set the Trends which others need to follow. Created by a successful Producer of this underground rave phenomenon. Audio CD. £59.95



### SYNTHASIA 1

Welcome to FUNALOG and SYNTHASIA ONE. Analog (and/or) Remix sounds & samples into drum loops, only samples! The perfect complement to all E-Lab's dance loop CD's. Analog dance samples made for Dance Producers by Dance Producers. Many dance loop CDs lack good clean, solid & deep synth sounds. This CD will solve your problem of finding the right fun & inspiring analogue synth sample. • Tones • FX • Basslines • Arpeggios • Chords & lots more, from the (like the Nordica) to vintage (the phat Prophet 5). Also, TR 909, JUNO 104, JUPTER 8, KORG POLY 4, OBERHEIM MA, & many more. Over 1100 CLUB samples! Audio CD. £59.95



### X-FILES OF HOUSE

This one's a Goldmine of Deep & Progressive House loops & samples. To give you an idea the loops and samples are in the style and mood of Armand van Helden, Tod Terry, or Deep Dish. These loops & samples will make your Hair Stand Out - pure joy! You won't be able to stop moving your feet when you hear this one. All samples provided with variations so you can create your own deep house tune instantly - perfect for injecting the new York club sound into your music - the sound of people like "Masters at Work". OVER 1000 PHAT LOOPS AND SAMPLES. Audio CD. £59.95



### STRICTLY 12-INCH

This classic from E-Lab features Dance/Remix/House LOOPS & DRUMS. WHAT VINYLISTICS IS FOR HIPHOP, THIS CD IS FOR DANCE. The idea is similar. Loops, with variations, together with separate hits. This is a Remix CD for anyone in the need for good STOMPING House & Garage Loops. Very much "DJ sounding", & produced by a Remix/DJ team. If you want the sound of the dancefloor - get this one. All Loops have been tested for reaction on the floor! Audio CD. £59.95



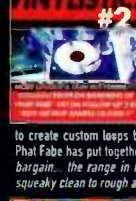
### STRICTLY R'n'B

NEW! Prepare yourself & NU Classic Soulbreaks: 800+ X-Clusive Swing & Soul loops & samples (no instruments - only loops & hits). Black track from the sons of Soul. Swingbeat & triphop loops all with variations plus the component drum samples. A very black-sounding CD, perfect for anyone in need of phat/slow Rumpskuler beats. Like "Vinylistics", but with more slick R'n'B touch. Styles range from the 80's to the slicker sound of 90's soul. From the same DJ who produced "Strictly 12-inch", this loop CD must be on top of your list! A great mixture of slow & groovy tunes (60-100 BPM). Are you ready? 2 make some slick blakk traxx? Audio CD. £59.95



### VINYLISTICS 1

From DJ/Producer PHAT FABE (Neneh Cherry, Shaba Rankin, Cherno, Tinky etc) HOT Loops & samples from Jungle, breakbeat/techno to R&B and hip-hop. Extended variations of many loops make this CD great for club DJs, and provide the opportunity to create smaller custom loops. The loops have a vinyl quality about them. An optional floppy disk is also available featuring the MIDI-files of the loops (specify Atari/PC or Mac). REVIEW: "A real bargain... a CD that any r&b/hiphop/soul producer will be pleased to own." (The Mix, UK). Audio CD. £59.95. Akai CD-ROM. £99.00



### VINYLISTICS 2

The best-selling sequel from DJ/Producer PHAT FABE (Neneh Cherry, Shaba Rankin, Cherno, Tinky etc). Incredible loops and samples in styles ranging from Jungle, breakbeat/techno to R & B and hip-hop. Once again, the extended variations of many of the loops make this CD superb for club DJs as they provide the opportunity to create custom loops by cutting out small portions of the main loop. Phat Fabe has put together another stunning collection. REVIEW: "A real bargain... the range in kit sounds can't be faulted... everything from squeaky clean to rough and raw." (The Mix, UK). Audio CD. £59.95



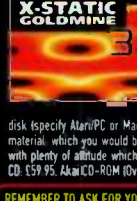
### X-STATIC GOLDMINE 1

The original dance production mega-collection. re-released by popular demand & completely reworked by creator Erik Svahn. FEATURES OVER 4000 SAMPLES & LOOPS! - an unbelievable resource. One of the most varied & largest collections of dance samples & loops ever released. And the AKAI S1000 CD-ROM version is the same price! REVIEW: "One of the most astonishing value-for-money purchases in recent years. This is a great purchase for the first-time sample CD buyer. In the ground per sample, cut-length, nothing else comes close." (Sound on Sound, UK). Audio CD. £59.95. Akai CD-ROM. £99.00



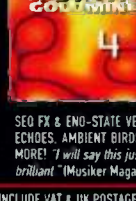
### X-STATIC GOLDMINE 2

A journey from the JB's to Snoop, from East Coast to West Coast, a steady stream of phat loops, Grooves & of Skool Funk Samples. Deep Bass Tones & Grooves, Funky Guitar Riffs, old Clavettes, Dusty Rhodes & Organs, Heavy Horns & Sax, Cheesy Synths, Jazzy Fuses, Vinyl FX, Rolls, Fills, Drums & Perc - OVER 1500 KICKIN' SAMPLES, OVER 1000 of the Akai CD-ROM. • Optional MIDI-file floppy disk (specify Atari/PC or Mac). "One of the most complete hip-hop sample discs you can buy." (Future Music). Well composed and exciting... a wonderful resource... Buy this one for its loops - they're tough to beat. (Keyboard, USA). "It's phat and funky as they come and incredibly playable." (The Mix, UK). Audio CD. £59.95. Akai CD-ROM. £99.00



### X-STATIC GOLDMINE 3

A journey into the clubs of the world. House, Tekno, Rave, Garage & Jungle. Over 500 stereo & mono loops - all made to fit with Loopbeats™. Plus over 1000 samples cut from exclusive programming & vinyl manipulation • SubSynth Basses • Acid Tones/Synths • Tekno riffs/samples • Vintage analog seq hooks • Strings • Tekno FX • Perc & drums. • Optional MIDI-file floppy disk (specify Atari/PC or Mac). REVIEW: "Well chosen, in-your-face dance material, which you would be well advised not to be without... a collection with plenty of attitude which will not disappoint." (Sound on Sound) Audio CD. £59.95. Akai CD-ROM (Over 3000 samples) £99.00



### X-STATIC GOLDMINE 4

E-LAB have done it again! Over 1500 Ambient and Chill Out Loops & Samples from the dark side of the Moon. TRIPHOP & CHILL-OUT LOOPS, SPEEDY JUNGLE BEATS & SMOOKIN BASS BOOSTERS, ETHNIC CHANTS & BUBBLE BATH DIGGERDOOS. WET CHILL OUT CHORDS & XPERI-MENTAL SYNTH VIBES. ANALOGUE SEQ FX & ENO-STATE VECTOR LOOPS. PSYCHDELIC DELAYS & DUB-ECHOES, AMBIENT BIRDS & JUNGLE WERLDER. SPOOK FX AND LOTS MORE! "I will say this just once. GO OUT & BUY THIS ONE!... Absolutely brilliant." (Musiker Magazine, Sweden). Audio CD. £59.95

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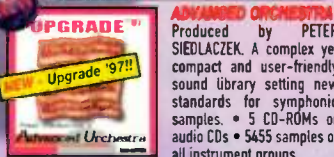
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## Best Service (Germany)



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**DRUM 'N' BASS**  
NEW! Following the enormous success of "JAM BOX", the high-quality Sampling CD for House, Trip Hop and Jungle, the German Sample Producer Ueberschaal brings another up-to-date product to your sampler. "DRUM 'N' BASS Resonance" delivers material for musicians and producers in varied Drum 'n' Bass styles. The CD contains 99 tracks with 60 complete Drum 'n' Bass Mixes, interchangeable Drum Loops and Single Sounds. More than 850 Drum Loops and over 750 Sounds totalling over 74 minutes of audio material provide a complete selection of driving D&B grooves, and appropriate instrumental sounds. Audio CD: £59.95



**EMOOG**  
Imagine a real analogue synth that's easy to operate with direct access to the sound - just turn the filter, modulation & envelope knobs and the sound changes immediately. No complex menu structures, no boring parameter dialling. This is exactly the way you work with the EMOOG CD-ROM - in real time. Reproduce dynamic & rhythmic patterns like filter sweep lines by recording the knob movements with your sequencer. Overdub and edit these as you want, and use up to 8 MIDI control channels simultaneously! EMOOG gives you up to 32 powerful polyphonic synths with the real punchy sound of true analogue synthesis and perfect realtime control right at your fingertips! If you have an EMU sampler you NEED this!! EMU CD-ROM. Only £99.00

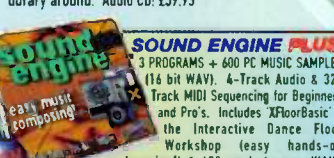
## A.M.G. (England)



**STEVE WHITE: "ON THE BEATEN TRACK"**  
NEW FROM AMG! Steve's worked with Difford & Tilbrook, The Style Council, Galliano, James Taylor Quartet, Young Disciples, Working Week, Carleen Anderson, and Paul Weller. His work has been a major influence on the embryonic London Acid Jazz, and British R&B and Jazz scenes. Everything about this CD - the grooves, samples, and production - illustrates why Steve White won "Making Music" magazine's Best Drummer poll and, of the 8 categories available in the prestigious "Rhythm" magazine's poll for 1997, he won two and came 2nd in two. The release of Paul Weller's latest LP "Heavy Soul" will ensure Steve retains his position amongst the foremost drummers in the UK. Audio CD: £59.95



