

## SOUND ON SOUND

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



## Fostex Digital Multitracker

EXCLUSIVE PREVIEW P26

*Roland Sound Expansion Series**Steinberg Cubasis Audio PC**Emagic Logic 2.5 Sequencer**Making More Of Proteus**How To Use Submixers**Cubase Basics: Part 2**Digitech TSR24S**Kurzweil K2500R**Bill Nelson*

## Korg Prophecy

THE SILVER  
DREAM MACHINE!

## QUEEN

RECORDING  
'BOHEMIAN  
RHAPSODY'

## WIN

Yamaha P150 Digital Piano

MACKIE LM3204E EXPANDER • YAMAHA H3000 AMP • FATAR MASTER KEYBOARDS • GROOVE TUBES MICS  
TANNOY PBM5 II MONITORS • ART TUBE AMP • RHODES CHROMA RETRO • ATARI, PC, MAC & AMIGA NEWS



View:  
4  
4  
Perc-Tuned  
Sound Efx  
String-Bow  
String-Pluck

Synth

Voice

Piano

Control Palette

19 | 1 | 758

Record Target:

Intro, Piano, Take 1

Tempo: 124

Arrangement

Song: Example Song

Status: Intro stabs: bars 5 thru 8

# MOTU DOES WINDOWS

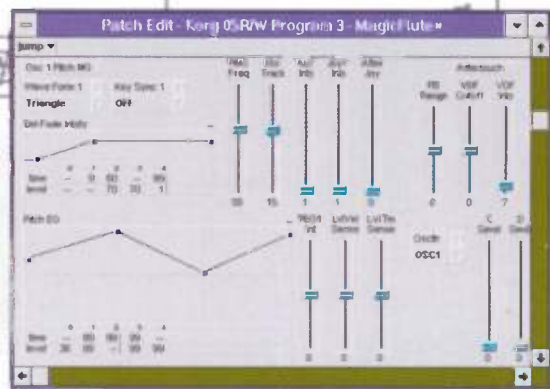
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11

12

13



min  
Type: Main Volume





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Studio 5.1

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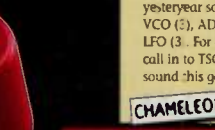
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# Leader

If one thing is evident from the phone calls we've been receiving lately, it's that the world and his dog wants a share of the hard disk multitrack action, but pretty much everyone thinks the hardware is too expensive. Gigabyte drives are cheap commodity items, and computers have never offered so much power for so little outlay — the stumbling block is most definitely the hardware, which is necessary to provide multiple audio Ins and Outs.

There is an alternative, however. All the main sequencer manufacturers are now developing

weeks. Just listen to the quality and power of some of The Who's early work, and then reflect on the fact that much of it was done with just four tracks and no MIDI in sight...

If we were to apply these same methods when working with low-cost, tapeless multitrack systems, by adding EQ and effects while recording, we could still produce quality work while retaining the benefits of cut, copy and paste editing. I have a sneaking feeling that it would actually do us all a lot of good to work this way — the results are so much more immediate — but

I think that technology will probably catch up again before we've really had a chance to savour the simple

life, and we'll be back in the land of infinite tracks, separate Ins and Outs, and multiple effects on everything.

Judging by our Reader Survey, most of you are opting to go the PC route when you upgrade your computers, largely because of the competitive price of PC systems when compared to the more friendly Macintosh. This being the case, I'm desperately trying to convince our revered publisher to buy me a nice new Pentium system (perhaps it'll give me 15.995 tracks?) so that I can check out some of the exciting new developments on your behalf. Now, if you were all to write to him...

**Paul White Editor**

## Less Can Be More (Honest!)

audio versions of their programs which can run on those Macs with 16-bit sound capability, or on PCs with relatively inexpensive sound cards — no additional hardware is needed. As you might expect though, low cost comes at a price!

Computers with 16-bit audio or budget soundcards only provide stereo In/stereo Out operation, so while you may be able to have eight or more tracks, you can only record one or two parts at a time, and everything has to be mixed to stereo before it gets back to the outside world. When faced with these facts, a number of potential users squirm in frustration, because it

would appear that the only digital multitrack they can afford is one that's no use to them. But is this true?

Back in the early days of 4- and 8-track recording, there were too few tracks to record



everything separately, so decisions on balance, EQ, and effects often had to be taken at the recording stage. There was little opportunity for trying out different effects, arrangements, and balances at the mixing stage, but one of the benefits of this situation was that great records were made in a matter of hours, rather than

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ISSN 0951 - 6816



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**Korg Prophecy Synthesizer p96**  
Seven types of synthesis in one for only £999? Find out if Korg's silver dream machine is the Minimoog of the Nineties in our mammoth hands-on review...



**Bill Nelson p130**  
Keeping the DIY home recording ethic alive, the musician who inspired Sound On Sound reveals how his new album was composed and recorded.

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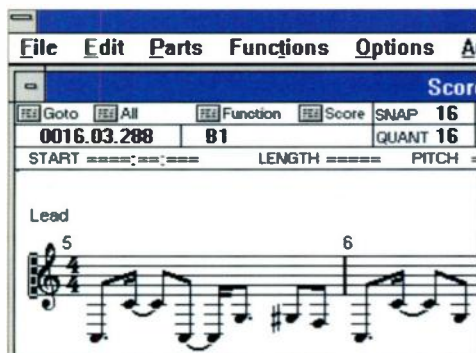


**Queen: Recording Bohemian Rhapsody p38**  
20 years ago, four talented musicians rocked the music world to its foundations with the release of a 6-minute epic, 'Bohemian Rhapsody'. Find out how this classic Queen track was recorded.

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#### Steinberg Cubasis Audio for PC p58

If you own a PC with a soundcard and are looking for a cheap way to get into hard disk recording, Steinberg's 3-in-1 sequencing, scoring, and recording software looks like being popular. We test it out.

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#### Groove Tubes valve mics p62

With so much digital technology in the typical recording chain, a valve microphone can add warmth to your sound. Check out what these groovy American models have to offer...

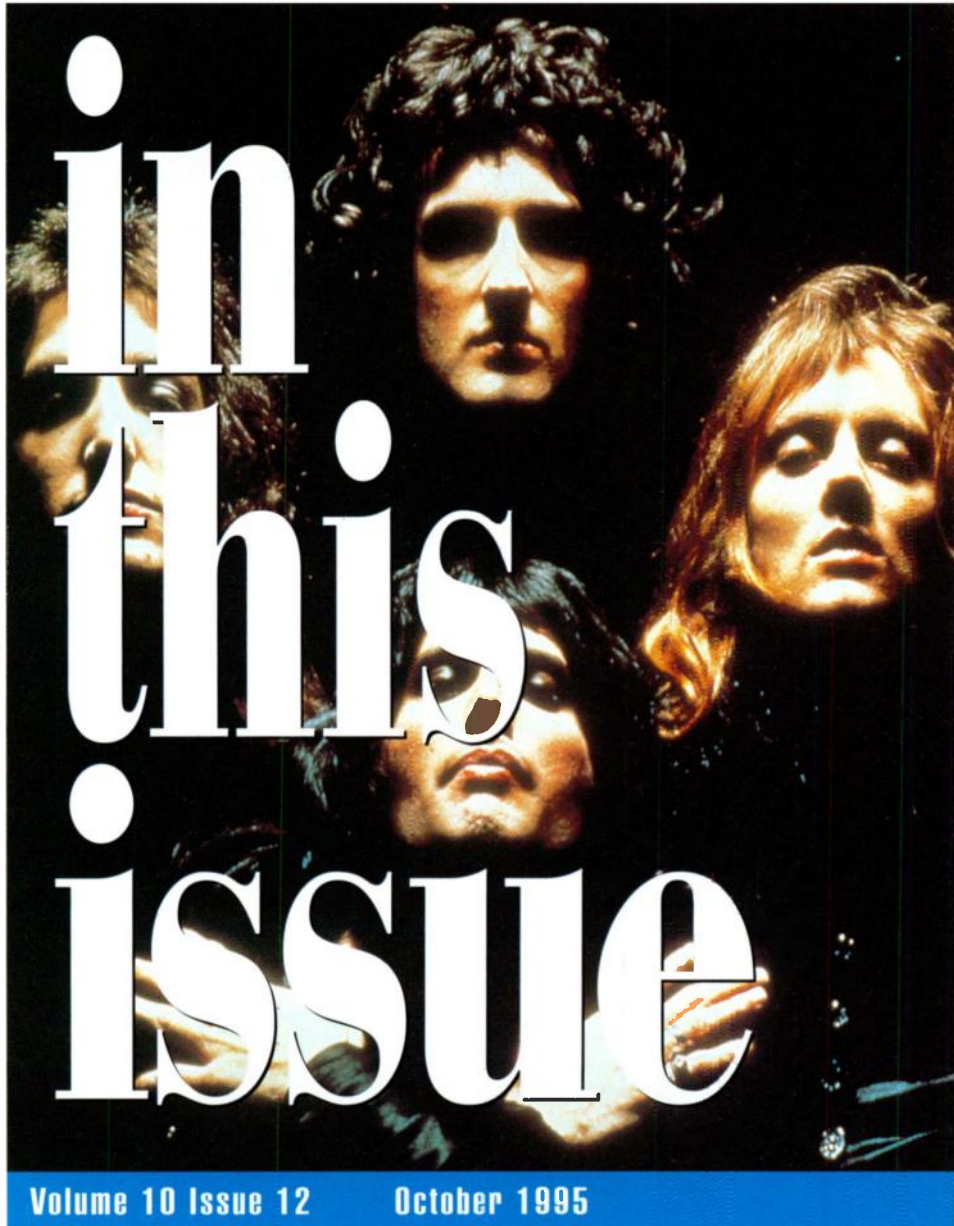
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Paul Ward argues for more standardisation on MIDI instruments.

**Fostex DMT-8  
Digital Multitracker p26**  
It may look and feel like an analogue portable multitracker, but this tapeless 8-track machine records on its built-in 540Mb hard drive. Check out our exclusive preview!





# Crosstalk

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

## SPECIFIC PROBLEMS DEMAND IMMEDIATE FIXING — S/PDIF CORNER

Two particular bits in *SOS*'s August edition caught my eye: the fact that Digidesign are selling the PC version of Session 8 so cheaply, and the big double-page ad for Philips DCC. Being on rather a tight budget, I would like to know whether the DCC can be used to back up the audio data from Session 8, given that they both have S/PDIF digital sockets. I phoned a large music store and they seemed to think not, but as the bloke was vague, I suspect he hadn't tried it. Have you any experience of this?

Paul Beaney  
Leeds

**Paul White replies:** *Because DCC uses data compression to represent audio signals using fewer bits, it can't be used to back up digital data in the same way as DAT can. However, the DCC machine's S/PDIF output can be used to load DCC recordings into systems that have S/PDIF inputs.*



My query concerns the Creative Labs AWE32 soundcard for the PC. One of your letter writers in the June issue of *SOS* points out "I know there's no digital In/Out [on the AWE32]" — but there is. If you look at an AWE32

card, you'll see connections (0 & 1) marked S/PDIF.

I phoned Creative Labs who said "yes, it is a digital connection, but only an output". Not being too much of a hardware person, I don't know how S/PDIF connections work. Since so many people have these cards, I wonder if you might write a short paragraph showing how to wire up what is, after all, a very handy little connection.

Ranjit Singh  
London

**Brian Heywood replies:** *The AWE32 does indeed have an S/PDIF output (by the way S/PDIF stands for Sony/Philips Digital InterFace), but this only carries the output of the Emu 8000 synth chip — and possibly the OPL3 synth output as well. This means that the other audio elements of the card (the WAV audio, and the mixer inputs) are not available via this connection. So you could use this facility to get a high quality digital sample replay system, but you would be 'wasting' the other audio components of the card. In terms of hard disk recording, the S/PDIF output is totally out of the picture, since it doesn't carry the AWE's digital audio signals.*

*I contacted Creative Labs, who told me there is a connection kit available, but there was some confusion as to how to get one. If you really want to buy a unit off the shelf, your best bet is to contact Paul Fletcher at Creative on 01694 731718.*

*See this month's PC Notes, starting on page 118 for a DIY approach to getting the digital signal off the card and into the real world.*

## USED SYNTH SOUNDS

In reply to your appeal for useful Internet addresses containing synth sounds (*Crosstalk* August '95), may I recommend to your readers Andrew's synth site at:

<http://neural13.cs.york.ac.uk/~adje/synth/>  
This contains a wide variety of useful synth sounds, editors, and information.

Graham Laws  
Via Internet.

## PRAISE INDEED!

I am writing to draw readers' attention to the excellent service currently being provided by the staff of the recently-opened Manchester branch of Sound Control.

When a new Allen & Heath GS1 mixing desk that I had ordered failed to arrive in time for my latest recording project, I was provided with my choice of alternative for the duration of the session free of charge, together with a new AKG D112 mic and a Philips DCC 730 mastering machine.