**GUITARRAS ATOMICAS**  
Just arrived from AMG! Performed and produced by Sagat Gurrey - "Guitarras Atomicas is not a regular Guitar CD! - This truly unique and original guitar sample collection features electric and acoustic guitar as you never heard them before. Includes: Licks, riffs, chops, a thrash section, chords, notes and FX - the hardest, the softest, the weirdest Guitar library around. Audio CD: £59.95



**SOUND ENGINE**  
3 PROGRAMS + 600 PC MUSIC SAMPLES (16 bit WAV). 4-Track Audio & 32-Track MIDI Sequencing for Beginners and Pro's. Includes XFloorBasic - the Interactive Dance Floor Workshop (easy hands-on learning!) & 600 ready to use WAV-Sounds: Drums, Bases, Synths, Rare & Dance Vocals and Rhythms. Sound Engine Plus is the ultimate Tool for everyone who wants to make professional songs only with a PC. Soundcard, MIDI and Audio Files. Powerful user-friendly editors! Connect a MIDI-Keyboard for your own performances! 3 programs let you create & record really cool tracks easily & quickly. • Steinberg Cubasis Audio LITE SE - 4-Track-HD-Recording, 32-Track-Midi Record Audio Files on your Harddisk! • Sound Lab Fun Tool - a complete new audio tool for editing your Sounds & Grooves: Timestretching, Filter Sweeps, Chorus, Flanging, Delay, • Circle Elements - The multimedia music machine! Infinite multitrack recording. The legendary Audio Groove Tool for your own hits. • Also: note editing and printout. On-screen editing of your songs. Change MIDI-Pitch, Velocity, Tempo! Sound Engine Plus is a limited edition by best service and SONY Germany. £39.95

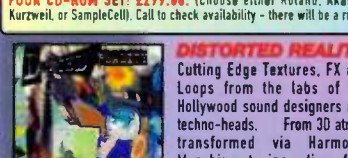
## Spectrasonics (USA)



**SYMPHONY OF VOICES**  
From acclaimed developer **SPECTRASONICS** comes an epic production - the most extensive collection of voices ever assembled on CD-ROM. This massive FOUR CD-ROM SET produced by Eric Persing includes a breathtaking variety of multisamples, phrases & FX from some of the world's most prestigious studios. An invaluable tool for the serious composer and producer, & designed to be inspiring for years to come. Disc 1 is devoted to richly-detailed samples of the 80-voice London Choral, recorded in a large cathedral in England - the first sampled choirs ever presented without heavy vibrato (more playable and useful in any musical context). Performance variations include multiple dynamics of multisampled notes: ohs, aahs, ees, humming, intense staccato stabs, Major, Minor and Suspended Chords with high & low chord voicings, thick clusters, 12-Tone & Ligeti FX, natural Crescendo-like-crescendos, whispering, murmuring, whistling, accents, falls, Avante garde glides, Vertigo hc, octaves, moving vowels, swoops, chattering, guttural groans, shouts, ethereal phrases and more! Disc 2 brings the beauty and power of Classical Solists - a wide variety of license-free Operatic Tenor & Soprano phrases (both with words and melismatic), & multisamples of each singer. This disc also has more of the London choir samples. Disc 3 focuses on an authentic English Boys' Choir and a Gregorian Mens Choir. Many of the sounds on this disc have never before been available to the electronic musician. The Boys' Choir features multisampled phrases (Kyrie, Alleluia, Amen, Agnus Dei, etc.) plus the soft and loud multisampled staccato vowels (oohs, aahs, eems) and moving vowels (Oh-Ee, Ah and Ah-Ee-Do). Also includes Solo Boy phrases and multisamples. The Gregorian Mens Choir is provided with multisampled soft and loud Ohs, Mms, Ees, Ee-Oh Drones, Intervals (Half and Whole Step Up/Down), and ancient Gregorian Chant! Disc 4 offers an overwhelming variety of lush Multitracked Pop Stacks, created from over 10,000 perfect vocal performances! These "Enya-esque" pads are a must-have for Pop, R&B and New Age music. This disc has the most comprehensive multisampled vowels in the collection including Oohs, Ahs, Ees, Ees, Ohs, Mms, Yvs and Zzs. Moving vowels, Washes and "Scoped" notes. Gorgeous male and female textures that will add that smooth silk to your next hit!

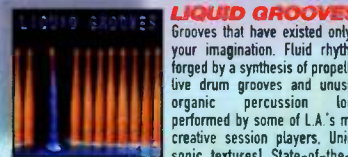
**FOUR CD-ROM SET. £299.00.** (Choose either Roland, Akai/EMU, Kurzweil, or SampleCell). Call to check availability - there will be a rush!!!

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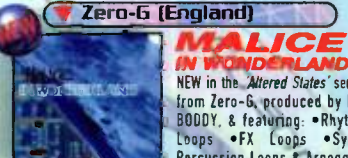


**LIQUID GROOVES**  
Grooves that have existed only in your imagination. Fluid rhythms forged by a synthesis of propelling live drum grooves and unusual, organic percussion loops performed by some of L.A.'s most creative session players. Unique sonic textures! State-of-the-art instruments such as Korg Wavedrum™. The full-blown CD-ROM version (organised to make mixing & matching effortless) includes a wider selection of grooves & killer Wavedrum™ single hits. The liquid concept is two-fold: Sparse "hand-played" grooves that feel great, combined with focus on uncharted sonic territory. Another inspiring & unique library from Eric Persing to reinforce Spectrasonics' reputation as second to none. Audio CD: £59.95, CD-ROM: £119.00

## Zero-6 (England)



**LIQUID GROOVES**  
Grooves that have existed only in your imagination. Fluid rhythms forged by a synthesis of propelling live drum grooves and unusual, organic percussion loops performed by some of L.A.'s most creative session players. Unique sonic textures! State-of-the-art instruments such as Korg Wavedrum™. The full-blown CD-ROM version (organised to make mixing & matching effortless) includes a wider selection of grooves & killer Wavedrum™ single hits. The liquid concept is two-fold: Sparse "hand-played" grooves that feel great, combined with focus on uncharted sonic territory. Another inspiring & unique library from Eric Persing to reinforce Spectrasonics' reputation as second to none. Audio CD: £59.95, CD-ROM: £119.00



**MALICE IN WONDERLAND**  
NEW in the "Altered States" series from Zero-6, produced by IAN BODDY, & featuring: • Rhythm Loops • FX Loops • Synth Percussion Loops & Arpeggios • One-shot Percussion FX • Synth FX • Ambiences & Ethereal Textures • Bell FX • Drones • Weird Voices. There are lots of great unique loops on Malice in Wonderland! They're weird & interesting, & the "lighter" ones provide great backdrops to put main drum sounds around. Many loops have the "CuckooLand" organic quality about them but sound cleaner. Textures range from menacing low drones & Spacey FX, to really beautiful ambiences & arpeggios. All bpm's & keys are provided where appropriate. Audio CD: £59.95.



**JUNGLE WARFARE**  
NEW! Volumes 2 & 3! If you need Jungle these 3 CDs from ZERO-6 are simply unmissable. Each CD features a MASSIVE set of: • Loops • Rolls & fills • Perc Kits • Pads & Chords • Bass • FX • Vocals. Volume 1 is one of our all time best selling sample CDs. Vols. 2 & 3 are even BETTER! REVIEWS of Volume 1: "Excellent fidelity, balance & punch, & variation in feel & sound... there's no serious competition. Rated 5 stars out of 5 ☆☆☆☆" (Sound on Sound). "Kicking grooves... a wide range of styles... highly useful... AS UP-FRONT AS YOU CAN GET." (The Mix). "Jungle Warfare gives you just about everything you need to survive in the remix rain forest." (KEYBOARD, USA). CD-Audio: £59.95 each. Special offer for limited period only. Get Vols 2 & 3 together for only £99.00 - AVAILABLE NOW!

## A.M.G. (England)

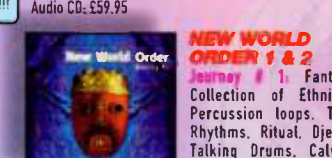


**Keith LeBlanc Vol. 3: FRESH KILLED MEAT - PRIME FUNK**  
Keith's previous CD's have all received 5 star reviews all around the world. This is his finest work to date - there's nothing to touch it. In fact, drum legend Keith LeBlanc sets new standards for the whole industry with this sample collection. Some of the hottest loops you'll find anywhere - you're going to love it! This CD was produced with programmers in mind. There are many dubs on this CD to choose from. I have also included lots of combinations of the beats and always the stripped down drums themselves. This volume is like having a funky drummer with his own varied sound library plus a DJ at your disposal. I HAVE USED THIS PRODUCT IN PRODUCTION AND IT HAS ALREADY SAVED MY BUTT MANY TIMES. (Keith LeBlanc). £59.95. Also coming soon - "Fresh Killed Meat 2. Drum & Bass Carnage".

## Sounds Good (Sweden)

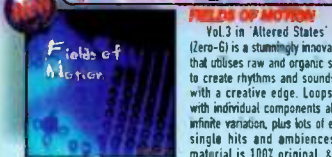


**METHODS OF MAYHEM**  
Brutal & sweet sampling for Industrial/ Intelligent Techno. Goth Techno or anything in need of an Experimental Edge. Uniquely twisted, bizarre and savage stuff. Drum-, Bass-, Synth-, FX-, Vocoder-, Feedback- & Noise-loops. Grinding Guitar Riffs & Feedback. An Analog Heaven with Synth FXs, Sweeps, Zaps, Bases, Drum & Perc Sounds etc. All programmed on vintage equipment and treated without any mercy. Creepy & Cheesy Sound FX. Music FX & Voices. Over 1000 samples. A unique collection. Loops are in set tempos that match other Sounds Good titles. Audio CD: £59.95



**NEW WORLD ORDER 1 & 2**  
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## Zero-6 (England)



**FIELDS OF MOTION**  
Vol.3 in "Altered States" Series (Zero-6) is a stunningly innovative CD that utilises raw and organic sources to create rhythms and soundscapes with a creative edge. Loops come with individual components allowing infinite variation, plus lots of exciting single hits and ambiences. All material is 100% original, & came from some par. factories and industrial sites etc. CD-ROM VERSION COMES WITH AUDIO VERSION BUNDLED FREE! "A truly unique product which takes a brave & successful step towards providing a fusion of dance and industrial styles... the selection of usable sample material will keep even the sampling die hards busy... fantastic range and depth... innovative & unusual... new and exciting sonic sculptures... a rich sense of dance floor and jungle influence... a scorching collection of "happening dance loops... layout couldn't be more logical... will provide that elusive sparkle to your tracks... In short: Pure metallic, steam-driven wonderment." \*\*\*\*\* Five Stars (Sound on Sound). Audio CD: £59.95. Akai S-1000 CD-ROM 2-disc set (includes audio CD): £119.00.



**VOCAL XTC**  
BRAND NEW and EXTREMELY HOT dance vocal sample collection from ZERO-6 (UK), performed by some of the hottest session singers from the UK! Totally original and professional vocal samples for all your music productions, including: Gospel choir, Ad-Libs, Melodies, Harmonies, and Backing Vocals. Styles featured include: Dance, R'n'B, Soul, Rock, and Indie. Both Male and Female singers. The unique vocals on this Brand New release cover a wide spectrum of application and are destined to appear in many a chart record in the near future. Release date: August 1997. CD-Audio: £59.95

## Best Service (Germany)

**TERRAPAC**  
TerraPac contains the most comprehensive library of dance sounds for the Terratec EWS54 audio system. It's a 3-CD-Set with 7000 samples! All sounds are pre-looped and ready to use on all MIDI-Keyboards, Drum & percussion single hits (complete sets, acoustic & electronic) plus drum grooves for all different tempi. Pianos, synths, guitars, brass & kicks, basses, Orchestra, solo strings, string ensembles, dance vocals & classical chords, symphony grooves. All you need for up-to-date dance production! CD-ROM for PC computers with Terratec EWS-64 Soundcard audio system: £ 79.95 (available Nov/Dec 97)

## A.M.G. (England)

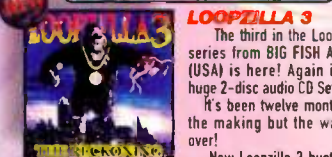


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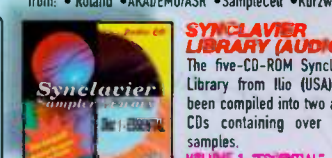


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# Get shorty

## KORG DSS1 DIGITAL SAMPLING SYNTHESIZER

**Not over-endowed with intelligence, the chunky DSS1 had just 256k of memory. PAUL NAGLE speaks up in defence of a dinosaur.**

Launched in 1986, the Korg DSS1 was billed as a combination of sampler and synthesizer. Perhaps this was an astute realisation that samplers were destined to be perceived as modules not keyboards, or maybe it was intended to conceal the fact that its sample memory was a soon-to-be eclipsed 256k...

With eight notes of polyphony, two oscillators per voice, a noise source, two multi-stage envelopes, a resonant filter and auto-bend, the DSS1 had much in common with Korg's underrated DW8000 flagship synth. But it went much further, boasting twin digital delays, oscillator sync, an improved unison mode, a lush analogue VCF switchable between 12 and 24dB, and more. Whereas the DW8000 got its raw material from 16 stored digital waves, the DSS1's oscillators took their source from additive synthesis, sampling or even hand-drawn waveforms.

### DSM1 MODULE

The DSM1 was almost the modular version of the DSS1. Able to store four times as much data in its 1Mb of memory, it had a much faster operating system, a high-density disk drive, individual outputs and a multitimbral mode. It omitted the digital delays, twin oscillator patches, oscillator sync and (worst sin of all) resonance that gave the DSS1 much of its character. Polyphony was doubled at 16 notes, but this soon reverted to eight notes when you layered two oscillators in a performance. Its ability to read DSS1 disks is useful — some models even had SCSI too — but Korg's trimming of its synthesizer features in favour of improved sample memory meant I never wanted one. These units are pretty rare and it's hard to put a price on them now. I wouldn't believe that a sampler is a PC soundcard programmed via *Sound Forge* and triggered via *Cubase VST*, so perhaps I'm not the best judge...

### SAMPLING BRONTOSAURUS-STYLE

The DSS1 is comparable to a dinosaur, its great bulk and power controlled by a small, rather ponderous brain. It has only four sliders and 27 switches, yet is larger than a JD800, weighing in at a hefty 18.5kg. All editing is done via the small turquoise 2 x 20 character display, using dual data-entry sliders and switches. Navigation is simplicity itself: every parameter is printed neatly on the expansive front panel.

At the heart of the DSS1 is a 12-bit sampler

are quite satisfactory. I find that synthetic samples work very well at 24kHz; the distinctive graininess adds character.

There is an auto loop facility, which works well with smooth or simple sounds and not so well with anything complex. Crossfade and back-and-forth looping will get you some way towards a seamless loop, but often I prefer to settle for a long sample, turning off looping altogether. MIDI hackers will be delighted that the raw sample data can be edited from the instrument itself, although you'd need to be rather fanatical to make much use of this facility via the small LCD.

If you don't want to use samples as your sound source, you can create digital waveforms by hand-drawing with the sliders or by the harmonic addition of 128 sine waves. All methods can be freely mixed and matched.

Hand-drawing is a pretty unusual feature: it allows the creation of complete single-cycle waveforms from scratch. The DSS1 gives a



with fixed sampling rates of 16, 24, 32 and 48kHz; maximum sampling times range from 16 seconds down to a crisp clean 5.5 seconds at the (impressive) top rate of 48kHz.

Sampling is actually a pretty straightforward process, with the menu system guiding you through sample-rate selection, number of sample divisions, the key number for samples, and so on. I'm probably weird, but I've always rather liked this approach. I know it involves more button-pushing than more advanced machines require (it takes three button pushes just to load a bank of sounds) but the results

visual countdown during which you can thrash about with a slider if you want a complex wave, or move it gradually for something more pure; it automatically creates a looped, mapped multisound of these waveforms. In their raw format these tend to be rather buzzy and static, but by mixing them with other waves or samples and then processing via the synthesizer section, you can easily make some startling hybrid analogue-digital sounds.

Less useful, in my opinion, is Harmonic Synthesis, which offers six initial tables created by 128 sine waves. These include saw, square,



metal, clav and so on, and all can be modified to create new waveforms. I tend to use this facility as a quick way of rustling up a sawtooth wave — I certainly wouldn't bother adjusting the levels of all those sine waves if there was some nearby wet paint that needed scrutiny. A handy link function allows you to paste together your creations to make longer, more interesting waveforms, and with not too much effort you can achieve some rather PPG-like tones, especially when the DSS1's powerful filter is brought into play.

“Even now, a resonant sweep from the DSS1 can put all but the mightiest analogue synths to shame.”



You can save individual samples or waves to disk and map them over the keyboard (multisamples, in Korg terms) from a variety of sources. Although the DSS1 isn't multitimbral, you can spread a maximum of 30 samples over the keyboard range using a simple technique: since each multisound can hold up to 16 samples, simply leave one of the samples silent in each multisound then layer the first multisound so that its silent area is overlaid by whatever multisound is used by the second oscillator.

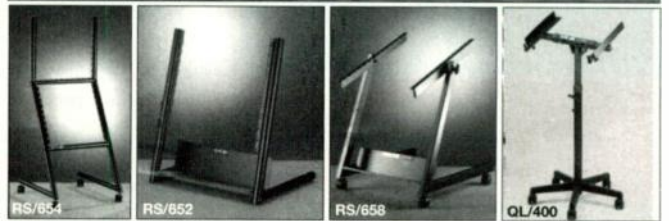
Each multisound has a global loop on/off switch but, since each sample within a multi has its own loop points, it's quite possible to mix one-shot sounds (such as percussion) with looped sounds (such as organs) by the cunning trick of looping some silence at the end of the drum hit.

# QUIK LOK

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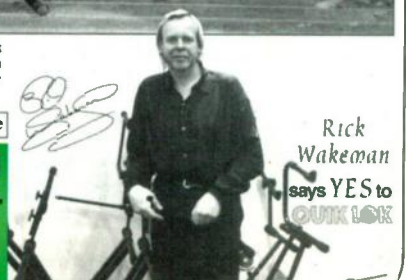
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Rick Wakeman says YES to QUIK LOK



# KORG DSS1 SYNTHESIZER

▶ Although I called the DSS1's brain ponderous, it does have a flexible system for managing individual samples, multisounds, and synthesizer patch parameters (and even MIDI setup), with almost everything you could wish being interchangeable. With a bit of thought you can compile libraries of regularly used waveforms to quickly slot into new patches. Make sure you keep all those old 3½-inch 720k floppies, as it's surprising just how these collections grow. Each disk can hold four Systems — complete setups of 32 patches and up to 16 multisounds. Curbing your enthusiasm for a moment, though, I'd better point out that loading time can be agonisingly slow. When the DSS1 asks you to wait a minute, it's not kidding!