Congratulations to Colin, Dig, and the rest of the staff for their earnest and friendly assistance and unbiased professional advice!

Michael Hickey  
Manchester

## A MOMENTARY RE-APPLICATION OF REASON

Following the *SOS* review of the GS8 guitar switcher [*in our July '95 issue — Ed*], where David Mellor expressed his reservations about the operation of the momentary switching function, Kenton Electronics has responded by changing the software of the GS8 and GS2 so that

units now only pulse the momentary output if a change is necessary to implement the required state. Units are now being shipped with this software update in place.

John Price  
Kenton Electronics





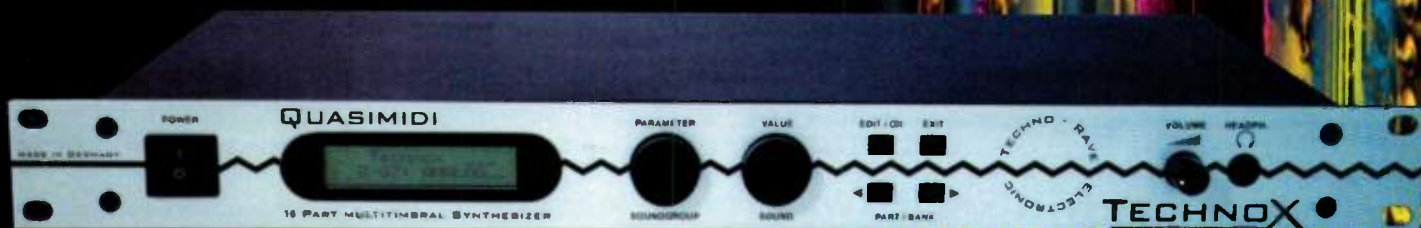
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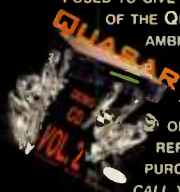
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# Crosstalk

## A LOCAL PROBLEM

I have recently purchased a 486 PC (running *Cubase for Windows*) with an AWE32 soundcard and a Korg X5. Unfortunately, I've hit a bit of a MIDI brick wall, and would greatly appreciate a few pointers.

While I can use the X5 to play scales (say as a mother keyboard), I'm not getting any of the actual sounds from the synth — the sounds are from the presets on the AWE32. This means that I can't use any of the 'Combinations' preset on the X5.

I've tried the following to get around this problem:

- Setting Local Off on the X5.
- Setting the X5 to MIDI @ 2C, External Out Select.
- Selecting General MIDI from the AWE Control Panel (and hitting set).
- Matching the *Cubase* channel with the corresponding Global MIDI Channel (X5).
- Disabling Program Change messages @ 2D MIDI Filter (X5).

Please note that both the MIDI In and Out lights on the transport bar in *Cubase* flash when I play the keyboard.

Phil Davis  
London

**SOS PC Notes columnist Brian Heywood replies:** While I'm not particularly familiar with the AWE32 and not at all with the Korg X5, I may be able to help you with your problem. What you need to realise when using a keyboard with a sequencer is that it essentially becomes two devices: a 'mother' keyboard and an independent sound module. The idea is that you allow the sequencer to decide where the MIDI data you generate from the keyboard is going to be 'played'. This is why you turn off the 'Local' control on the X5 and sever the internal MIDI connection — so that only external MIDI data (from the computer's MIDI interface) will cause the X5 to play a note.

The purpose of this is to allow the sequencer to decide which sound generator will be triggered

when you play a note on the X5's keyboard. The aural feedback of a performance is very important



when you record a sequencer track, as you will adjust your playing in response to what you hear. For instance, consider a string pad with a slow attack — you will probably anticipate the beat to allow the sound to swell enough to be heard. This means that any track recorded using an instrument sound with a definite attack (like a piano) will sound late when played back using a sound with a slow attack.

So your problem is that *Cubase*'s MIDI echo is not sending MIDI data to your X5. Since it is working on the AWE32 (you can hear the AWE32 sounds), you must have the MIDI Thru set to active in *Cubase*'s MIDI Setup dialogue (or on the Options menu if you are using *Cubasis*). Normally, to select a particular sound module for MIDI echo, you must select a track in the Arrange window that is set up to play on the MIDI channel and output port connected to that module — in your case, the X5. In *Cubase*, you can do this by creating a new track (double-click below the last track in the track list) and then setting the MIDI port using the 'Output' column (click level with the track name). You should be presented with a list of output ports, one of which should be labelled 'External MIDI'. Select this and let go of the mouse button. You also need to check that the MIDI channel is set to one that your X5 recognises.

If this doesn't work, then your MIDI port is not working, either due to some problem with the device

control off so that no sound can be heard when you hit a key. You can then use each of your MIDI cables

driver, the AWE hardware, or even the MIDI leads you are using. One quick way to check the MIDI leads is to switch the keyboards 'Local'

in turn to connect the keyboard's MIDI Out to its own MIDI In. If the keyboard starts working again, you know that the MIDI cable is OK.

## LEARNING THE HARD WAY ON THE AMIGA

I am currently looking for a good 16-bit sampling card capable of hard disk recording. I own various synths and drum machines, and would like to be able to record them digitally using my Amiga A3000 computer (6Mb RAM, 180Mb hard drive and a maths co-processor). My budget is around £400, and ideally I'd like 4-6 tracks, MIDI Timecode sync'ing, built-in DSP (delay, reverb etc), and cue list sequencing and editing.

Mr C.

New Zealand

**SOS Amiga Notes columnist Paul Overaa replies:** First the bad news

— there's only one 16-bit Amiga soundcard that has everything you want (and more) — the 8-track Sunrise AD516 card with Studio 16 software. Unfortunately, this little package costs almost £1000! You will find other 16-bit cards advertised, such as the Toccata (which provides 4-track 16-bit hard disk recording) — but people that have tried this for stand-alone musical applications have been disappointed. It's not that the Toccata is a bad product, it's just that the associated software has

been designed primarily for use in conjunction with video-orientated programs like Vlab Motion.

However, there may be good news just around the corner. 16-bit Amiga sound support is likely to be one of the high-priority areas for



Amiga Technologies once they've got the Amiga range back in the shops again. Escom certainly know what's happening in the 16-bit PC multimedia world, so they are clearly aware of the sort of realistic prices that would be needed to encourage Amiga owners to get on the 16-bit bandwagon. It may therefore be worth holding fire until Christmas, by which time Amiga Technologies are likely to have made their proposals public for providing the Amiga with 16-bit sound support!



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I own a Roland A30 master keyboard, a Roland E35 keyboard, and a Yamaha TG77 tone generator, and would like to connect these up to my Amiga 500 Plus running the Blue Ribbon Bars&Pipes sequencer. My problem is that I do not know how to connect these items up with MIDI cables, and Roland did not answer my letters. In addition, phone calls to them have produced information that seemingly does not work.

Using the MIDI socket on the E35 as an input from the A30, I do not see how to connect up Bars&Pipes or the TG77 as the next step. The irritating thing is that I can get the E35 to work correctly with Bars&Pipes if this sequencer is set to record all tracks at the same time. Any help you can give would be appreciated, as I've been trying to get this system to work for several months.

John Taylor  
Essex

**Amiga Notes columnist Paul Overaa replies:** Sorry to hear about your problems, but the first thing I must do is leap to the defence of Roland — I've always found their technical helpline staff extremely efficient in dealing both with enquiries about Roland products and with MIDI queries in general. Because of this, I wonder whether the problem might be either that you didn't actually appreciate what you were being told, or were asking Amiga-specific things, about say the Bars&Pipes sequencer, which Roland's technical staff may well not have been familiar with.

You're obviously fairly new to MIDI, and to start with, your 'setting up' ideas clearly need a little adjustment. Trying to link the A30 to the E35 as a first step to producing a conventional working sequencer-based MIDI system is actually ill-advised. The MIDI Out of your A30 master keyboard should be connected to the MIDI In of your Amiga MIDI interface, because it's the A30 keyboard that you'll be using to generate the



MIDI sequence data.

On the output side, you have two choices: if your MIDI interface has two MIDI Outs, you should connect one of these to the MIDI In of your TG77, and the other to the MIDI In of your E35 keyboard. Alternatively, if you have only one MIDI Out terminal on the interface, connect that to the MIDI In of your TG77 and then connect the MIDI Thru of the TG77 to the MIDI In of the Roland E35 keyboard. With either of these arrangements, your sequence recording will then be done via the A30 master keyboard, and the E35 will basically act as just another tone generator.

If you now select a Bars&Pipes track (so that the red arrow next to the track number is showing), and set the output channel (using the gadget on the right of the MIDI Out Tool) to the MIDI channel that your E35 is set to respond to, you should immediately hear the E35 play whatever you play on your master keyboard. What is happening is that Bars&Pipes is actually collecting your A30 input, rechanneling the MIDI data, and then retransmitting it on the output channel you selected. If you

change that output channel to one which your TG77 has been set up to recognise, then the TG77 will generate the sounds instead.

To record, all you need do is select a track, set its MIDI output channel to a value suitable for the voice/MIDI unit you wish to use, and then use the tape transport record/play/stop gadgets to start and stop the sequencer. Notice that you do not need to worry about, nor ever need to alter, the MIDI channel that your A30 is transmitting on, because Bars&Pipes will record all incoming data regardless!

As a final word, take heart, as most MIDI equipment is extremely easy to set up, and will normally

work first time — provided the person doing the setting up has some basic understanding of how MIDI works. At the very least, it's necessary to know the purpose of the various terminals (MIDI In, MIDI Out and MIDI Thru), understand how MIDI channel settings are used, and appreciate something of the various types of messages that MIDI units transmit. All these things are explained in most introductory MIDI books — check out some of the ones available from the SOS Bookshop (starting page 198 of this month's issue). Either of the books by RA Penfold (The Practical MIDI Handbook or A Beginner's Guide To MIDI) would do for starters.

## I'D LIKE TO WITHDRAW SOME AUDIO, PLEASE

I read your review of the Roland GI-10 pitch-to-MIDI converter in the June issue of SOS with great interest. As a result of your good report, I purchased a unit, together with a GK2A pickup.

However, I was somewhat disappointed when I discovered that the audio output was not part of the design feature. By this, I mean the guitar output should one wish to bypass the synth. I think that this should have been listed under the review's 'cons'.

As I don't give up so easily, I managed to find a way to add this feature, and as a practical tip to your readers, I am offering the following advice.



Find a clear area on the rear of the GI-10, and install a miniature audio jack socket. Pin Number 7 of the special lead is the guitar output. From the main PCB, connect a length of shielded cable to the newly-installed socket, and connect the screen to the ground of the PCB. Put the unit back together, and hey presto, you have all the features of the GK2A readily available without disconnecting any wires.

R Abraham-Ian  
Worcestershire

**Editor Paul White replies:** I must admit that I've never attached much importance to the guitar output routing of Roland's GK guitar pickup systems, because I've always used a separate guitar lead feeding a volume pedal.

However, as you rightly say, the guitar signal can be routed along the GK2A lead for the benefit of those users with GR1s or GR09s, so if you're prepared to intercept this signal and fit a socket, there's clearly no reason why it shouldn't work. Of course, any modification of this type is likely to void your warranty, but you've obviously got it working with no problems. Thanks for sharing your suggestion with us.



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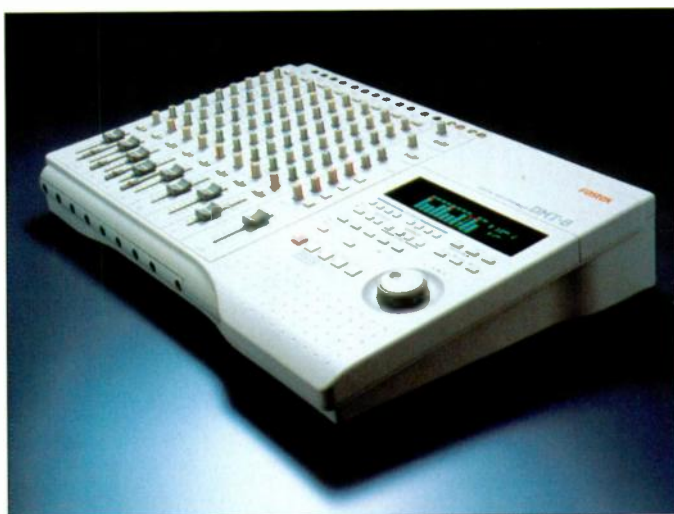
## Shape of THINGS TO COME

By Derek Johnson & Debbie Poyser.

## FOSTEX GO TAPELESS

**F**ostex are the latest manufacturer to join the race to produce an affordable hard disk recorder which will knock all competition dead; and at a projected retail price of just £1500 inc VAT, the new DMT8 8-track 'digital multitracker' looks like it's hot off the blocks. As its title suggests, the DMT8 is designed to offer musicians the ease-of-use of a cassette multitracker combined with the 16-bit CD quality and cut and paste editing offered by a hard disk recording system.