## SYNTHESIS BIG-STYLE

With a System loaded, the DSS1 acts very much as a traditional synthesizer. Indeed, its signal path will be clear to anyone who has tinkered with a basic monosynth. The two oscillators may be mixed, detuned, modulated, and passed through the low-pass filter with its dedicated envelope and low-frequency oscillator, and finally reach the outside world

“Its main performance control is Korg's nasty, waggly joystick.”

via an amplifier section, equalisation and twin digital delays. Some features of note are:

- **OSCILLATOR SYNC:** The addition of oscillator sync, so unusual on a sampling instrument, opens the door to vibrant timbres plus the strangest of textural sweeps; liberation at last from those sawtooth or square wave sources.
- **D/A CONVERTORS:** Interestingly, the resolution of the D/A convertors can be changed in each patch, giving an increasingly grainy quality as resolution is altered from the standard 12 bits down to 6 bits. It makes real samples crunchy, and created waveforms get harmonics you never counted on. This kind of thing is now

## PRICE AND AVAILABILITY

When it was new, the DSS1 was a sobering £2,259. Ten years down the road, I've seen them advertised for as little as £200, although a more typical price is between £300 and £400. If I had the space I'd consider getting a second one as a spare, before someone writes a retro about them and you can't find one for love nor money.

starting to appear as a Lo-Fi processor on some effects units.

- **UNISON MODE:** You can choose the number of stacked voices (up to eight) and the amount of detuning between them. If you start with, say, a powerful guitar sample, a generous dose of unison can very quickly lead to something truly, impossibly monstrous.
- **VCF:** Yes, a high-pass or band-pass option for the filter would have been welcome, to trim some of the excess fat. Nevertheless the DSS1's distinctive sound is largely due to its wonderful low-pass filter — one of the best that Korg have ever bestowed on a synthesizer. Even now, a resonant sweep from the DSS1 can put all but the mightiest analogue synths to shame.
- **VELOCITY CONTROL:** Velocity can be applied to auto-bend (pitch-sweep up or down to the note for either or both oscillators), filter cutoff, or VCF or VCA envelope times, or can be used to switch between multisounds. Also, keyboard tracking can be routed to VCA decay time to help simulate acoustic instruments, which have a shorter note length for higher pitches.
- **DDL:** Twin outputs might deceive you into thinking that the DSS1 handles stereo samples; in fact the mono sound source is processed via twin digital delays, each of which is connected to a separate output. Usefully, the rate of DDL1 can control the rate of DDL2 for some rich, swooshy stereo chorus effects that belie the simplicity of the available parameters. As is often the case, having just a few options means you tweak them incessantly and discover all kinds of neat ways to extract the best from them.
- **EQ:** Each patch has basic treble and bass EQ settings to provide extra coloration for an already rich sound.
- **MODULATION:** The only real let-down is in the modulation section. The LFO is a simple sine wave which is always sync'ed to keyboard triggering. A technique to get a free-flowing LFO involves holding down a note outside the playable range, and *voilà* — those evolving filter-swept bass lines are suddenly possible. On the plus side, there are separate modulation generators for both the filter and oscillator pitch.

## CONCLUSION

Admittedly, the DSS1 takes up quite a bit of space. Its keyboard, despite being a little clunky, is both velocity and aftertouch sensitive, but its main performance control is Korg's nasty, waggly joystick; there are sockets for connecting a sustain pedal and patch increment footswitch socket. The MIDI spec is adequate, supporting Local Off and separate receive and

## UPGRADES, SOFTWARE, SOUNDS

I've heard conflicting reports of the legendary DSS1 upgrade which boosted the memory to 2Mb, added a SCSI port and speeded up the disk drive and operating system in general. I'd probably risk surgery on mine for the SCSI upgrade alone, but Korg UK inform me it wasn't available here. Software support was never plentiful with the exception of the excellent Digidesign programs *Sound Designer*, *Soft Synth* and *Turbo Synth*. With the passing of my Atari ST, I have to content myself with Turtle Beach's (now discontinued) *Sample Vision*, the only PC program I've found that will export WAV files to the DSS1.

Korg and a few third-party companies produced a reasonable sample library but getting hold of such things now is about as likely as my securing a hot date with Cindy Crawford. Some gems from these collections later found their way into the M1 synthesizer, although arguably the DSS1's superior filter got better mileage from them.

transmit channels, with MIDI parameters being saved as part of each 'System'.

If you're considering a DSS1, the main things to check out are the display and the disk drive. The quality of the display will be self-evident. A diagnostic test mode is accessible by powering up and holding down Data Entry A's Up and Down buttons simultaneously. The test procedure is pretty straightforward; some later DSS1s also included a test for the floppy drive, which is useful. (To save wear and tear on my own drive, I use a dumb-copy program on the PC to copy an existing formatted disk, since the drives are no longer made.) A copy of the manual is a bonus — at over 300 pages, it's a serious read, containing some valuable information that a DSS1 owner should not be without. If you can get any disks with it, all the better. If not, resign yourself to sampling or manually creating your starter waveforms from scratch.

I'm not going to pretend that the DSS1 is the ultimate keyboard, and you certainly shouldn't buy one if sampling is your main use for it. (Sequential's Prophet 2000 was similarly conceived and it didn't exactly set the world alight either.) I love mine, not as a sampler but as a synthesizer that also samples, has a powerful filter and can easily accommodate a palette of analogue, digital or 'real' sounds. Even now I get a thrill from this single keyboard that can switch from warm, swirly synthesizer pads to drum loops and then on to strange, digital tones or massive screaming unison solos. If you want something a little different but with enough power to keep you interested for years to come, the DSS1 is a neglected relic and a snip at today's bargain prices.

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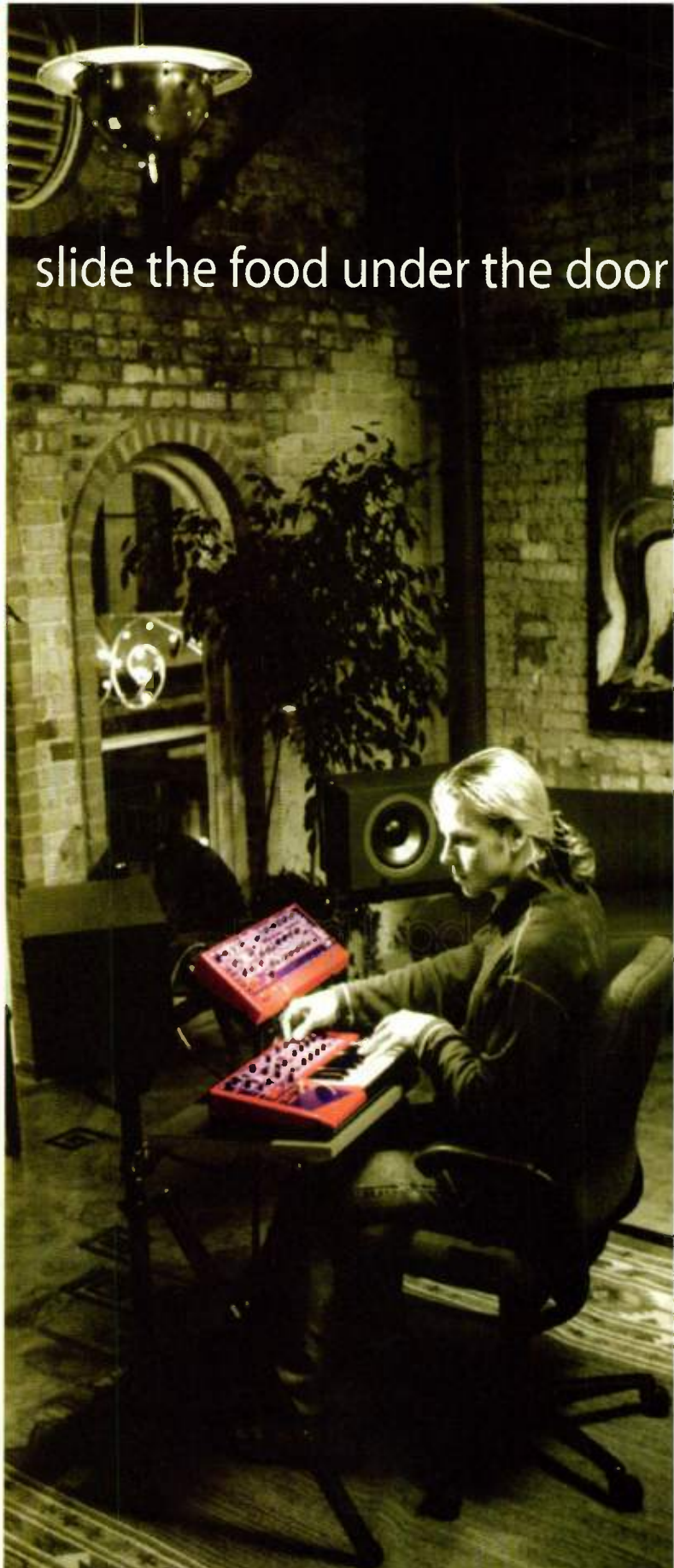
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**ALESIS QUADRASYNTH S4** keyboard, £500, Technics SA 15A1 acoustic modelling synth, 32-part 64-voice, £800, Yamaha TX16W sampler, 1.5Mb, 12-bit Typhoon, £500. ☎ Tim 01394 285548 (Halesowen).

**CASIO CZ5000**, 5 octaves, 16-voice, phaser distortion, 8-track sequencer with manuals, £225. ☎ John 01725 511287.

**CASIO VZ1** synthesizer, perfect master keyboard, manuals, ROM card, immaculate. £220, swap DW8000 over 130 keyboard mag's, swap CD player or self. ☎ 01702 312748.

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8-CHANNEL mixing desk, rack mountable, in good condition, £160. 01912 536601/01924 470384
EMO E725 PHANTOM power supply, two mic inputs, used once, £65. 01912 536601/01924 470384
EVENT E8, 20/20 monitor speakers, £300, Mass technology 500 monitor amp, £300, Sany DTC 900 DAT machine, £350, Cellophon KR2 speakers, £150. 01912 536601/01924 470384
FOSTEX DM18V, 1.6Gb drive, brand new, mint, manuals, 8-track recording up to 39-minutes, 2-band EQ, sync to MIDI SPDIF digital output, £900. 01912 536601/01924 470384
FOSTEX DM18, £890, Rode NT2, £390, 2-channel phantom power, £90, Tascam DA20, £550, Roland R5 Pro drum machine, £150, PC200 Mark II, £90, all private, delivery included. 01912 536601/01924 470384
FOSTEX G165 with sync card, low hours, very good condition, £2100. 01912 536601/01924 470384
FOSTEX G165, home use only, immaculate condition, £2499, Allen & Heath SE, 16.8.2 mixer, £999, Roland RBM, £375, Boss DR660, £249, Akai Mega2 & SH124, £265, Cubase V3, £245. 01912 536601/01924 470384
FOSTEX RB8 with MTC, £550, Mackie CR1604, £550, Atari STFM 2 5Mb, SM124, Cubiplex, KCS, £170, Yamaha TG55, £160, Chantech MD16R, £100, Kawai MDK61 master keys, £150, unregistered

\*We will beat any genuine quote from a UK or European dealer at the time of sale. We must be able to substantiate the quote and the goods must be available and in stock.





Cubase, 3PC, £195, all with manuals • 01427 614135  
FOSTEX RB, £500, Fostex 812, £400, AKG C3000, £180, Alessi Quadrevb Plus, £200, Korg M1 with RAM, £550, Korg X3R, £700, Emu ES132, £670, Alessi 3630 dual compressor, £200, Fatar Studio 90, £300, most boxed and all with manuals • Sean 0118 953 5014

FOSTEX RB 8-track reel-to-reel tape recorder, as new condition, complete with 14 tapes, £550 • Simon 0958 680447

FOSTEX MIXTAB with DCM100 mixer, 8 stereo inputs, 2 aux, full MIDI control of all parameters, Cubase 2 user/mk available 9 months old, boxed with manuals, £225 • 01224 636187/0410 223554

FOSTEX 280 4-track with manual, £250, Alessi Microverb 2, £60, C-Lab Untor 2, SMPTE sync/MIDI expander for Atari, £175 • 01384 277477

HIGH SPEED 16X cassette copier, C60 in two minutes, £450 • 01291 629212

LA AUDIO, 4X4 compressor, £200, Yamaha GC2020B compressor, £185, Boss SE70 multi-effects, £400, Yamaha Rev500 used 300, VS880 expanded, effects board, 1Gb drive, £1400, one, wiring looms, optical patchbay • Alan 01274 817317

LEXICON MPX1 2-months old, forced sale, immaculate and boxed with manual, £800 • 0131 554 6266

LEXICON PCM70, £995, Alessi Quadrevb, £195, Alessi Midverb II, Panasonic SV3700 DAT machine, superb sound quality, used in pro recording and mastering studios worldwide, £550, Studio Magnetics two-inch 24-track tape recorder with remote, recent manufacturer's service, £2,995 • Paul 0115 941 8244

MACKIE 8-BUSS 24 B.2, mint condition, home studio use only, boxed with manual, excellent EQ, £1800, Tannoy Arden monitors, huge monitors with 15-inch drivers, recently reconditioned, good condition, £500 • Andy 0161 273 2404/336 1558

MACKIE MIXER 8-buss, 24-channel, in excellent condition with manuals, £2400 • 01246 434864

MACKIE 1202, £200, Simmons SPM 8 2, 64 programmable memories, £100, Roland TR505 drum machine, £75, Casio 52 1 sequencer, £35, all home use only, boxed • 01322 529993 (Darford)

MACKIE SR32-4:2 8-track recording or live use, excellent condition, never used, cost £1800, selling for £1500 • 0161 678 0823 (Levensing)

MARSHALL TIME MODULATOR 5002A, very rare, mint, £650, Symetra 421M gain leveler, boxed, £250, Korg A1 £475 • Oscar +34 4 4114039 (Spain)

NEUMANN M149 valve microphone, very warm tube sound, excellent transparency, new with wooden case and mic cradle, £2350 • 0181 743 4626/0956 525453

NEUMANN M149 valve mic, as new, £2000, Tubetech valve EQ, as new, £995 • 01234 211887

OTARI MX5050 MKIII half inch 8-track recorder, mint condition, DBX150 noise reduction, trolley, remote, manual, very little use, tapes available, 7.5/15 vmpc, £850 • 0181 850 5788

PANASONIC SV3700 DAT machine, superb sound quality, used in pro recording and mastering studios worldwide, £550 • Paul 0115 941 8244

PEAVEY DELTA 528 stereo amp, 250w per channel, 1U rack, only 12lbs weight, £300, Klystron Active stereo crossover, switchable 2 or 3 way, excellent working condition, £200 • John 01752 702139

PEAVEY PRO FEX guitar multi-effects, preamp compressor, chorus, delay, pitch shift, reverb, 3-band EQ, amp SDM, £195 • Andy 01924 469002

PIONEER PD095 stand alone CD recorder with remote, boxed, 12-track new, £495 • 01773 540234

REVOX PR99, 21K-quadrant-in master recorder, £500, 2 Teac 3440 ATC quarter-inch recorder with DBX • Steve 01603 219788 (daytime)

ROLAND SRV2000 stereo reverb, comprehensive parameter control, £295, one, Yamaha R100 stereo out, MIDI effects unit, £60, Roland TR626, tape sync, £85 • Brian 01584 811653

ROLAND VS880, 1Gb drive plus effects board fitted, never used in a smokey room, boxed, £1500 • 0171 252 5987

ROLAND VS880 8-track digital recorder with 1Gb external hard drive, effects expansion board, excellent condition, £1680 • 01274 780263

ROLAND VS880 expanded hard disk recorder with effects board, hard drive, £1250 • Paul 01642 243828

ROSS MIXER, 12.2, pan, effects, high, mid, low, £180, Realistic mic mixer, £10, Disco mixer with cross-fade, £30, wanted, DJ10WSX1 • 01782 722155

SANSUI WSX1 6-track recorder, 8-input mixer, 2 XLRs, built-in reverb and Echo, effects, mastering deck, in very good condition • Ian 0181 441 5250

SANSUI MIDR7 MIDI-tape synchroniser/controller, as new, boxed with manual, leads worth £200, accepted, £175 only, quick sale • 01544 327057

SECK 12:2 mixer 3-band EQ, 4 aux sends, 14 inputs, home use only, £275 only, Studiometer Mixdown, 16 B.16.2 mixer, 3-band EQ, 5 aux sends, home use only, £590, 0 only • Matt 0181 670 6578

SECK 12:2 mixing deck, £350 or possible exchange for studio quality condenser mic • 0121 359 5702

SIMMONS SPM 8:2 MIDI programmable mixer, little use, £125, call Richard on 0966 488037

SONY DAT TCD DB portable recorder, new and unused, genuine reason for sale, £525 only • 01207 505104/0191 374 2711

SOUNDRAFT DELTA 200, 16.4, 2, professional quality deck, 24 inputs, 16-mixline, delay modules, flight case, excellent condition, £1645, Alessi D4 drum module in mint condition, £190 • 01773 823805

2x12-inch, £1800 • Nick 0151 353 0394

SPIRIT FOLIO SI, 18.2 mixer, 3-band EQ, 2 aux sends, max inserts, 2-track returns, £0113 240 6921

STUDIOMASTER CLASSIC B, 32.8 2-band versatile recorder or live desk, brand new with flight case, including meter, bridge and rackmount power supply, unopened, £2500 • 01468 440054/01422 323178

STUDIOMASTER DIAMOND 16:2, with 16-quarter-inch 6-meter jack cables, Atari 1040STE with 4Mb RAM, Gastener 400Mb hard drive, Cubase V3 with dangle and manuals, together for £500 • John 0181 304 9673

STUDIO MAGNETICS, 2-inch 24-track tape recorder with remote, recent manufacturer's service, £2,995 • Paul 0115 941 8244

STUDIOMASTER SESSION MIX 16, 16 inputs, 3-band sweepable EQ, XLR and jack inputs on all channels, 4 aux sends, good condition with manual, £240 only • Adam 0116 267 1715

SWAP MIX SPM8:2, £120, for your Fostex, MIN06 mixer or Boss MX10, or any compact small mixer, 6, 8 or 10 channels • 01748 825481

TASCAM DA20 rackmount DAT recorder, boxed with manuals, remote control, never used, £500 • 01203 470953 or 0976 178691

TASCAM MSR24, 24-track 1-inch recorder, 20 months old, private use only, boxed, manuals, excellent condition, £3800 • 01189 471030

TASCAM MSR16, 16-track analog tape recorder includes: loom, demagnetiser, £1600, Korg X3 with box and manuals, in very good condition, £800 • Gort 01462 678685

TASCAM 238 8-track recorder, automatic punch in/out, rehearsal mode, shuttle, pitch controls, tape sync, 2.5-inch years old, excellent condition, £425 only • with Studiometer Mixdown Gold 16.4 B.2 desk, £925 • Neil 0181 385 0235

TASCAM 414 portastudio, £275, Boss DR660 drum machine, £250, both boxed as new with manuals • 01889 578416

TASCAM 424 MKII, 4-track portastudio, perfect condition, boxed with manuals, Tascam MTS30 tape sync unit, all for £330 only • 01724 277641

TASCAM 464 portastudio, 12-channel mixer with 3-band EQ, mid-sweep, 2 aux, insert points, boxed, £400 • M1 sound cards wanted • 01273 208099

TASCAM 464 professional 4-track with 4 mono and 2 stereo channels, 4-band EQ sync, box and manual, £400 • 01702 299389

TASCAM PORTASTUDIO 464, 4-track, 12 inputs, 4-band EQ, BBE definition process, hardly used, perfect condition • Laurent 0171 431 3695

TASCAM 488MKII 8-track, mint, 18 months old, £699, Roland U10 keyboard, £295, Fostex DCM100 MIDI mixer plus Muntch desk, 8-stereo inputs, £200, Sequential Prophet 202, sampler, 8Mb, £350 • 0181 455767