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## ATARI DRIVE TIME

**A**tari's ST range of computers simply won't lie down. And who can blame the computer's large, Europe-wide user base if they can't come to terms with spending hundreds or thousands of pounds to replace a machine that a) can do a great job and b) still has plenty of dedicated support. HiSoft Systems, the company behind many excellent ST-specific soft- and hardware products

(including the *Replay 16* sampler, *Diamond Back 3* and much more) have introduced a Zip drive package specifically for the Atari. Developed by Iomega, the Zip drive uses a removable floppy-sized disk to store a huge amount of data. HiSoft's package costs a mere £179, and comes with one 100Mb cartridge — yes, you read that correctly — plus specially written driver software and leads. Extra cartridges should cost around £16. Due to their recent introduction, Zip drives aren't (yet) widely used, so data won't be 100%

transportable; however, the price compares favourably to fixed hard disk systems. The Zip drive's spec also bodes well: not only is the drive light and compact (it weighs just one pound), but it offers up to 1Mb per second data transfer with 28ms seek time.

The only thing that isn't included is an Atari to SCSI link, but HiSoft can supply a suitable device for £69.95. Also, if you haven't yet thought about CD-ROM for your ST, HiSoft can help here too: £250 gets you a double-speed drive, ICD Link 2 SCSI interface (supports up to seven SCSI devices) and *Extendos Pro* software to help you get the most out of the drive. There is also a quad-speed CD-ROM for £349, and if you're looking for a hard drive, check out HiSoft's Squirrel range: 730Mb external drive for £309 (ICD Link 2 extra).

**A** HiSoft Systems, The Old School, Greenfield, Bedford MK45 6DE.  
**T** 01525 718181.  
**F** 01525 713716.

## VINTAGE GEAR UNDER THE HAMMER

**J**uly 2nd saw the first VEMIA Vintage Electric Musical Instrument Auction, which brought buyers from as far afield as France, Italy, Sweden and the USA to picturesque Devon in search of rare musical bargains. Business was brisk — a Rhodes Chroma with an early serial number sold for a healthy £1900, a Yamaha CS80 went for £980, and the bidding was keen for records and T-shirts from the great Bob Moog's collection.

Bargains included Moog synths from £200 (a Multimooog) to £600 for a Minimoog, while more obscure instruments included two Univoxes (think 'Telstar' if you're old enough!) for £220 and £280. This is not to mention the Rhodes Suitcase 73 Mk 1, in good condition, which went for £200, the ARP Avatar which fetched £380, the pre-CBS Fender Jaguar which sold for £460, and a Mellotron 400 with spare tape frame, purchased by a Norway-based buyer for £700. It wasn't all good news on the Mellotron front, however — the Rolling Stones' '60s Mellotron, entered by Bill Wyman, didn't make its reserve.

In all, around £30,000

worth of gear changed hands, and some of the hands were pretty famous — including members of Portishead and various successful dance producers. The next auction is planned for late October (exact date and venue to be confirmed), and in the meantime the organisers have sent out questionnaires to their mailing list from the first auction to help make the next one even better. They stress that if any readers have items they would like to enter into the next auction, they should get in touch as soon as possible, to allow the content of the auction to be fully publicised in advance.

**A** Peter Forrest, VEMIA, Star House, Crediton, Devon EX17 4LR.  
**T** 01363 774627.  
**F** 01363 777872.

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



## WHOLLY TRINITY FROM KORG

**K**org have announced a new series of expandable workstation keyboards, the Trinity Music Workstation DRS (Digital Recording System) series, which have the capacity to add hard disk recording to their capabilities. The range comprises four keyboards — the 61-key Trinity; enhanced 61-key Trinity Plus; 76-key Trinity Pro; and weighted, 88-key Trinity ProX.

- All the keyboards have a newly-designed PCM tone generation system and 60,000-note, 16-track MIDI sequencer.
- An optional hard disk recording board enables the 61- and 76-note instruments to record directly to an external hard drive at 48kHz, and provides an S/PDIF I/O, 4-track playback, automated levels and panning, and synchronisation to the

onboard MIDI sequencers. The Trinity ProX has these features as standard and also includes an internal 365Mb hard drive.

- The ProX also benefits from an ADAT-compatible optical digital interface and SCSI, facilities which are available as retrofits to the other models in the range.
- Much of the Trinity range also features the Physical Modelling, Analogue and Variable Phase Modulation synthesis found on Korg's Prophecy solo synth (see review starting on page 96 of this issue), courtesy of a DSP-based enhancement built into all but the 61-key Trinity. This Solo Synthesizer section adds 64 extra programs, and can be added as an upgrade to the

basic Trinity.

- A Flash RAM sample playback option will allow Trinity users to make use of samples from the Korg and Akai sound libraries, while also providing two extra sound banks which double the number of programs and combinations available — a

100 effect types with real-time control and up to 10 simultaneous effects; 3.5-inch HD floppy drive; and four polyphonic audio outputs.

It's a little early for definitive UK prices, but the Trinity is expected to be in the region of £2400, and the Trinity Plus



total of 512 of each with the Flash RAM expansion installed.

- All models have Korg's TouchView Graphical User Interface, with a large, high-resolution 320 x 240-dot LCD touch-screen.
- Other features include: a dynamic ribbon controller; over

around £2800. Prices for the others in the range have yet to be confirmed, though they will be slightly higher.

**A** Korg UK Ltd, 8-9 The Crystal Centre, Elmgrove Road, Harrow, Middlesex HA1 2YR.

**T** 0181 427 5377.

**F** 0181 861 3595.

## LOOPISMS GO SOFT

**T**he latest entry in D-Zone's *Loopisms* sample CD series — volume six — will not only double the number of keyboard samples to 200, but it will also include a selection of free PC software. A demo of

*MicroLogic* and *Doom V1.9* will be included, along with a collection of useful utilities. PC software will be included on most of the company's forthcoming releases, due to their investment in a

CD mastering system. *Loopisms 6* costs £12.50 on CD or £9 on vinyl (sans software, naturally!).

**A** D-Zone Direct, PO Box 3, South Croydon, Surrey CR2 0YW.

**T** 0181 651 2222.

**F** 0181 651 3333.

**R**eCycle!, Steinberg's sample manipulation software, is now available for the PC, priced at £199 (see our review of the Macintosh version back in May 1995). The software aims to take the hard work

out of using sampled loops, and allows users to:

- Automate the process of fitting a groove to a song.
- Change the tempo of a groove without altering its feel.
- Replace any sound in a sampled groove without altering its feel.
- Send different sounds in a groove to different sampler outputs.
- Use the sounds in a groove to

create variation beats and fills.

- Use a groove's feel to quantise MIDI recordings.

*ReCycle* supports Digidesign SampleCell and Akai S1000, S1100, S2800, S3000, S3200 and CD3000 samplers, plus Wave, AIFF and Standard MIDI File formats.

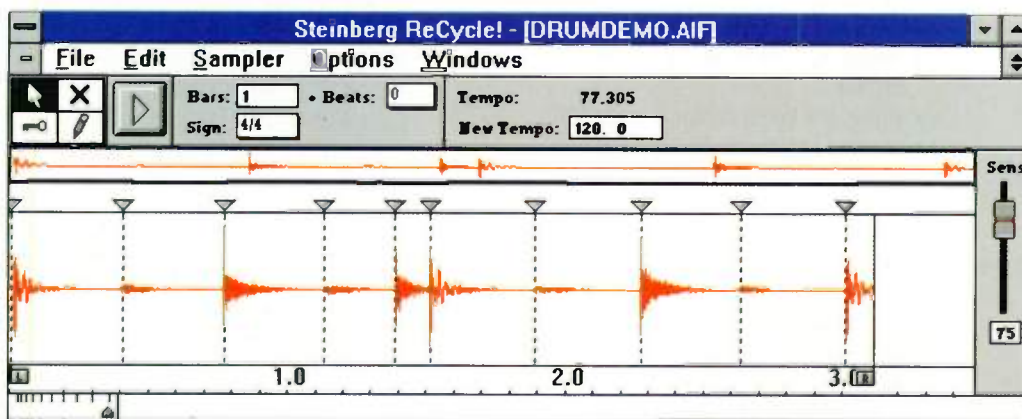
Steinberg have also announced the launch of *Cubase Audio PC* with Yamaha CBX D5/D3 and Digidesign Session 8 support. *Cubase Audio* offers integrated MIDI and hard disk recording, and supports all the main features of the Session 8, including multitrack recording, routing, EQ and mixing. The software also offers off-line DSP functions, integrated MIDI recording and mix automation with EQ, features not found with the original Session 8 software.

**A** Harman Audio, Borehamwood Industrial Park, Rowley Lane, Borehamwood, Herts WD6 5PZ.

**T** 0181 207 5050.

**F** 0181 207 4572.

## RECYCLE YOUR PC!





# Shape of THINGS TO COME

Leading US music software developers Opcode are moving further into the PC music market with the acquisition of PC hardware manufacturer Music Quest,

## OPCODE ASSAULT ON PC MARKET

known primarily for their line of MIDI and SMPTE PC interfaces. The acquisition comes shortly after a joint announcement by Opcode and Microsoft, which outlined their agreement to include Opcode's OMS MIDI software with a future release of Windows '95.

Effective immediately, all of Music Quest's operations will be moved to Opcode's Palo Alto HQ in California; Opcode's customer service and technical support staff will now also serve Music Quest users. Music Quest's CEO, David Rowe, will become Director of Hardware Products for Opcode and will continue to

design hardware, including MIDI interfaces. The move into PC hardware coincides with Opcode's announcement of a line of PC software.

Other Opcode news includes the release of version 3.0 of MAX, the real-time, object-orientated programming environment for the Mac. MAX can create an infinite variety of customised applications on the Mac, and is aimed at a wide range of musicians, computer users, developers, students, and multimedia producers. The

program can interface with MIDI instruments and various external devices for real-time control of audio mixers, lights, lasers, CD-ROM drives, video-disc players and slide-projectors. It's a high-level, graphic programming language, and programs (called 'Patches') are written using graphical objects rather than text. Additions to the new version include a Timeline editor and the ability for users to create applications from their own programs.

**A** MCMXCIX, 9 Hutton Street,  
London NW8 8PR.  
**T** 0171 723 7221.  
**F** 0171 262 8215.

## CRIMEWATCH SOS

One of the saddest services that SOS provides to its readers is space on the news pages reporting stolen goods. The latest theft is a biggie, from music retailer Soundkit UK. The following, with serial numbers where known, is a list of the stolen goods:

- Akai ME10D, 00650 12869
- AKG K240 headphones
- Alesis Quadraverb GT, GT2524336
- Alesis Quadraverb GT, GT2518140
- Boss BE5 multi-effects, CB64347
- Boss DR5 Dr Rhythm, DII31454
- Boss DR550 MkII drum machine
- Boss DR660 drum machine
- Boss DS330 Dr Synth, ZE59785
- Digitech IPS33 Smart Shift, 164609
- ElectroSpace Strate Gate noise gate
- Elonex PC433 486 DX33 computer, 253542-405-1
- Emu Emax sampler
- Kenwood KX1010 cassette, 90502356
- Korg EX8000 module
- Korg M1 synth, 301145
- Korg M3R module, 100321
- Korg P3 piano module, 009459
- LA Audio 4X4 compressor/gate, 4\*2135

- Peavey DPM2 workstation, 00-05304156
- Quasimidi Quasar sound module, 801-13081
- Sansui AU217 amp, 838070667
- Soundcraft Spirit Studio 16:8:2, SPIRST16M93023882
- Slapback Scintillator, HE5338
- Steinberg MusicStation software, 5985
- Steinberg Cubase starter software + card, URC/Midiman MM401
- Tascam DA20 DAT machine, UK10984
- Tascam MM1202 mixer, 40246
- TC 1220 parametric, 648657
- Technics SL PG460A CD player, VT45B3194
- Turtle Beach Tropez sound card, 41000516
- Vesta 411 digital delay, 040304
- Vestax HDR6 hard disk recorder, 010548
- Viglan 486 DX33 computer, 4D19542
- Yamaha FX500 effects, HKO1042
- Yamaha GC202 compressor, MF51093878
- Yamaha NS10M, 110612
- Yamaha Q2031 graphic, 8238
- Yamaha R100 effects, OMO1268

As usual, if you get offered any ropey-looking deals in dodgy locations involving any of the above gear, get in touch with Soundkit UK on 01608 810438.