TASCAM 688, £700, Roland U220, £150, Atari ST, 4Mb, hard drive, 60Mb, Epson printer, software, £150 • Dirk 01322 528053

TASCAM 688 8-tracks, 20 inputs, 2 sends, swept mid EQ, MIDI muting, mainly used as a mixer, in very good condition, £850 • Colin 0181 998 1704

TASCAM 688 MIDI studio, 20-channel mixer, MTC, 2 aux, 8-track recorder plus Atari 1040STE with monitor and sequencing software, boxed, one careful owner, £600 • 01730 269843

TASCAM M2600 24.8 desk, mint, in box, £1450, Dynaudio BM10 monitors, £425, TLA Indigo compressor, £350, Alessi Matca 500, £325, can deliver • Andy 0112 9754107 (Bristol)

TEAC TRAC 144 cassette 4-track, including manuals, the first, antique but intractable, home use only, offers • 01752 823012

TOA 20 CHANNEL desk, flight case, 16 mic/line inputs, 2 stereo inputs, line/phone, built-in feedback, graphic EQ switchable between main and foldback/mid, £350 • Simon 01252 795100

TRIDENT VFM 16.8 professional modular desk, £40-100b, good for retro setup, small enough for project or bedroom studio, all working, £595, 2 DBX noise reduction units, 8-channel, £150, Tascam 32, 8-track, in good condition with manual, £395 or £495 with the DBX • 01387 770429

XRI SYSTEMS XR300 sync unit with MTC, excellent condition and manual • Simon 0958 680447

YAMAHA 8-BTRACK portastudio, 3-band EQ, 2 aux sends, auto-punch-in/out, perfect condition, boxed, £490 • Andy 01924 469002

YAMAHA NT1225 4-track, boxed with manuals, as new condition, £225 only • WR 0115 981 1221

YAMAHA PROMIX 01, 7 months old as new, fully digital 18 input desk 2-effects unit parameter EQ, 3 dynamics units, all built in, Cost £1700, sell for £1000 • 01952 273862

YAMAHA RM800, 24-track, 48 channel mixer, 4-band EQ including MIDI sweep, 4 aux, 8 groups, 1 month old as new • Rob 0116 251 0405/276 1242

## DRUM MACHINES

BOSS D5330 sound module, excellent condition, boxed with manuals, £150 • 01229 821733

ROLAND RB drum machine, 6-ROM cards, immaculate condition, power supply and manual, £375 • Ernie 01705 750364

ROLAND RBM drum module, rackmount, 8 separate outs, 3-sounds/controls, £300 • 0181 932 3200

ROLAND TR606, £130 with PSU, TR707, £100 with manual and PSU • Gary 01905 22584 (evening)

ROLAND TR626 drum machine with individual outs and trigger outputs, £90 • 01224 636187 or 0410 223154

ROLAND TR707, £150, CR8000, £200, SEQ 600, £150 or swaps for EDP Grnt, Korg MS20, Boss SE70 • Chris 01243 236093

ROLAND TR808 with Kenton Midifit, superb condition • 0115 956 1140

QUASIMIDI RAVE-O-LUTION 309 dance workstation with expansion, manual and PSU, £620 • 0191 9120 21142

boxed, manual, PSU, £170 • Steve 0121 689 2386

## PERSONNEL

AMERICAN PROGRAMMER/ENGINEER seeks same to form a partnership and to open a mid-sized recording studio in England. Serious people only please • Chris 414 344 9482 (USA)

ARRANGER WITH CLASSICAL background sought for studio based recording project, must have orchestral knowledge and be able to play keyboards • Lewis 0181 544 9066

BIG MAAMA POWERVOX vocals for Garage, Soul, Funk, R&B, Dance, Gospel, Credits: LWT, Live TV, Festival Hill, Royal performance, stage music • Andyne 0589 307940

COMPOSER AVAILABLE for film, TV, theme tunes, projects, ambient, atmospheric and exciting guitar based music • Kenny 01434 685358

CREATIVE, ALTERNATIVE, talented, but have nowhere to polish your ideas? Writer/engineer with well stocked studio wants to hear from you • 01273 480386 (evenings)

KEYBOARD PLAYER and guitarist wanted for London band, funky punky pop-music • Phil 0181 673 1369

KEYBOARD PLAYER required, must have a good range of R&B songs/covers, will be involved with gigs in and around the West-end • Douglas 0181 314 0878

MUSICIAN SEEKS OTHERS, particularly vocals, to collaborate on various projects, interest in pre-1978 Genesis helpful and other melodic influences • 0402 845721 (Devon)

NEW COMPOSER with CD demo seeks agent or manager to secure publishing or record deal, Vangelis/Jare style • Richard 0171 738 9581

2 PIECE BAND, singer and programmer need collaborators to start an live Dance band in the Liverpool area • Simon/Andy 0151 486 5917/260 6783

YORK BASED guitarist/songwriter, looking for musicians to write/jam/record with, no commitment, I just want to play • Colin 01904 703025

## WANTED

AKAI S2800 must be in very good condition, can pay £500, Novation Bass Station rack, £225, Novation Drum Station rack, £245, Spirit Folio F1, 16.2 mixing desk, £175 • Jim 01494 442983

AKAI MPC60MKIIII sequencer/Drum machine required, cash waiting • 0181 883 4329/0956 339577

AKAI S612 sampler with or without disk drive, will collect, London area, • Matthew 0181 699 7300

ALESSI QUADRABEB, Boss SE70 or similar, Roland XP50, JV1080 or similar, I also need modules, samplers, effects, swaps possible, cash waiting • 01869 347167

ANALOGUE OR any other studio equipment to swap for my Tomco 2650 hardtail, value £1750 • 0181 806 2227

BOOKS ON MUSIC and instrument arranging for sequencing on advanced MIDI and editor for Atari to edit Korg OSRAW • 0114 255 7707

BOOKS WANTED, C programming for MIDI, MIDI sequencing in C, B. J. Conger, without/disk decks, etherboth books wanted • 01362 690 227

BOSS SE70, call between 2 and 8pm • Guy 0181 960 9404

CUBASE SCORE for Atari wanted, dongle, manuals needed EX-STE1040 Sirms for sale • Olaf 01752 880267

ELKA DMP18 MIDI bass pedals wanted, any condition, working or not • Mark 0979 724059

EMAX II sampler, will pay £500, 4Mb rack zip drive, will pay £100, Joe Meek VCB, will pay £150, Akai S2000, will pay £550 with BMB • 0191 510 8956

FM SOUND EDITING software for Commodore 64 sound expander cartridge • 01623 517224

KORG HSSR module, will pay £200, TLA Inpro valve-wire processor VP2051, £225, Roland exp boards, Session, Orchestral, £100, Technics SL1200 turntable, £200, Pentium MMX233 CPU, £190 • 0181 902 9784

KORG POLY 8000 MIDI, cash waiting, all £115 972 8799 (East Midlands)

MONEY FOR OLD RAM, can anybody supply Korg RAM cards to fit DD05 drum machine or Korg D58 synth • Steven 01232 692313

NAGRA open-reel tape recorder, Revon A77 after System 8000 wanted • 01630 647396

QUICK DISKS, 2.8-inch disks for Akai sample keyboard, must be cheap • 01752 823012

RAM CARTRIDGES wanted for Yamaha DX7 Mk2, MIDI and Roland MKS70 (same as JX10) • Adam 01352 712937

REVOX A77 open reel tape recorder; Any make of wind-synth or anything to do with wind synths or MIDI saxophones • 01630 647396

ROLAND RB800, AX1, SH101, Yamaha OX3, Moog Rogue, Dat machines and computer accessories wanted • Chris or Noel 01462 487733

ROLAND TR808, cash waiting, also a TR909 • Pat 0181 470 7309

ROLAND TR909, can afford, £500 or TR808 for £250, TR303, £450, Moog Source, £250, Hohner D6 Clavinet, Wurliizer EP200, Fender Rhodes, pay £150 each, EMS, Korg wanted • 0114 248 2760

ROLAND TR909, TR303, Sequential Pro One, Roland TR808, Roland Jupiter 8, Kawai K4, no inflated prices please, I haven't got a second mortgage! • 01858 575533

2-INCH 16-TRACK multitrack, anything considered, quality compressor/limiter, EMT 340 Echoplex, Octavia MK219 and other capacitor mics, also delay line • Andy 0114 266 2900

YAMAHA 02R mixing desk, Roland JPB800; Bantam patchbays • 01604 588618

YAMAHA QX50F sequencer, with 3.5-inch floppy drive, must be in good condition with manual • Tom 01633 880946

YAMAHA VLT MkII, Roland Octapad II, DrumKat; Spirit Studio 16.8 2, JPB800 vintage keys, Roland

VS880 EX, no silly prices please • 0181 449 9698

## COMPUTERS & SOFTWARE

APPLE MAC PPC7100/80, 14-inch monitor, 24Mb RAM, 1Gb drive, CD VST, Recycle, Waves+, Hyperism, VST plugins, Time Bandit, £1300 only, Roland PMA5 Fifolax Size, GM BS unit with sequencer, £350, Amron D60, 1U studio power amp, £160 • Mick 0113 246 9254 (evenings)

APPLE MACINTOSH Powerbook 5300c, powerPC, 100MHz, 32Mb RAM, 1Gb hard drive, Global Village Platinum Pro PCMCIA modem card, case, Music Software, Version Galaxy, Masterxat Pro 6, Studio II, Vision, Encore, Cubase Performer, 5000 MIDI files and more, £1200 • Dan 01493 331882/330441

APPLE MACINTOSH SE/30 5Mb RAM, 100Mb hard disk, keyboard, mouse, Targus padded carry bag, £175 • 01224 636187 or 0410 223 154