# CUBASIS

## audio dealers

A1 MUSIC	MANCHESTER
A1 MUSIC	PRESTON
ABC MUSIC	BRISTOL
ABC MUSIC	EXETER
ABC MUSIC	KINGSTON
ABC MUSIC	OXFORD
ABC MUSIC	WINDSOR
ANDERTONS MUSIC	GUILDFORD
BANKS & SON	YORK
CARLSBRO	MANSFIELD
CARLSBRO	NOTTINGHAM
CARLSBRO	SHEFFIELD
CTI	DUBLIN
DAWSONS MUSIC	ALTRINCHAM
DAWSONS MUSIC	STOCKPORT
DAWSONS MUSIC	WARRINGTON
EDDIE MOORS MUSIC	BOURNEMOUTH
EMIS	BRISTOL
JG WINDOWS LTD	NEWCASTLE
KEYBOARDS IN ACTION	PLYMOUTH
KGM STUDIO SPEC'S	WAKEFIELD
MILLENNIUM	NOTTINGHAM
MUSIC CONNECTIONS	CHELSEA
MUSIC CONNECTIONS	CHELMSFORD
MUSIC CONNECTIONS	SOUTHAMPTON
MUSIC CONNECTIONS	BIRMINGHAM
MUSIC CONNECTIONS	BOREHAMWOOD
MUSICAL EX. LTD	BIRMINGHAM
MUSICLAND	CARDIFF
PROMENADE MUSIC	MORECAMBE
RAINBOW MUSIC	DUNDEE
RAINBOW MUSIC	EDINBURGH
SOFTWARE TECH.	MANCHESTER
SOUND CONTROL	EDINBURGH
SOUND CONTROL	GLASGOW
SOUND CONTROL	MANCHESTER
SOUND CONTROL	NEWCASTLE
SUTEKINA	LONDON WC2
TECH-MATE	COLCHESTER
THE M CORPORATION	RINGWOOD
TURNKEY	LONDON WC2

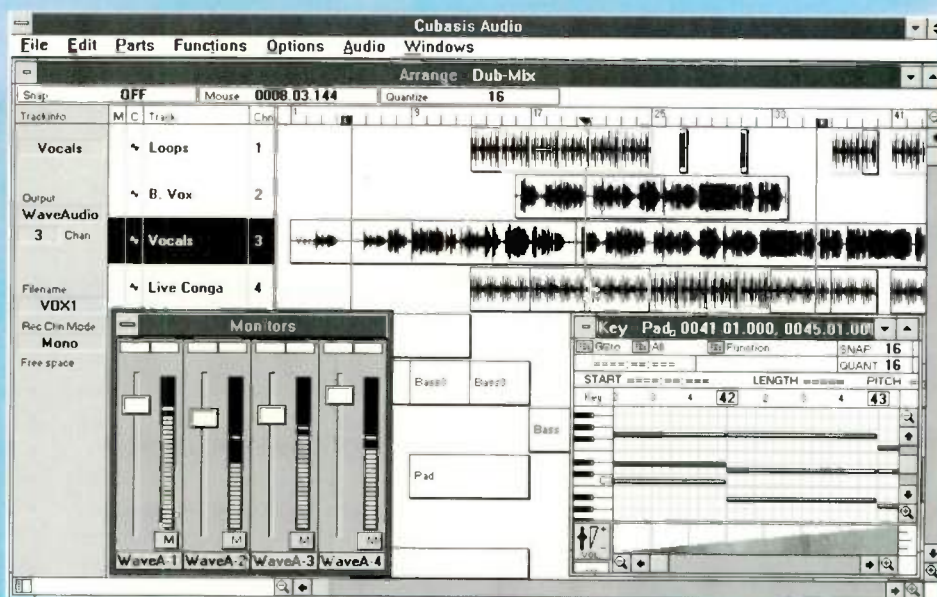
# Steinberg



# CUBASIS audio

The Complete  
Digital  
Recording Studio  
for your  
Windows PC

Ever wanted to be: a recording artist, DJ, producer, composer, engineer? Well here's your big chance – Cubasis Audio brings the professional world of digital recording to your Windows based computer. Also included with this program is a sample library so you don't need to be a musician nor read music to get started with this exiting new package. So how do you use it? On the main screen you are presented with a graphical interface representing your tracks, complete with a tape transport bar.



You can also bounce, mix, cut, glue, paste both audio & MIDI tracks.

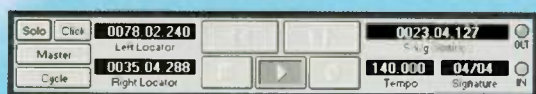
So what do you need? Well apart from the program itself, a PC running Windows, an MME soundcard. The only limit is your imagination.

Cubasis Audio is one of the many packages developed by the famous musical software house of Steinberg.

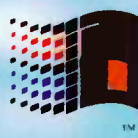
All this for only

**£249.00** r.s.p. inc VAT

Unlike an ordinary tape deck this program records in a digital format – so no loss of quality. Plug in a mic, guitar, to your soundcard and hit the record button – up to 4 stereo tracks of audio. Alongside these, with a MIDI keyboard you can record a further 64 tracks!



Harman Audio  
Unit 2 Borehamwood Industrial Park  
Rowley Lane Borehamwood  
Hertfordshire WD6 5PZ  
Tel: 0181 207 5050  
Fax: 0181 207 4572  
A Harman International Company



Cubasis is a trade mark of Steinberg Soft-und Hardware GmbH. All specifications are subject to change without notice. All other products and company names are <sup>TM</sup> or ® trademarks of their respective holders.

## Steinberg

Contact us at <http://www.Harman.co.uk>



## Shape of THINGS TO COME

London's ICA is to host two nights of music from three of Britain's top vocalists, Shara Nelson, Kym Mazelle and Jackie Joyce, as part of the Jezebel season, a celebration of women in performance. The three will be in the capable hands of Adrian Sherwood, who will be producing and mixing; video/art installations will be supplied by artist Sue Glasgow. The event takes place on 29th and 30th September at 8pm; early booking is recommended.

**A** Institute of Contemporary Arts, The Mall, London SW1Y 5AH.

**T** Box Office  
0171 930 3647.

Coventry's Central Sounds, electronic service and support specialists, are moving premises: their new address is Unit 46a Godiva Industrial Estate (off Cross Road), Coventry CV6 5SP.

**T** 01203 665665.  
**F** 01203 666669.

UK musicians can expect to hear more of audio products from prominent Australian manufacturers ARX, with the appointment of UK distributors Fuzion plc. The company will exclusively distribute the ARX range, which includes signal processors.

**T** 01932 882222.

Canford Audio's new professional new catalogue is out now: its 640+ pages include over 500 new products. And you might like to check out their summer sale and remainder lists.

**A** Canford Audio plc, Crowther Road, Washington, Tyne & Wear NE38 0BW.

**T** 0191 415 0205.  
**F** 0191 416 0392.

## SOMETHING X-TRA FROM TC ELECTRONIC

**T**C Electronic have introduced a slave version of their successful M5000 Digital Audio Mainframe. The 2U M5000X is identical in all respects save that it lacks front panel controls: all programme parameters and functions are accessible from the ATAC remote. The slave also offers the same software and hardware upgrade and expansion capabilities of the original machine. A package consisting of an



M5000X and ATAC represents a 20% saving over an M5000/ATAC package, without losing any functionality.

**A** Raper & Wayman Ltd,  
Unit 3, Crusader Estate,  
167 Hermitage Road, Manor House,  
London N4 1LZ.

**T** 0181 800 8288.

## STUDIO KEYS FROM FATAR

new keyboard offers a similar set of features, namely:

**O**ver the last few years, Fatar have been nothing if not industrious when it comes to the release of affordable MIDI master keyboards. There's a review of the new CMS61 and Studio 610 on page 34 of this issue, and we've also received news of the latest Studio 1176, successor to the Studio 1100 (reviewed SOS December 1994). The 1176 uses the same hammer action as the 88-key Studios 900 and 1100, housed in a lighter and more portable 76-key package. Priced at £749 (£100 less than the Studio 1100), the

- Four keyboard zones.
- Velocity and aftertouch.
- 32 programmable memories.
- Two MIDI Outs.
- Sustain and volume pedal sockets.
- The ability to send any MIDI controllers from the front panel.

**A** Arbiter Pro MIDI, Wilberforce Road, London NW9 6AX.

**T** 0181 202 1199.

**F** 0181 202 7076.

## IT'S A JUNGLE OUT THERE...



**J**ungle Warfare is one of the latest sample CDs from Time & Space. The new disc contains a large collection of ultra-fast breaks, including both ready-transformed/cut-up loops ready to drop straight into a track, and 157 raw loops at 160bpm for those who prefer to customise their own loops. There's also a wide range of tones, chords, percussion, basses and special FX just for Jungle. The price of the new CD is £59.95 including UK postage and packing, and it's available now.

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

**T** 01442 870681.

**F** 01442 877266.

## ABC U IN WINDSOR

**A**BC Music have opened a new music store in Windsor; the nearby Slough store is closing due to the expiration of its lease. The new premises offer over 2000 square feet of space, which ABC have packed with the latest in hi-tech studio and live equipment, plus guitars and keyboards; there are areas devoted to both stage gear and software. A large range of used instruments and equipment is also on display, with ABC offering a commission sales service to customers, plus a free musicians' noticeboard.

**A** ABC Windsor, 196 St Leonards  
Road, Windsor.

**T** 01753 773773.

**F** 01753 776800.



## SAE OPENS FIFTH GERMAN SCHOOL

Germany is about to see its fifth SAE (School of Audio Engineering) school. The new facility is currently under construction in Cologne, and is located in a new complex at the heart of the thriving German media community.

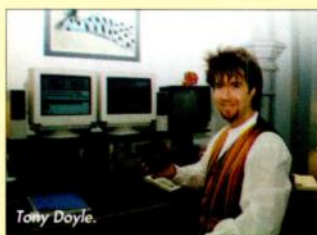
The three-studio complex will occupy a 615 square metre site, with Studio 1 providing 24-track recording based around a Soundtracs Jade console and high-end outboard, including TC Electronic and Lexicon units. Studio 2 will have a 24-input Mackie console at its centre, and recording will be to an ADAT digital 8-track, upgrading to 16 tracks when required. The third studio will be a computer-based 'jingle room' with a vocal recording area. In addition, there will be two mixdown stations for use after recording in Studio 2; these are to be based around a 16-channel Mackie 8-buss desk and 16-track ADAT systems. Two MIDI work areas will also be provided, as well as two analogue and two digital edit suites. Plans for the future include the addition of three Digidesign Pro Tools workstations, making Cologne the second Pro School training facility on the continent. Head of the new school will be Udo Hoppenworth, who has been working with SAE for the past two years.

SAE are also going Swiss, with the opening of SAE Zurich last month.

**T** School of Audio Engineering, London.  
0171 609 2653.

## WINNING STREAK...

We've drawn a string of competition winners from the proverbial hat here at SOS recently; three lucky people won themselves compact and bijou ART MR1 reverbs in the competition we held back in January; Tony Doyle of Bristol (pictured below), Mike Campbell of Darlington, and John English from Essex. Many



thanks to Washburn UK (01462 482466) for donating the prizes. February's competition prizes were not one but two mouth-watering enhancers from Behringer UK (01483 458877), the Dualflex II and Ultraflex II. The lucky winner of the Dualflex II was Mark James Parker of Halesowen, but luck is far too feeble a word to describe the coincidence that made David Farrow of Norwich the winner of the Ultraflex II. As long-term SOS readers may recall, David (pictured above with his new Ultraflex II) was the winner of the fantastic Dream Studio competition run in SOS's former sister publication *Recording Musician* in 1992. By total coincidence, February's



competition was drawn by staff members who joined SOS long after David's original win, and hadn't the foggiest idea who he was until they contacted him to tell him of his success in the Behringer competition. David is an inspiration to you all — he is determined to continue entering SOS competitions and score a hat-trick...

March saw two more great prizes up for grabs, kindly donated by CIS International (01284 725639) — the Studio

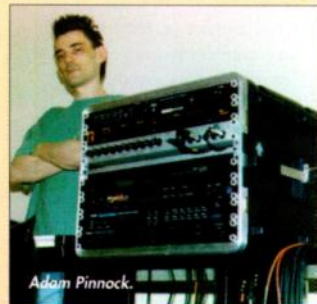


Desk Pro Mark II and the GT-PRO workstation stands. The lucky winners — who now have absolutely *no* excuse for their studios being in a mess — were Dimitri Tchamouroff of Hove, Sussex (pictured above with his



prize, the Studio Desk Pro MkII) and Chris Schultz of London, who won the GT-PRO stand.

Last but not least for now, the great prizes in April's issue were those staples of analogue synth fans everywhere, Kenton Electronics' Pro 2 and Pro 4 MIDI-CV converters. The lucky Pro 2 winner was Matthew Hoare of County Kildare, while the man now no doubt blooming, squizzing and fzzwwweeeeing his neighbours to death was Adam Pinnock of Stockport, who won the Pro 4 now proudly displayed at the top of his rack (see below). Many thanks to Kenton Electronics (0181 337 0333) for the prizes. Now, just keep those entries coming... After all, it could be you next...



Yamaha's Music Technology division has announced a new PC soundcard which, they say, provides all the sonic capability of Yamaha's own new flagship

- Dynamic panning control of all three effects sends.
- Three independent 24-bit digital signal processors.

## SERIOUS SYNTHESIS FROM NEW YAMAHA SOUND CARD

synth, the QS300. The DB50 XG has an impressively long list of features, including:

- 676 fully-programmable sounds and 22 fully-programmable drum kits.
- 4-pole, 24dB/octave resonant filters with definable settings.
- Dynamic note allocation.

- Over 60 different effects types with up to 16 parameters per effect.
- TG300 and MU50 compatibility.
- Three-band parametric and five-band graphic equalisation.
- Full ADSR envelope stage.
- Edge connector allowing support for all

major soundcards.

- Windows 95/OS2/DOS/Windows 3.11/Archimedes compatible.
- Cubase Mixer Maps.
- Cakewalk SysEx utilities.
- Logic environment page.
- CD-ROM with demo software and XG support software.

The price of the new card, which seems at this stage to be several steps up from your average PC soundcard, is set at an eye-catching £152 inc VAT.

**A** Yamaha Media Technology Division,  
Sherbourne Drive, Tilbrook,  
Milton Keynes MK7 8BL

**T** Product info line 01908 249194.

**F** 01908 368872.



## Shape of THINGS TO COME

We now have firm UK prices for Doepfer's A100 analogue modular synth system (see Shape in July 1995's issue). The range will eventually feature over 25 modules, but seven are available immediately: A100G 2 X 3U rack with PSU, £290; A110 VCO, £120; A120 24dB/octave low pass resonant VCF, £100; A130 linear and A131 logarithmic VCA, £90; A138 A and B voltage or audio mixers, £70; A140 ADSR, £80; A145 LFO, £70; A118 noise/random, £70; A180 multiplier, £40.

**T** 0181 889 0616.

Case specialists CP Cases have a new range of industrial-strength collapsible equipment trolleys. The Easimove trolleys come in both two and four-wheel styles and are perfect for both stationary storage and for moving heavy and bulky equipment on the road or within a studio.

**T** 0181 568 1881.

The location and dates for LIVE '95, the consumer electronics show, have been confirmed. Located at Earl's Court One and Two, the show will run from Tuesday 19th September to Sunday 24th — so it should be on as you read this! For more information, contact Blenheim Group plc (number below).

**T** 0181 742 2828.

AS McKay Ltd, importers of Oktava, NevaTon and Byetone microphones from Russia, supplied all the microphones for the Live & Unsigned part of this year's In The City event, held in Manchester from 2nd-6th September. Mics supplied included the acclaimed MK219 and 012 from Oktava.

**T** AS McKay  
0181 541 1177.

**V**ideo instruction specialists Labyrinth International have released a brand-new PC video aimed at demystifying the jargon and basic operating procedures associated with PCs. The new tape runs for 91

minutes and covers everything from 'What is a PC?' to using your PC with the Internet — there are over 120 different sections in all. The video also has Labyrinth's own trademarked VIS (Video Index



## PC MADE EASY

System), with a booklet listing all the main and sub sections with their respective timecode number, for easy access to just the parts you want to see. Written by Ian Waugh and presented by Tim Walter, the video costs £19.99 (plus £1.75 postage & packing) and is available from SOS Mail Order, order number VO48.

**A** SOS Publications Ltd,  
Media House, Burrell Road, St Ives,  
Cambs PE17 4LE.

**T** 01480 461244.

**F** 01480 492422.

**T**his year's Bristol Music Fair is set for the 29th October, and will take place at The Watershed Arts & Media Centre. Many prominent hi-tech manufacturers are taking stands, and will be showing gear including the latest synths, music software, digital recording systems and effects processors, as well as guitars, amplification and accessories.

Organisers ABC Music are also staging a competition this year to find the best new band or live act in Bristol; the competition is open to bands, duos or single artists who can perform their own composition or cover another artist's material. If you're interested in the competition, get hold of an entry

## MUSIC FAIR TO SHOWCASE BRISTOL TALENT

form from the address below and submit it, with your tape, to the Bristol store. Closing date for entries is the 30th of September — so you've probably only got about a week from when you read this, at most! It's hoped that winning entrants will play at the Music Fair.

**A** Peter Heath, ABC Music, 32 Alma Vale Road,  
Bristol BS8 2HY.

**T** 0117 923 8200.

**A**rtic Software's *AudioBase* is a new Windows-based organiser for WAVE and MIDI files, which aims to take the strain out of keeping track of your audio and MIDI sequence data. The software allows you to catalogue all your hard drives, CD-ROMs and other removable media; it doesn't just list names, but digs into audio or MIDI data to retrieve, and log, the data hidden in the file itself, such as time signatures, tempo and so on. In addition, once catalogued, *AudioBase* lets you audition any file. Data logged with *AudioBase* can be printed out at any time, or exported to a range of Windows-based word processors and databases. *AudioBase* retails for US\$69 (plus a \$10 international shipping charge if you're buying a copy from over here — Arctic

## COOL SOFTWARE FROM ARTIC



products are as yet without a UK distributor).

**A** Artic Software, PO Box 28,  
Waterford, WI 53185-0028, USA.

**T** 001 414 534 4309.

**F** 001 414 534 7809.

**E** 74777.2745@compuserve.com



# Millennium

Music  Software

1 HURTS YARD, NOTTINGHAM NG1 6JD  
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## Shape of THINGS TO COME

Twickenham's Way Out West Music Company reports buoyant sales of Tascam's DA88 digital multitrack. This month alone, units have been supplied to Blur, Wild Willy Barrett, James McNally (Annie Lennox, Shane McGowan, Sinéad O' Connor) and Rob Davis (formerly of Mud and now an independent producer).

**T** Way Out West  
0181 744 1040/1050.

More Blur news: lead singer Damon Albarn has recently taken delivery of a Soundtracs Topaz Project 8 mixing desk, supplied by Way Out West, for his Kensington home studio. He used the desk while writing songs for the follow-up to the *Parklife* album.

**T** Beyerdynamic  
01273 479411.

**T** Way Out West  
0181 744 1040.

Hugh Grant's latest film, *The Englishman who went up a Hill and came down a Mountain*, owes its soundtrack in part to the Spirit Studio LC console and Absolute 2 monitors. Soho's De Lane Lea Sound Centre, where the soundtrack was partly produced, has no less than three Studio LCs, plus the Absolute monitors, a combination which was specified by engineer Nick Church after a demo at Turnkey. Nick likes the desk for its "good clean signal path" and the monitors for their "robust and accurate" character.

**T** Spirit by Soundcraft  
01707 665000.

## BARCUS BERRY PICKING UP BUSINESS

**B**arcus Berry, which has recently been acquired by BBE Sound Inc, has relaunched its original Barcus Berry 1440 acoustic guitar piezo pickup system, invented by Lester Barcus 30 years ago. The 1440 is suitable for all acoustic steel string guitars, and is a thinline pickup that installs below the bridge saddle; a version is available for 12-string guitars, called the model 1440-N12. Other versions can be mounted inside the guitar or embedded in the bridge.

The company have also launched the 4000N Planar Wave piano pickup system, which aims to reproduce the piano's full frequency spectrum with amplitude balance right across the keyboard. The system comprises a sensor and control unit; the



latter features a volume control, high and low impedance outputs and a low drain circuit designed to give 2000 hours of battery life. The patented Planar Wave technology aims to eliminate hot and cold spots, as well as the feedback problems associated with regular piano miking techniques.

**A** Strings & Things, Unit 2, 202-210 Brighton Road, Shoreham-by-Sea, W Sussex BN43 6RJ.

**T** 01273 440412.

**F** 01273 440278.

## PRESSING DEMAND AT HILTINGROVE

**E**ast London CD mastering facility Hiltongrove have recently acquired a TC Electronic M5000 Digital Audio Mainframe and MD2 Multiband Digital Mastering Dynamics unit. The new units go to enhance Hiltongrove's growing CD mastering and manufacturing service (based around a 24-bit SADIE system), which is proving so popular that the company are having to build a second studio to accommodate demand. According to MD Guy Davis, clients have come from as far afield as Australia and Poland, and the company now also have ISDN lines into the building. The accompanying photo shows Guy at work (seated at the PC), accompanied by sound engineer Rob Knight (on the right). Hiltongrove are naturally happy to hear from any readers with CD mastering and/or pressing requirements!

**A** Hiltongrove, Alpha Business Centre, 60 South Grove, Walthamstow, London E17 7NX.

**T** 0181 521 2424.

**F** 0181 521 4343.



## NEW PAD FOR PEAVEY

**P**eavey Electronics have acquired new premises in Corby. The new property comprises a 58,000 square foot industrial unit set in an 8.6 acre plot in the Oakley Hat industrial area. Work has already started on the construction of additional facilities and preparation of the building for occupation later this year. The current HQ will be moved to the new location, including Peavey's new multilingual sales and marketing department; direct sales lines from 11 EU countries are now in place to service distribution of Peavey Products throughout Europe.

**A** Peavey Electronics Ltd, Hatton House, Hunters Road, Corby, Northants NN17 5JE.

**T** 01536 205520.

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# Shape of THINGS TO COME

New London studio The Dairy, housed in a former Victorian dairy, has just installed Optifile's Tetra automation system into its DDA AMR24 mixing desk. Meanwhile, further North, Manchester's Revolution studio now has a 40-channel Tetra system in its Amek 2500 desk, currently being used for a remix of The Who's rock musical *Tommy*.

**T** D Systems UK  
0181 943 4949.

Theatre technology specialists MM Productions have recently supplied the Royal National Theatre with eight Fujitsu 230Mb magneto-optical disk drives to be used as a storage system for their Akai samplers. The company have also supplied English National Opera with an Akai S3200 sampler, fully loaded with RAM. MM Productions' hire stock has also been recently added to, with a new MIDI-controlled Soundcraft K3 Theatre mixer and an additional Akai DR4 hard disk recorder with 1Gb of memory.

**T** 01206 845947.  
**F** 01206 853756.

The Microphone Shop is planning a series of national one-day seminars and courses on various recording and music-related topics. For further information, please contact The Microphone Shop (details below).

**A** The Microphone Shop,  
PO Box 2517, Eastbourne,  
East Sussex BN21 2PZ.  
**T** 01323 848808.

Heavenly Music, the MIDI song file and building block people, report a fault on their phone line recently. BT have sorted the problem out, so if you've had difficulty getting through, try again on the usual number.

**T** 01255 434217.

A problem many electronic musicians encounter is the difficulty in contacting like-minded others for musical collaborations. The new MIDI Musicians' Directory aims to help. The purpose of the directory is to provide a network of musicians, producers, engineers and others in the electronic music field, whether the specific type of music is house, swing, rave, techno, jungle, ambient... the list goes on, though the producers of the directory don't mention New Age at all, so it seems clear that the bias of the directory will be towards current dance. MMD, who are behind the directory, see it as a useful contact list to help members collaborate on live and recording projects, offer and obtain assistance on equipment problems, and provide and receive advice on matters such as studio design, MIDI, engineering, recording, and so on.

## MIDI DATING FOR MUSICIANS

One-year membership costs £10, for which members will receive an updated directory and MMD newsletter every quarter. The MMD organisation hope that they will be able to arrange showcase gigs in the future, and co-ordinate performances at clubs, raves and festivals, as well as offering discount CD-pressing facilities.

To get the ball rolling, Harman Audio have donated a copy of Steinberg's *Cubasis Audio* for PC, which will be up for grabs in a prize draw; all membership applications received by 30th October will automatically be entered, and the draw will take place on that date. If you're interested in joining the

Directory, call the number below and leave your name and address; you'll be sent an application form by post or e-mail.

**T** 0171 328 0865.

## NEW AKAI SAMPLERS: MORE FOR LESS

A major revamp of their sampler range sees Akai releasing three new machines: the S2000, S3000XL and S3200XL will replace the S2800/i, S3000/i and S3200 respectively, while the CD3000i remains in the new line-up unchanged, save for its recently-introduced sampling add-on. A

S2000 will retail for £999 against the S2800's £1299, with the S3000XL weighing in at £1799 and the S3200XL at £3499.

Common to all machines is a maximum sample RAM of 32Mb, using standard 72-pin SIMMs rather than custom Akai boards. The 2000 and 3000XL

ship with a basic 2Mb, while the 3200XL comes with a whopping 16Mb as standard. In addition, all machines can take up to 8Mb of Flash RAM, so samples remain backed up in RAM after power off. The S3200XL comes with a built-in multi-effects processor, but for an extra £399, the other two machines can be upgraded

auditioned and edited within the context of a multitimbral setup. Akai's samplers have always been fully editable from their front panels, and there's no change with these new machines; however, Akai are now also including Mac-based editing and file management software at no extra cost. The software provides graphic editing of every parameter in the new S-series samplers and allows the user to move sound files between multiple machines, including the Akai DR8 recorder and the Mac itself, by using AIFF and SDII sound formats.