APPLE MAC LCII 1040, black & white monitor, word-processor and software, system 7.5.1, £160 only • 01684 893680/0402 181543

APPLE MAC Quadra 950, £500, Apple powerbook 5300c, £1000, TR909, £999, TR808, £600, TR606, £150, TR303, £1000, Yamaha SY77, £650, DTC750, £300, Emu Vintage keys, £500, Casio VZ10M, £300 • 0113 245 0427

ATARI 2MB STE, SM125 monitor, 42Mb hard drive, Bittz floppy drive, Pro 24 v3, other software, £225 • 0181 655 4420

ATARI FALCON, 14Mb RAM, 350Mb internal hard drive, VGA monitor, £540Mb external hard drive, £600, Amiga 500 Plus, with Philips mixer, £100, Simmons 8-channel digital MIDI mixer, £150 • 01702 616961

ATARI RESOLUTION emulator, converts any TV or monitor into high resolution complete with instructions, £15 • George 0181 785 9862

ATARI ST, 1Mb, SM124, high-res monitor, leads, mouse and five years of accessories, good working order, home studio use, £180 • 0973 381471

ATARI 1040 with 1Mb RAM, high-res monitor, £200 • Chris 01730 233349

ATARI 1040ST with SM125, high-res monitor, music and other software plus lots of MIDI files, £200 only • 01630 647396

ATARI STE 4Mb RAM, 60Mb hard drive, extra floppy drive, 14-inch high-res monitor, various music software, £300, Philips 14-inch colour monitor, £70 • 01642 472470

ATARI STE 1Mb, £60, Roland PC200, £75, Macintosh, 1-vv3 out MIDI interface, £20, Yamaha TX81Z, £80, Emu Performance piano module, £110, Roland TR909, £800 • 01752 562343

ATARI STE with 14-inch high-res monitor, Cubase V3.1 including all leads and mouse, £250, PC Pentium 90, 16Mb CD-ROM, 1.2Gb hard drive, sound card, SVGA monitor, MIDI interface, 2-ins, 2-outs, 32 channels including Cubase server and SampleRate Pro, £765 only • 01858 575353

ATARI 1040STE, 4Mb upgrade, SM145 hi-res monitor, Cubase v3.1, Pro24, sweep16, NVDM, other software, includes MIDI files, wordprocessor, all boxed with manuals, in excellent condition, £500 • Jason 01206 545714

ATARI STE, 2Mb, high-res monitor, cubase software, dongle, manuals, all items mint and boxed, £250 • 01553 674076

ATARI STE with C-Lab Untor software, dongle, manual, mint condition, £190 • Andy 01895 235455

ATARI 1040STE 4Mb with SM124 monitor, £150, Stenberg Cubase V3 01, £50, Stenberg Midea+ Expander, gives 96 MIDI channels in total, £200 or £300 for the whole lot • 01895 852869

C-LAB FALCON, monitor, FAS, DI, 14Mb, 270 Hard drive, 1Gb external hard drive, 8-track Audio Tracker, hard disk recording, £995 • 01395 223577

C-LAB MARKX HDR workstation plus ADAT interface for 8-track simultaneous recording, 16.8 playback, Cubase audio 2.06 with SPDIF interface, £800 • Julian 0115 914 2433

CREAMWARE TRIPLEDAT, PC recording software, hardware manuals, home use only, £400 • 0956 656333

CUBASE AUDIO XT 3.0, £350, WaveLab, de-click, de-noise, £450, Recycle, Emu, Creamware, Tripledat, Masterport, £500, Samplecell, £350, MC303, £380, Quasar, £450 • 01252 372940

DIGITAL AUDIO LABS digital only card D, SPDIF PC card, runs under Windows '95, Windows 3.1 or DOS, £270 • 01603 461281

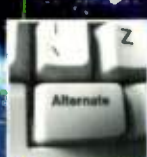
DIGIDESIGN SESSION 8 for Mac including Core System 88210 interface, manuals, disks, CPU 2080 with external CD300e CD-ROM drive, keyboard, mouse, 19-inch Radius Greyscale monitor with graphics card, can provide audio sequencer, will deliver and install, £2100, no offers • Andy 0151 708 6669

DIGIDESIGN SESSION 8 card, software and 882 interface, 8 balanced ins and outs, £1200, Digidesign SMPTE slave driver, £650, Alessi AII ADAT to AES/EBU, SPDIF converter, £600 • 01277 222298

DIGIDESIGN SOUND TOOLS with Atari Mega 4 ST, Digital/analog, in/out, ideal DAT editor, £350 • Paul 0115 941 8244

EMAGIC LOGIC V2, C-Lab Untor, Log 3, Untor 2, Export, Atari STE with 4Mb, SM124 monitor, powerful 144 MIDI CHSMPTE sequencer set up, £530, Boss DR550, boxed with manuals, £10





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# Joemeek VC6 & VC3 Voice Channels



Prizes kindly donated by Sound Valley Distribution (01494 434738).



## QUESTIONS

1. Who was Joe Meek?

- a. A weedy boy with a note from his mum
- b. A counter of fish and rockeries
- c. A legendary, somewhat eccentric producer
- d. A trouser-press manufacturer

2. Where are Joemeek products made?

- a. England
- b. Xanadu
- c. Atlantis
- d. The Garden Of Eden

3. Which of the following reasons for using dynamic compression on a recording is the correct one?

- a. To nidge your nodger
- b. To widger your wodger
- c. To fludger your dudger
- d. To dynamically control your recording levels

Would you like to receive more information on Joemeek products? If not, please tick this box

## TIE-BREAKER

Joe Meek was famous for his production work in the early '60s. In fewer than 30 words, tell us how the Joemeek range could help to make your music famous.

.....

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.....

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.....

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.....

.....

Name .....

Address .....

Daytime tel. no .....

Post your completed entry to: SOS Joemeek Competition, Sound On Sound, Media House, Trafalgar Way, Bar Hill, Cambridge CB3 8SQ.

Joemeek Competition

In the two years since its launch, the British Joemeek range of processors has taken the recording world by storm. Studio racks were not generally known for their exciting colour schemes before 1995 (a wide selection of black, black, black, and the occasional daring grey having been the norm), but now many a project studio worldwide has been considerably enlivened by one of the Joemeek processors' familiar green front panels.

The range was launched with a stereo compressor based on the innovative optical gain control design of '60s producer Joe Meek, but has since broadened to include mic preamps, enhancers, and voice channels, which incorporate the other three products in one box. This brings us neatly to the subject of this competition, for in a fit of incredible generosity, Joemeek distributors Sound Valley have decided to offer the *SOS* readership a swathe of voice channels (worth over £1600 in total) as prizes! What's more, there will be 16 lucky winners: there are three 1st prizes of a Joemeek VC6 Meekbox, and three second prizes of a VC3 Pro Channel. Last and undeniably least (but still worth entering for), 10 runners-up stand to win a stylish Joemeek T-shirt each.

The VC6 is a powerful processor which

combines an ultra-low-noise, high-performance mic preamp, an enhancer, and the famous Joemeek optical compressor (with full control over compression ratio, attack and release parameters) in a 1U, 19-inch rackmount format. Our Editor Paul was impressed with it (see review starting on page 36), but if you win this competition, you won't have to take his word for it!

The baby of the Joemeek range, the VC3 also combines a high-quality mic preamp with the Joemeek optical compressor and enhancer, this time in a 1U half-rack format. Once again, Paul White was quite taken with the VC3, singing its praises in his October '96 *SOS* review in the following manner: "The Pro Channel produces a warm, very tight vocal sound with loads of punch. If you want to be able to hear the compressor you've paid for, the VC3 won't disappoint."

For a crack at winning one of these splendid prizes, simply answer the questions on the left, complete the tie-breaker, and send the form to us at the address below (don't forget this last part of the procedure; it makes all the difference). But whether you post it, use a motorcycle courier, or send it by carrier pigeon make sure it's here before the competition closing date: **Friday, December 5th, 1997.**

## the small print

1. Only one entry per person is permitted. 2. Employees of SOS Publications Ltd, Joemeek, Sound Valley Distribution and their immediate families, are ineligible for entry. 3. No cash alternative is available in lieu of the stated prize. 4. The competition organizers reserve the right to change the specifications of the prize offered. 5. The judges' decision is final and legally binding, and no correspondence will be entered into. 6. No other correspondence is to be included with competition entries. 7. Please ensure that you give your DAYTIME telephone number on your entry form. 8. Prizes must be prepared to make themselves available in the event that the competition organizers wish to make a personal presentation.



WRB





It may only be November here at SOS, but as far as Yamaha are concerned, it's December the 25th — the lucky winner of this competition will be tearing the wraps off not one, but *two* great synths. The VL70m (see our review in *SOS* October '96) was a bit of a breakthrough in synth terms, offering the power of physical modelling synthesis in a half-rack module for less than £500, a price which was over £1500 cheaper than its predecessor of the time, the VL7 keyboard.

Yamaha's Virtual Acoustics (VA) technology lies at the heart of the VL70m, allowing the creation of exceptionally realistic sounds, including highly playable strings and horns, superb bass and lead timbres, and sizzlingly realistic vintage synth simulations. All of this is accessed via the VL70m's user-friendly control interface, and made considerably easier by the inclusion of an input for a BC breath or WX wind controller, and a socket for direct connection with your computer's serial port, which obviates the need for a MIDI interface. Those enticed by the thought of real-time control over the physically modelled sounds via a breath controller will be delighted to know that Yamaha are throwing in a BC3 as part of the prize.

A 32-note polyphonic 16-part multitimbral S&S synth, the CS1x lives up to its name (Control Synth, natch), with its six chunky front-panel knobs for real-time parameter adjustment, pitch and modulation wheels, built-in arpeggiator and effects processing, and, like the VL70m, a serial interface for easy connection to your computer. Oh, it's even got some sounds in it too; a GM/XG soundset with a range of timbres from woodwind and brass to cutting-edge dancefloor fillers.