Naturally, the affordable S2000 lacks a couple of features found on the other new samplers. The others all have eight individual outputs, although this feature can be added to the S2000 as well by purchasing the IB208P board for £399. Hard disk recording, standard on the S3200XL and S3000XL, is also not available for the S2000 — but you can't have everything at under £1000... The new samplers should be available as you read this, with the S3200XL due in October.

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

**T** 0181 897 6388.

**F** 0181 759 6117.



number of significant new features are offered by the new machines, but it's the prices that provide the most welcome surprise — for example, the

to include this feature, so samples can be re-recorded with effects if you like. Common to all of the new samplers is a new Multi Mode that allows samples to be



## THE ROM THAT ROCKS

*Rock 'n' ROM* isn't a one-off purchase, but a subscription. Its very nature means that as popular music develops, updates will be needed; consequently, the annual £999 subscription fee includes three quarterly updates. You'll have to be pretty serious about your rock data to shell out that kind of money, but for music professionals, it could be an invaluable resource.

A black Pioneer hi-fi stereo component, likely a tuner or amplifier, shown against a blue background. The device features a digital display on the left, a central cassette slot, and various control buttons and knobs on the right. The Pioneer logo is visible on the right side of the front panel.

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# Fostex DMT-8

## Digital Multitracker

**PAUL WHITE** provides a sneak preview of the world's first truly portable 8-track digital multitracker for musicians.

**A**fter much conjecture on the future of the Portastudio/Multitracker integrated mixer/recorder, Fostex are first into the ring with an 8-track, 16-bit/44.1kHz hard disk-based Multitracker aimed at the home recording market.

The Fostex DMT-8 is a fully integrated mixer and hard disk recorder with on-board 540 Megabyte Quantum IDE drive, giving a total of 12 minutes of 8-track, CD quality recording. The mixer features four mic/line channels

### YES, MASTER...

Recognising that the Fostex DMT-8 is likely to be used with a MIDI sequencer, the designers have equipped the machine with both MIDI Clock/Song Position Pointer and MTC outputs, so that you can sync up your sequencer without having to lose a track to timecode. The Fostex DMT-8 operates quite happily as the master in a system but cannot be used as a slave. Tempo maps with up to 32 tempo changes can be created and stored in the Fostex DMT-8 and you even get a metronome option (via mixer channel 8) based on the tempo map, not only to help you keep in time, but also to assist in choosing the right edit points for copy and paste editing.

The elapsed time display can be set to read absolute time, the MTC location, or bars and beats, and the transport section is set out to

but there are no digital inputs provided other than those used for restoring backed up data.

### MIXER SECTION

The DMT-8's mixer section is very much as you'd expect to find on a mid-priced analogue multitracker. It offers 2-band sweep EQ and two centre detented aux sends, which can be fed from either the main or monitor channels depending on which way you turn them. Separate outputs are provided for all eight disk tracks and there are four track inputs which feed tracks 1/5, 2/6 and so on, so you don't have to use the internal mixer if you don't want to. However, with two sets of routable stereo returns, the mixer has a maximum of 20 analogue inputs (not counting the stereo buss inputs, which you can also press into service while mixing), which is pretty generous for a system of this size and price. The only obvious weak spot in the mixer is the lack of phantom powered, balanced mic inputs.

To make the Fostex DMT-8 feel like a tape machine, there's a fast cue mode accessed by pressing Rewind or Fast

Forward while in play mode.

This lets you hear the audio data at five times the normal speed.

Alternatively, you can use

conventional Wind and Rewind buttons

which spool through the track at 25 times

normal speed but offer no audio cue. In this mode, you

can use the counter to stop

somewhere close before using the scrub wheel to home in on exactly the

right spot. Of course, searching to zero, end or a cue point is virtually

instantaneous, since no tape is involved.

### IMPRESSIONS

Naturally we'll be bringing you a full review of the Fostex DMT-8 in the near future, but I did have the machine round at my studio for a good few hours and I managed to play with it enough to be very impressed.

The scrub/jog system is particularly good and mitigates the lack of fine-tune edit functions. Some people will obviously compare the Fostex DMT-8 to a computer-based disk recorder and bemoan the lack of certain advanced features, but Fostex



(unbalanced), four line-only channels, and a further eight secondary channels.

The latter can be used for monitoring when recording and as extra inputs when mixing, just like a regular in-line mixer. There's also a stereo buss input for adding a submixer [see 'Submixing' workshop elsewhere in this issue]. Up to four tracks can be recorded simultaneously, and as you'd expect from a hard disk system, you get full cut, copy, and paste editing. A Jog/Shuttle wheel makes it very easy to precisely locate edit points and you can copy all eight tracks in one go if, say, you wish to duplicate a chorus later on in a song. Unlike an analogue recorder, you are given the chance to undo the last thing you did, so mistakes aren't always final.

conventional tape transport, right down to auto punch-in/out and locators.

With a maximum of 12 minutes recording time, disk backup is obviously a serious consideration so Fostex have fitted an optical S/PDIF output, allowing a complete project to be backed up to DAT in 48 minutes. There's no coaxial S/PDIF out, which seems a bit remiss, but an optional optical-to-phono converter is available. The output from the analogue mixer section is also available via the S/PDIF digital output,

resemble a



## DMT-8 FEATURES

- 8-track, 16-bit/44.1kHz hard disk-based Multitracker aimed at home recording market.
- Internal 540Mb Quantum IDE drive gives 12 minutes of 8-track, CD quality recording.
- Up to 4 tracks can be recorded simultaneously.
- Full cut/copy/paste editing of all 8 tracks, with Undo facility.
- Jog/Shuttle wheel for precise location of edit points.
- MIDI Clock/Song Position Pointer and MTC outputs let you sync up your sequencer without losing a track to timecode.
- Works as Master, not Slave.
- Tempo maps can be stored, with up to 32 tempo changes.
- Metronome option (via mixer channel 8), based on tempo map.
- Elapsed time display shows absolute time, MTC location, or bars and beats.
- Conventional tape transport, with auto punch-in/out and locators.
- Optical S/PDIF output (no coaxial S/PDIF out).

### MIXER

- 4 unbalanced mic/line channels.
- 4 line-only channels.
- 8 secondary channels.
- Stereo buss input for adding a submixer.
- 2-band sweep EQ.
- 2 centre detented Aux sends, fed from either main or monitor channels.
- Separate outputs for all 8 disk tracks.
- 4 track inputs feeding tracks 1/5, 2/6 etc.
- 2 routable stereo returns.

have really taken the route of providing a hard disk equivalent of their existing analogue multitrackers and priced the machine accordingly. I think the way to approach the Fostex DMT-8 is to take the view that it is a digital, musician's multitracker and has more facilities than you get from tape — it isn't realistic to view it as something like a Pro Tools system but with features missing. The ease of use is excellent — Fostex have carried through their multitracker philosophy very neatly, right to the point of making the machine appear so analogue that you keep looking for the tape slot!

There are obvious shortcomings which were necessary to keep the price so low, the main one being probably the lack of expandability — you can't add an external hard disk drive — though

*"Fostex have carried through their multitracker philosophy very neatly, right to the point of making the machine appear so analogue that you keep looking for the tape slot!"*

data backup to conventional DAT is cheap, if not exactly fast. You can only bounce tracks via the analogue mixer, not digitally, but then that's no worse than working with conventional tape.

At a projected selling price of around £1499.95, I can envisage a lot of potential analogue 8-track customers plumping for one of these instead, and the familiar interface means that even newcomers to recording shouldn't be intimidated. The Fostex DMT-8 is expected to be in full supply by November, but in the meantime SCV London will be delighted to provide you with full details.

SOS

## FURTHER INFORMATION

- £ £1499.95 (estimated) inc VAT.  
 A SCV London, 6-24 Southgate Road, London N1 3JJ.  
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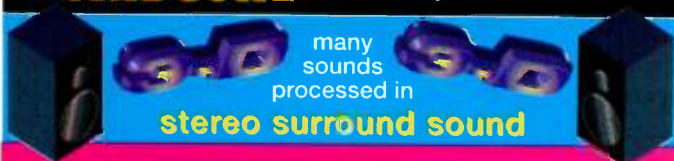
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# Tannoy PBM5 II

## Nearfield Monitors

*Once again, PAUL WHITE disrupts his studio listening system, this time to audition Tannoy's diminutive PBM5 IIs.*

Tannoy are best known for their dual concentric speakers, but I must confess to having a soft spot for their smaller, conventional two-way systems of which the PBM5 IIs are a recent example. These small speakers are designed for the home listening market, but like many other small Tannoys, a significant number are sure to find their way into small recording studios.

### FEATURES

Stacking up at just under 12 inches in height, the PBM5 IIs are based around a passive two-way driver system mounted in a ported cabinet. The cabinet port faces to the rear to reduce the effect of port noise at high listening levels, and though the

effect of cabinet edge diffraction, the cabinet corners are radiused as is the tweeter faceplate aperture. A plastic, grey veneer finishes off the whole package nicely and a removable grille is included for domestic users.

Connection to the speakers is via conventional binding posts fitted to a recessed plastic panel, and as usual these can accept either bare wires or banana plugs. There's no provision for bi-wiring, but then it's arguable whether there would be any advantage in doing so on such a small system.

With a sensitivity of 89dB per Watt at one metre and a peak power handling of 85 Watts, the PBM5 IIs are capable of belting out plenty of level, and surprisingly cleanly too. As is usual with small ported speakers, the bass end has been deliberately tuned to produce a very slight peak at around 80Hz, below which it drops off quite rapidly. Even so, on pop material, you still get a surprising impression of bass with plenty of slam, but without any excess coloration or dead spots. You also have to really wind the level up before the PBM5 IIs start to sound boxy.

The midrange is handled quite nicely — one of the benefits of using a small diameter bass/mid driver — and the top end is reasonably well behaved too, though there's a hint of aggression at around 12kHz which can be fatiguing when listening to bright material for any length of time. Another benefit of a small speaker where the drivers are close together is that you get a wide angle of dispersion, and this in turn makes the speakers more forgiving when used in a reflective environment, such

as an untreated home studio room. Wide dispersion also tends to go hand in hand with good stereo imaging, and the PBM5 IIs do not disappoint here either.

### ACCEPTABLE COMPROMISES?

Ultimately, you can't have a small speaker system without there being a few compromises, the most obvious being bass extension and bass accuracy. Similarly, there's a limit to the maximum signal level you can produce before the sound starts to distort, and I've no doubt that one of the reasons the PBM5's bass end sounds so impressive when

### TANNOY PBM5 II £294

#### PROS

- Generally smooth sound.
- Acceptably low colouration at low to medium listening levels.
- Plenty of perceived bass end.
- Compact.
- Don't need a huge amplifier to drive them.

#### CONS

- A few bumps and dips in the high end response add a little harshness to some material.
- Bass end is tuned to impress rather than being entirely honest, but not to the extent where the monitors are misleading.

#### SUMMARY

A useful nearfield and home studio monitor for applications where compact size is important.

you wind the speakers up is that a significant degree of second harmonic distortion creeps in. Even so, the sound is nominally accurate, the lack of very deep bass means that critical midrange detail is easier to focus on, and when used in the nearfield, your ears are likely to cry for mercy before the speakers do!

Most importantly, the sound is also subjectively pleasing, and though the tweeter isn't the smoothest I've ever heard, it's not at all bad, especially when you consider that the PBM5 IIs fall into the budget end of the monitor market.

### VERDICT

The bottom line is that you could produce good mixes on these speakers, and if you're pushed for space in a small home setup, the PBM5 IIs have enough range to use as your only monitors. In the larger studio, they are fine for nearfield use or simply as an alternative set of speakers for mix evaluation, and I certainly prefer their sound to that of the industry standard Yamaha nearfield monitors, which I still find too aggressive.

Once again, Tannoy have proved that just because they specialise in dual concentric speakers doesn't mean they can't build a competitive, two-way design. Check them out!

SOS

### FURTHER INFORMATION

£ PBM5 II (pair) £293.75 inc VAT.

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bass end is left in the hands of a five-inch driver, with an injection moulded cone suspended in a roll-rubber surround, both the extent and depth of the bass reproduction is impressive, even though there's little happening below 50Hz.

The top end extends to around 20kHz and is handled by a three-quarter inch, soft-domed polyamide tweeter, crossed over at 2.6kHz. The crossover itself is hard-wired and uses high grade polypropylene capacitors and selected inductors, while the cabinets are made from high density medite (a form of MDF). In order to reduce the



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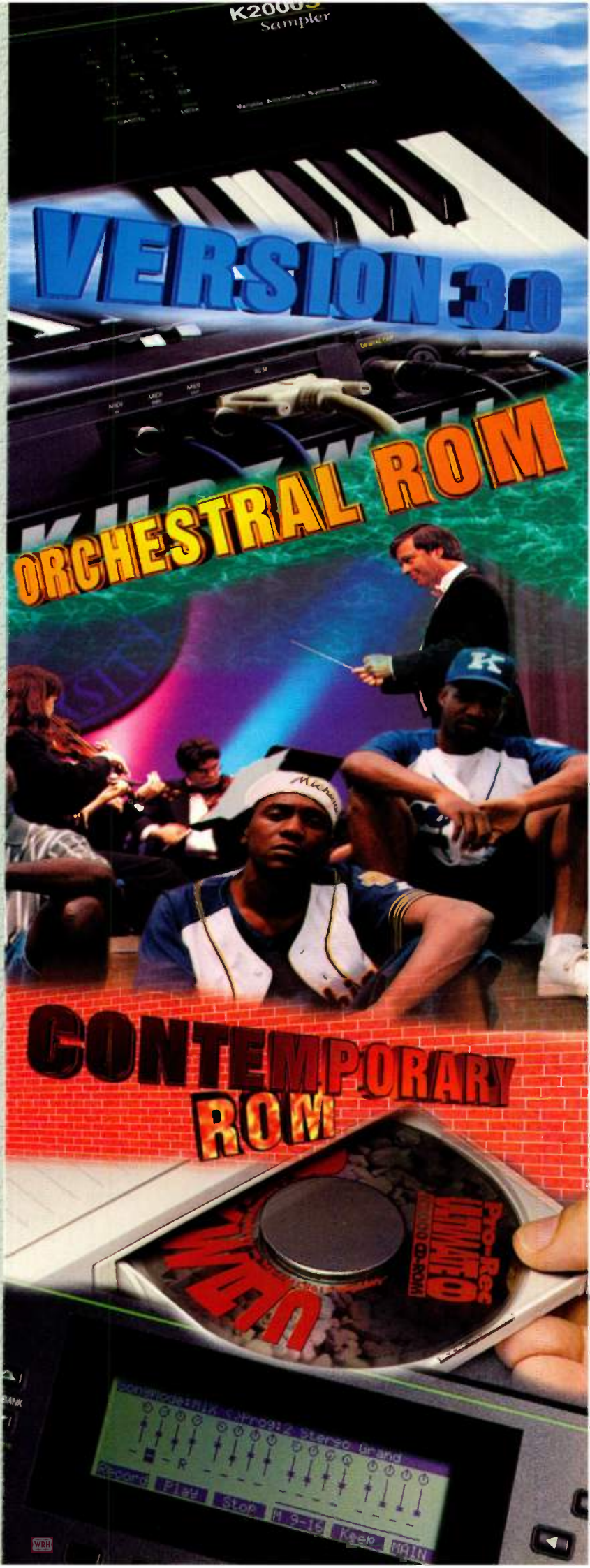
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# ART Tube MP

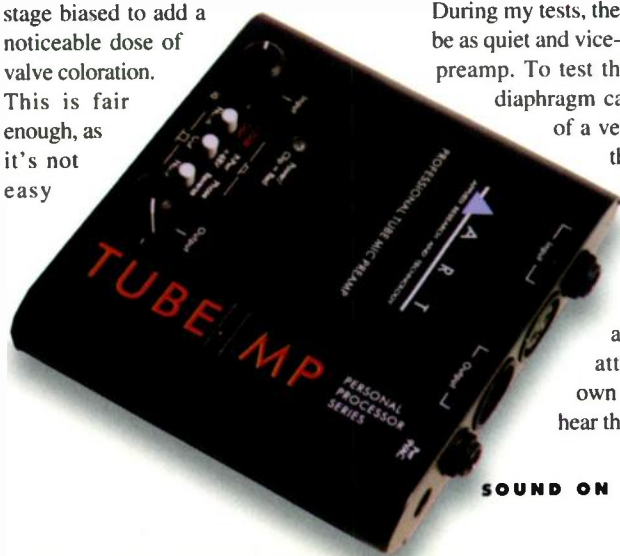
## Tube Mic Preamp

**Until now, musicians wanting to add that distinctive valve sound to their recordings have had to beg, borrow, or steal to do it. At a mere £149, ART's new tube mic preamp looks set to change all that. PAUL WHITE checks it out.**

**A**head of us we see the promise of an all-digital future based on angular bits of silicon, DSP effects and tapeless recording, and yet a backward glance reveals the gentle curves of valves, their seductive glow beckoning us to sample their esoteric charms. Certainly the market in vintage, redesigned, refurbished, relaunched, repackaged and rediscovered valve gear is flourishing, but the cost is often unsettlingly high when compared to its solid-state equivalent. It therefore comes as a pleasant surprise to find ART building a low-cost valve mic preamp aimed at the home recording market.

### A LOOK INSIDE

Naturally, before trying out the preamp, the first step was to prise off the lid and take a look inside. As expected, the valve (in this case a 12AX7/ECC83 dual triode) is accompanied by a significant amount of solid circuitry, including a dual op-amp and a handful of transistors, so I suspect that a low noise, solid-state front end is being fed through a valve buffer stage biased to add a noticeable dose of valve coloration. This is fair enough, as it's not easy



getting an *all*-valve front end to run very quietly, even when you have a lot more money than this to throw at the design.

In common with a lot of budget valve equipment, the usual '250V DC plus' lethal high tension power supply has been replaced by a much lower voltage system, which does affect the valve's overload characteristics, as well as reducing the overall headroom, but if done properly, this approach can yield very pleasing results. In fact, the power comes from an external 9V AC supply, but I assume a voltage multiplier is being used somewhere, otherwise the maximum possible DC supply would be around 25 Volts, and the 48V phantom power switch on the front panel proclaims that this clearly isn't the case.

### JUDGING BY APPEARANCE

The tiny case for this preamp is based on the metalwork ART use for their budget MR1 reverb (reviewed in *SOS* February '95). There's just one input and one output channel, but these are paralleled on both balanced XLRs and TRS jacks, so you have a choice of what type of connector to use.

The usual mic preamp controls are provided, including input and output gain, but rather than provide the usual 60dB range of gain followed by a 20dB pad, the labels imply 40dB of gain with a switchable 20dB boost. Obviously, this amounts to the same thing insofar as the user is concerned, so I can't really see the reason for this break in tradition.

The other conventional control is a phase invert button, and aside from the dual-colour LED which doubles as a power-on indicator and a clip warning, that's pretty much what you get. A couple of slots in the top of the box provide a reassuring view of the glowing valve, and the steel case itself is finished in a robust black powder coating, which also helps radiate the heat generated by the valve heaters.

### THE SOUND

During my tests, the Tube MP turned out to be as quiet and vice-free as an all solid-state preamp. To test the noise, I put a large-diaphragm capacitor mic at the end of a very long lead, turned up the gain, and monitored the result over headphones to prevent feedback. Though some noise was obviously evident at full gain (some of it attributable to the mic's own electronics) I could also hear the ticking of clocks from

## ART TUBE MP £149

### PROS

- Affordable.
- Respectable audio spec.
- Real tube flavouring.

### CONS

- External PSU.
- A high-impedance DI input would have been useful.

### SUMMARY

A welcome product that puts the valve sound within reach of virtually everyone.

all over the house and the gurgle from the freezer's cooling system in the adjacent kitchen. Unless you're into recording things like mating woodlice, I don't feel that noise is going to be a major problem with this preamp, though to put it into perspective, most properly-designed console mic amps facing this test would perform similarly.

Where the differences start to show is in the tonality. Tube circuits tend to introduce quite measurable amounts of even-harmonic distortion, and this has the dual effect of adding definition to the top end, and thickening the bass. It's a well-known fact amongst home music system designers that a little deliberate low-frequency distortion makes the bass sound louder and punchier, but valves do it so nicely!

With very respectable capacitor mics coming right down in price, you can now get a sound at source that rivals that available from top-end professional equipment. And with the addition of this very affordable tube preamp, you can go one step further and create your own valve mic sound, or plug in a regular DI box and 'tubify' it.

### CONCLUSION

So, the good news is that the Tube MP works as specified and sounds nicely warm into the bargain, but as you know, I'm also paid to point out what I feel may be weaknesses in the products I review. The external power supply is obviously a nasty thing to have to live with, but I also feel that a high-impedance DI input would have been easy to include for those wanting to DI guitars, basses, and brittle-sounding synths. Those minor criticisms aside, ART's little preamp really works (especially on vocals), so if you only need to record one mic at a time and you really want to have your share of that tube magic, this has to be the most cost-effective way of getting it.

**SOS**

### FURTHER INFORMATION

- £ £149 inc VAT.  
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
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<b>TASCAM</b>	✓
<b>YAMAHA</b>	✓

A collage of various audio mixing consoles and mixers from different manufacturers. The consoles are shown in various orientations, some stacked, against a dark background. The manufacturers' names and model numbers are printed in bold, stylized text over the images.

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# Mackie LM3204E

## Expander For LM3204 Line Mixer

**PAUL WHITE discovers that doubling the input capacity of a Mackie LM3204 is as simple as plugging in a single ribbon cable — and signing a cheque!**

**Y**ou may remember that in the March 1995 edition of *Sound On Sound* we reviewed Mackie's compact, 32-channel, rackmount line mixer, the LM3204. You may even have bought one, as I did, and quickly found that on looking at the number of outputs on all your synths, samplers and drum machines, even 16 stereo input channels start to look a bit crowded. You could buy a second LM3204, but two stand-alone mixers never really behave as one truly integrated system, which is why Mackie decided to build the LM3204E expander.

The LM3204E offers exactly the same facilities as the original LM3204, as far as the input channels and aux returns are

properly designed expander such as this, all the channels are routed to the master section of the main mixer, all the aux send busses work together, and when you solo a channel on the expander, the main mixer channels are muted, just as if they were part of the same console — which in effect they are.

### CHANNEL FACILITIES

For those who may not be familiar with the LM3204, the LM3204E's channels are identical, and comprise stereo line input jacks feeding a series of ganged controls. Only the first four stereo channels have insert points, but because you're dealing with line level inputs, this doesn't present a problem — you can always connect an external signal processor in-line between the signal source and the mixer input.

Four effects send busses are provided (two mono and two stereo), but only two can be accessed at any one time. There are two knobs, switchable as a pair, to access either stereo busses 1 and 3, or mono busses 2 and 4, and switching is accomplished using the Shift button. The EQ is a 3-band, fixed frequency arrangement, with shelving filters at 12kHz and 80Hz, and a mid-range bandpass filter at 2.5kHz; there's no bypass

switch, even though centre detent pots are used. Other than that, a stereo balance pot, a combined routing and muting button (signals not routed to the main output are routed to outputs Alt 3 and 4), and a rotary level control are provided. Two LEDs indicate signal present at -30dB, and impending overload — useful to see

which channels are active — and as you've probably figured out already, if you are using the Alt 3 and 4 outputs to give you 4-buss routing, then you can't use the routing buttons as mutes. Solo is fitted to every channel.

The four stereo returns are controlled via four rotary knobs, and the effect return routing is controlled from the master mixer. All the line inputs are electronically balanced on quarter-inch jacks, while the effects returns and insert points are unbalanced.

concerned, but there's no master section, and the two mic amps on the rear panel are omitted. Instead, a slim ribbon cable connects the expander to the expansion port on the back of the LM3204, effectively doubling the number of input channels and aux returns. Aside from the mains cable, that's all that's needed, leaving a massive 32 stereo input channels, and no fewer than eight stereo effects returns.

What are the benefits of using an expander rather than two mixers? With a

### MACKIE LM3204E £799

#### PROS

- Excellent integration with LM3204 mixer, not only doubling the number of input channels, but also the number of aux returns.
- More than one expander can be added to create a truly huge mixing system.

#### CONS

- As with the LM3204, rotary control mixing puts some users off.
- Can only be used with the LM3204 mixer.

#### SUMMARY

Obviously the way to go if you're happy with everything about your LM3204, except the number of inputs.

### SUMMARY

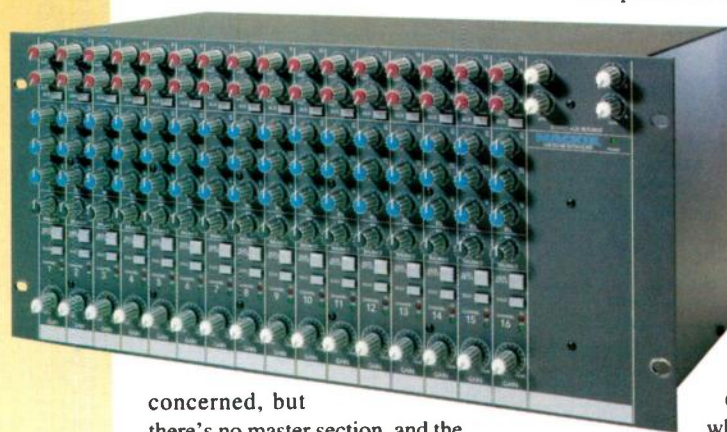
As a mixer, the LM3204E has the same strengths and weaknesses as the original LM3204, inasmuch as all mixing is done using rotary controls, there's no EQ bypass, and the EQ offers only three bands with a fixed mid. Even so, because so much can be done using MIDI level control and level automation during a mix, using knobs rather than faders for balancing isn't really a big problem. As you would expect, the sound quality is identical to that of the LM3204, which is best described as very clean and accurate, and in practice, the EQ has more than enough range for fine-tuning keyboard sounds.