One winner alone will overcome the odds and win the Yamaha CS1X, VL70m and BC3 breath controller. If you can correctly answer all the terrifyingly daunting questions presented below, devise an innovative, amusing (and above all, short) tie-breaker, and still have enough composure to post your completed entry to the address below, you could be that winner... provided you make it in time

for the closing date: **Friday 5 December 1997**. Good luck — with prizes as stunning as these, you'll need it!

# Yamaha VL70m & CS1x Synths



Prizes kindly donated by Yamaha-Memble Music (01908 366700).



## the small print

1. Only one entry per person is permitted. 2. Employees of SOS Publications Ltd, Yamaha, and their immediate families, are ineligible for entry. 3. No cash alternative is available in lieu of the stated prize. 4. The competition organisers reserve the right to change the specification of the prize offered. 5. The judges' decision is final and legally binding, and no correspondence will be entered into. 6. No other correspondence is to be included with competition entries. 7. Please ensure that you give your DAYTIME telephone number on your entry form. 8. Prizes must be prepared to make themselves available in the event that the competition organisers wish to make a personal presentation.

## QUESTIONS

- What was the name of the VL70m's predecessor?
  - The VL69
  - The Grand Piano
  - The VL7
  - Lord Arthur Witherington-Spode
- What colour is the CS1x? *[It's a toughie, this — Ed!]*
  - Warm Amber
  - Eggshell White
  - Ocean Green
  - er... Blue
- The VL70 has an external input so that you can use which kind of respiration-related control device?
  - A breath or wind controller
  - A sturdy North Sea drilling platform
  - An egg whisk
  - A Blue whale
- What does the CS in the CS1x's name stand for?
  - Cow Shed
  - Chips and Sausage
  - Control Synthesizer
  - Convolution of the Scelerum

## TIE-BREAKER

You've seen the prizes; now you just can't control yourself. Tell us please, in no more than 30 words, how you would impose autocratic control over these hot Yamaha goodies.

.....

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.....

.....

.....

.....

Name .....

Address .....

Daytime tel. no. ....

Post your completed entry to: SOS Yamaha VL70m/CS1x/BC3 Competition, Sound On Sound, Media House, Trafalgar Way, Bar Hill, Cambridge CB3 8SQ.

Yamaha VL70m Competition





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Gary Hustwit

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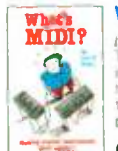
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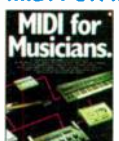
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# SOS Videos

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### THE EMAGIC LOGIC TUTORIAL VIDEO

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- 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, Mask Editor, Cycle Mode and more)

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## CUBASE

### 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 using 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.

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## SYNTHESIZERS

### ROLAND XP-80

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### ROLAND XP-50

The XP-50 video owners manual is produced by Roland Corporation USA and covers all the major features of the instrument in detail. This is an application based video that provides many examples of how your new found knowledge can be applied. Just a few of the 30 separate topic areas covered are: Effects, Choosing Sounds, Loading a Song, Loop Recording, Copying a Track to Pattern, Making an RPS Set, Track Editing, Multitrack Recording, Patch Editing, Creating Splits & Layers in a Patch.

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### 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 the video guides you through the basics, and leads you passively 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 the 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.

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**VIDEO CODE V067 £22.95**  
Running time approx 50 minutes  
Postage: UK £1.75, Europe £4.95, R.O.W. £5.95

### VOICE BUILDING



### Cassette/CD

by Sam West  
Although geared towards singers of varying abilities, voices and styles, the contents of this recording are often challenging even to the professional singer! The video (code V067) goes into more technical detail, whereas the CD or Cassette concentrate on more intensive practicing. First of all the exercises are sung, in various keys and then with musical accompaniment and melody line, so you can concentrate more on your voice while practicing ( karaoke style). Vocal exercises can be boring, but this studio recording has been produced and presented to a very high standard, with interesting musical accompaniments to the exercises.

**CASSETTE CODE MC001 £7.95**  
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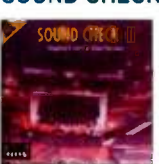
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This well presented video explains how to set up and operate a simple cassette based multitrack home studio. It clarifies all the basic terminology and demonstrates the recording of a song from beginning to end, covering how to record guitars, keyboards, 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.

**CODE V005 £24.95**  
Running time: 1 hour 10 minutes  
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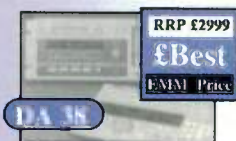
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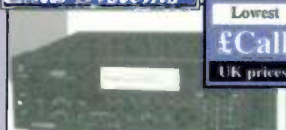
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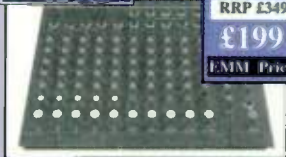


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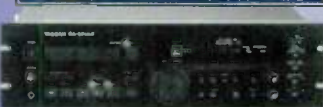
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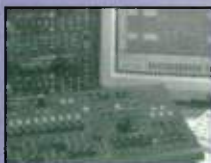


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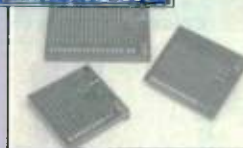
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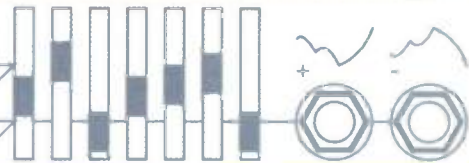
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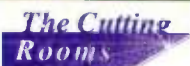


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**N**ow that digital-quality recording is within reach of the masses, many readers of this magazine will have access to high-quality recording equipment — a hard disk recorder, or a system on your PC. I'm sure that users of this equipment will agree that while the recording quality itself can be excellent, the finished mixes often sound flat and unrealistic. Nothing has any depth and, no matter how much reverb you use, the sounds seem to be welded to the front of the speakers. This may be CD-quality recording, but when you listen to a 'real' CD afterwards the difference is huge.

There are many reasons for this 'home studio' quality, but I believe the main one is the way instruments are direct injected and not 'recorded'. Many acoustic guitars, for example, are now fitted with piezo pickups (aptly pronounced 'pissò'), which turn the vibrations of the guitar top into an electrical signal. These are designed to replicate the acoustic sound of the guitar — but although they are useful live, in the studio they are a disaster!

Can you imagine an engineer going up to Elton John and saying "It's OK, mate,

we're going to put this transducer round your throat to pick up the vibrations, so you don't have to wear headphones and we can make as much noise as we like"? It's the whole instrument that makes the sound, and just putting a sensor on the vibrating component is only going to give a rough approximation of that sound.

I recently recorded a friend playing his £1000 Takamine acoustic guitar. He wanted to use the built-in pickup, because he thought it would be too much hassle to set up a mic, and that it would pick up too much noise. We finished the track, but the piezo guitar sound made the whole thing sound 'false': it could have been recorded in outer space for all the ambience and 'air' it had!

Soon afterwards I needed an acoustic guitar for one of my recordings, so I went and bought a £50 steel-string and ordered a £20 electret mic from Maplin. After putting the mic six inches in front of the sound hole and adding some reverb, I had a fantastic sound — it was full of life, and when you listened you could imagine a real guitar being played.

The reason my cheap guitar and mic blew away the far more expensive guitar was that I had recorded a 'sound' and not an electrical signal. I realise that the microphone generates an electrical signal, but the point here is that what you are recording should exist as a sound *first*. This is so crucially important it should be embossed on the front of every multitrack. It really annoys me when bands (usually American) go into expensive studios with any mic available and then DI their acoustics. Setting up a mic isn't a hard job, and it gives far better results than direct injecting ever will.

Electric guitars are the same. People have become so accustomed to DI'd sounds that they've forgotten how good a guitar can sound. Instead of plugging your guitar processor into the desk, stick it into a guitar amp first and set up an SM58 in front of the grille cloth. The limited response of the amp will help to filter out all the digital rubbish that comes out of most guitar processors, as well as giving depth and power to the sound. It doesn't have to be loud: normal bedroom volume will do, and if you point the mic away from your monitors you can do without headphones and monitor live. How people could ever expect 'speaker simulator' programs to work is beyond me. The speaker is a transducer, an energy converter that converts electricity into sound; you can't replicate that with an EQ curve! Keyboard sounds can also be put through speaker systems and miked up (I hate writing the phrase 'miked up' because the word microphone doesn't have a 'k' in it, and if you use the 'c' it looks as if the heavy rodent brigade have done you over). Once again, this helps filter out all the hiss and noise from your synth. At least sampled keyboard sounds have usually been through a mic at some stage, so even they can be more realistic than real instruments that are DI'd.

Building up a multitrack recording out of 'real' sounds is very rewarding, and the finished mix will be light years beyond one that is made up of DI'd instruments. It will also be easier to mix, because you can't possibly create a convincing mix out of sounds that weren't convincing in the first place. Can you imagine buying a painting from an art gallery that came as a paint-by-numbers kit? This is what a DI'd recording is: a half-finished job that relies on the listener's system to turn it into a sound.

So next time someone comes into your studio and gives you a lead from their acoustic or white noise generator (sorry, guitar effects processor), tell them that you record sounds, not waveforms.

SOS

# sounding Off

**Dull, lifeless sound you can't do a thing with? Your problem could be direct injection — the scourge of modern recording, claims GLYN CORNELIUS.**

*If you'd like to air your views in this column, please send your ideas to: Sounding Off, Sound On Sound, Media House, Trafalgar Way, Bar Hill, Cambridge CB3 8SQ. Any comments on the contents of previous columns are also welcome, and should be sent to the Editor at the same address.*



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