As the LM3204E is specifically designed as an expander for the LM3204, it can't be used with any other mixer, but the positive side of this limitation is that a single ribbon control offers total integration between the main mixer and its expander. I've been nagging at manufacturers for some time now to put expansion sockets on all their mixers, so that you could, for example, use an LM3204E as an expander for a Mackie 8-buss, providing a best-of-both worlds setup for recording and MIDI sequencing, but as yet this hasn't materialised. Still, the future has plenty of time to happen!

**SOS**

### FURTHER INFORMATION

- £ £799 inc VAT.  
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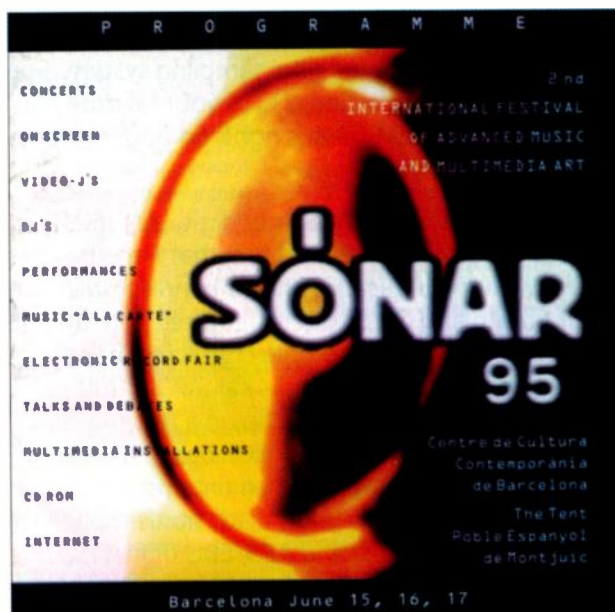
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# electric dreams

## SONAR '95 INTERNATIONAL ELECTRONIC MUSIC AND MULTIMEDIA FESTIVAL



*Spain's annual Sonar festival, held this June in Barcelona, is one of a growing number of European events devoted to electronic music of all types. DEREK JOHNSON & DEBBIE POYSER were in attendance.*

**E**lectronic music is alive and well in Europe, if this summer's Sonar festival is anything to go by. This eclectic mix of live music, multimedia installations, video screenings and plain partying brought together electronic musicians and DJs of all hues from all over the world, in one of Europe's most beautiful capitals.

### CULTURE CLUB

Now in its second year, Sonar is meant to both celebrate and promote electronic music. Daytime events focused on the impressive Centre for Contemporary Culture building, where a large hall was given over to trade stands occupied by record labels, electronic music fanzines, rave and musical event organisers, and magazines. Central to the hall was a large stage, where afternoon and early evening gigs took place. One floor down was the video screening auditorium, a darkened, cinema-like space where hypnotic experimental video and historic electronic pop promos were screened for two-hour continuous sessions. On a higher floor could be found three multimedia installations and Sonar's computer room, housing terminals with CD-ROM and CD-i availability, plus Internet terminals for general use. Outside, a chill-out tent featured squashy armchairs, and the

talents of DJs such as David Toop. During the evenings, the focus shifted to Barcelona's Poble Espanyol (Spanish Village) — a curious Disney-like recreation of Spain's regions, complete with local architecture. A large canvas erection ('The Tent') at the out-of-town site housed Sonar Club, a pretty much all-night rave featuring two bands and three DJs per night. Over the three nights (stamina permitting), you could catch Orbital, Psychick Warriors Ov Gaia, Fangoria, Dreadzone, and Biosphere.

### WEIRD SCIENCE

Sonar's multimedia installations provided an entertaining diversion, especially Gerard Van Der Kaap and Peter Giele's 'Chill Cave Terminals' — strange, almost coffin-like enclosures which surrounded the onlookers' heads with reflected ambient images from an overhead video screen and filled your ears with suitably atmospheric music. This all took place in a virtually dark room, where one of the Dutch artists played moody jazz on his two turntables, and the darkness transformed a lava lamp into something almost mystical — and all without illicit substances! The other side of the multimedia coin was represented by the sadistic (but fun) 'Epizoo', by Catalan artist Marcel.li Antunez. This bizarre interactive installation invited spectators to grab a computer mouse, and use its pointer to electronically torment grotesquely mutated images of the artist on a large screen. The multimedia system was set up so that each jab of the mouse elicited comic squeaks from the animated artist!

### GLOBAL VILLAGE

On a more serious note, Sonar also hosted several panel debates, focusing on the future of electronic music, and the people and organisations who make and distribute it. The aforementioned David Toop's 'Ambient Sounds and Imaginary Worlds' discussed the origins and current trends of ambient music, 'The Future of the Independent Music Industry' looked at the role and viability of independent labels in the 1990s, and 'Art on the Networks' tapped into the current obsession with all things net-like, to consider the growth of new methods of artistic transmission.

As an international festival, Sonar succeeded on two levels: it





certainly attracted an array of international record labels, and the artists appearing were drawn from all over Europe, plus the Americas. However, perhaps unsurprisingly, attendees were predominantly Spanish, which meant that a grasp of the language was necessary to really feel a part of the proceedings. On an artistic and musical level, Sonar's effectiveness for the spectator is largely determined by the strengths and weaknesses of the featured performers. Though artists such as the UK's own Scanner, Mexico's Jorge Reyes and Spain's adoptive son Michel Huygen undoubtedly produce compelling recorded work, electronic music still has a long way to go before it's truly entertaining as a spectator sport (Conductor of the Masses JMJ excepted here — whether or not you like his music, he certainly knows how to put on a show). All too often, electronic musicians think it's enough to simply stand on a stage behind their synths, backed only by a slow-moving, or frankly pedestrian, video projection. Sonar's Poble Espanyol gigs were much more successful as a concept, allowing electronic music to exploit one of its real strengths — the ability to get people moving — as well as satisfying the apparently insatiable Spanish appetite for dance. However, Sonar aimed to satisfy not only on a physical, but also on an intellectual level, with its debates and its focus on multimedia technology, for which those behind the show are to be applauded. As a forum for European record labels and musicians

## FEATURED ARTISTS

<b>MUSICIANS/BANDS</b> <ul style="list-style-type: none"> <li>• Aloof Proof (UK)</li> <li>• Child B (Spain)</li> <li>• UFO (Denmark)</li> <li>• Scanner (UK)</li> <li>• Fangoria (Spain)</li> <li>• Orbital (UK)</li> <li>• Vol Ad Libitum (Spain)</li> <li>• Feel Action (Spain)</li> <li>• MacGarin Ensemble (Spain)</li> <li>• Scorn (UK)</li> <li>• Psychick Warriors ov Gaia (Holland)</li> <li>• Dreadzone (UK)</li> <li>• Macromassa (Spain)</li> <li>• Michel Huygen (Spain)</li> <li>• Olivier Coupille (France)</li> </ul>	<ul style="list-style-type: none"> <li>• Alex FX (Portugal)</li> <li>• Generator Group ElectroGen (Spain)</li> <li>• Jorge Reyes (Mexico)</li> <li>• Biosphere (Norway)</li> <li>• Madelman (Spain)</li> <li>• Atau Tanaka (USA)</li> <li>• Orquestra del Caos (Spain)</li> </ul>	<ul style="list-style-type: none"> <li>• Video-Js HEX (UK)</li> <li>• Video-Js In Progress (Spain)</li> <li>• DJ Sideral (Spain)</li> <li>• DJ Da Costa (Spain/Germany)</li> <li>• DJ Delfin (Spain)</li> <li>• DJ Shark (Switzerland)</li> <li>• DJ Victor Sol (Spain/Germany)</li> <li>• DJ Gilbert (France)</li> <li>• DJ Kosmos (Spain)</li> <li>• DJ Kenny Larkin (USA)</li> <li>• DJ Doctor Grau (Spain)</li> <li>• DJ Toni Rox (Spain)</li> <li>• DJ Katrine Klausing (Belgium)</li> <li>• DJ John Tye (UK)</li> <li>• DJ Gloria G3G (Spain)</li> <li>• DJ Paul Thomas (UK)</li> </ul>
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**DJs**

- DJ Zeta (Spain)
- DJ Jose Padilla (Spain)
- DJ David Toop (UK)
- DJ Stefan Robbers (Holland)
- DJ John Acquaviva (Canada)
- DJ Gloria (Spain)
- Video-J Andyvision (UK/Spain)

to come together, Sonar also shone, but as a feat of virtuoso organisational skills, the festival was in a league of its own. Sonar is still only two years old — who knows what it might grow up to be?



### FURTHER INFORMATION

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- T** 00 34 3 442 2972.
- F** 00 34 3 441 5338.

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*A lavish production well ahead of its time, 'Bohemian Rhapsody' remains one of British rock's finest moments. Twenty years after its original release, MARK CUNNINGHAM learns how the mercurial muse was committed to tape from its producer, Roy Thomas Baker, and (then assistant) mix engineer, Gary Langan.*

Few singles can boast the technical and commercial achievements of Queen's 'Bohemian Rhapsody'. Released on October 31, 1975, it was a production beyond comparison, residing at the top of the UK chart for nine weeks and honoured in 1977 by the BPI as 'The Best Single Of The Last 25 Years'. Later, propelled by the tragic death of its composer, Freddie Mercury, the single returned to Number One for a second time in 1991.

Metamorphosing from wistful ballad to an operatic pastiche with a fiery rock climax, all within six short minutes, 'Bohemian Rhapsody' was greeted like manna from heaven in the dull musical wasteland between glam-rock and punk. Although 'Killer Queen', a year earlier, showed the band was a cut above the rest of the rock pack in terms of inventiveness, nothing could possibly prepare the listener for 'Bohemian Rhapsody'. With one broad sweep, it sealed Queen's future in the Premier Division of rock performers and studio experimentalists.

### THE RECORDING SESSIONS

Recording began at Rockfield Studio 1 near Monmouth on August 24, 1975, after a 3-week rehearsal period in Herefordshire. During the making of the track, however, a further four studios — SARM (East), Scorpion, Wessex and Roundhouse — were used. At the time it was the most expensive single ever made and guitarist Brian May was to later refer to the track's parent album, *A Night At The Opera*, as "our *Sgt Pepper*".

Vital to Queen's palette of sound was producer Roy Thomas Baker who, while at Decca and Trident Studios, had gained vast experience in rock, opera, and classical music. Baker had already produced Queen's first three albums (*Queen*, *Queen II* and *Sheer Heart Attack*) by the time Mercury casually previewed a new song called 'Bohemian Rhapsody'. Little did the producer realise that every ounce of his acquired expertise would be called upon in moulding this epic.

sequence', followed by the interim part, and although he didn't have all the lyrics together yet, I could tell it was going to be a ballady number. He played a bit further through the song and then stopped suddenly, saying, 'This is where the opera section comes in.' We both just burst out laughing. I had worked with the D'Oyly Carte Opera Company at Decca where I learned a lot about vocals and the way vocals are stressed, so I was probably one of the few people in the whole world who knew exactly what he was talking about.

"It was the first time that an opera section had been incorporated into a pop record, let alone a Number One. It was obviously very unusual and we originally planned to have just a couple of 'Galileos'. But things often have a habit of evolving differently once you're inside the studio, and it did get longer and bigger. The beginning section was pretty spot on and the end section was fairly similar, although we obviously embellished it with guitars and lots of overdubs. But the opera section ended up nothing like the original concept, because we kept changing it and adding things to it."

Baker and Queen recorded the basic backing track in three sections at Kingsley Ward's Rockfield Studios, later transferring to Scorpion Studios in North London and SARM for work on the guitar overdubs and extensive vocals. "The first half or ballad section was done with piano, drums and bass — the normal routine. We never really started the opera section at that point. We just left a 30-second strip of tape on the reel for later use, not knowing that we would even overrun it. Then the end rock section was recorded as a separate song, in the way that we would normally record a loud rock number of that period. The thing that made it difficult was that even the end had lots of vocals on it (the 'Ooh yeah, ooh yeah' part), so we had to record the basic backing track of drums, bass, guitar and piano, then do the background vocals without having the lead vocal on first. That wasn't the regular way of doing things, because the lead vocal would normally

# An Invitation to

## THE MAKING OF QUEEN'S 'BOHEMIAN RHAPSODY'

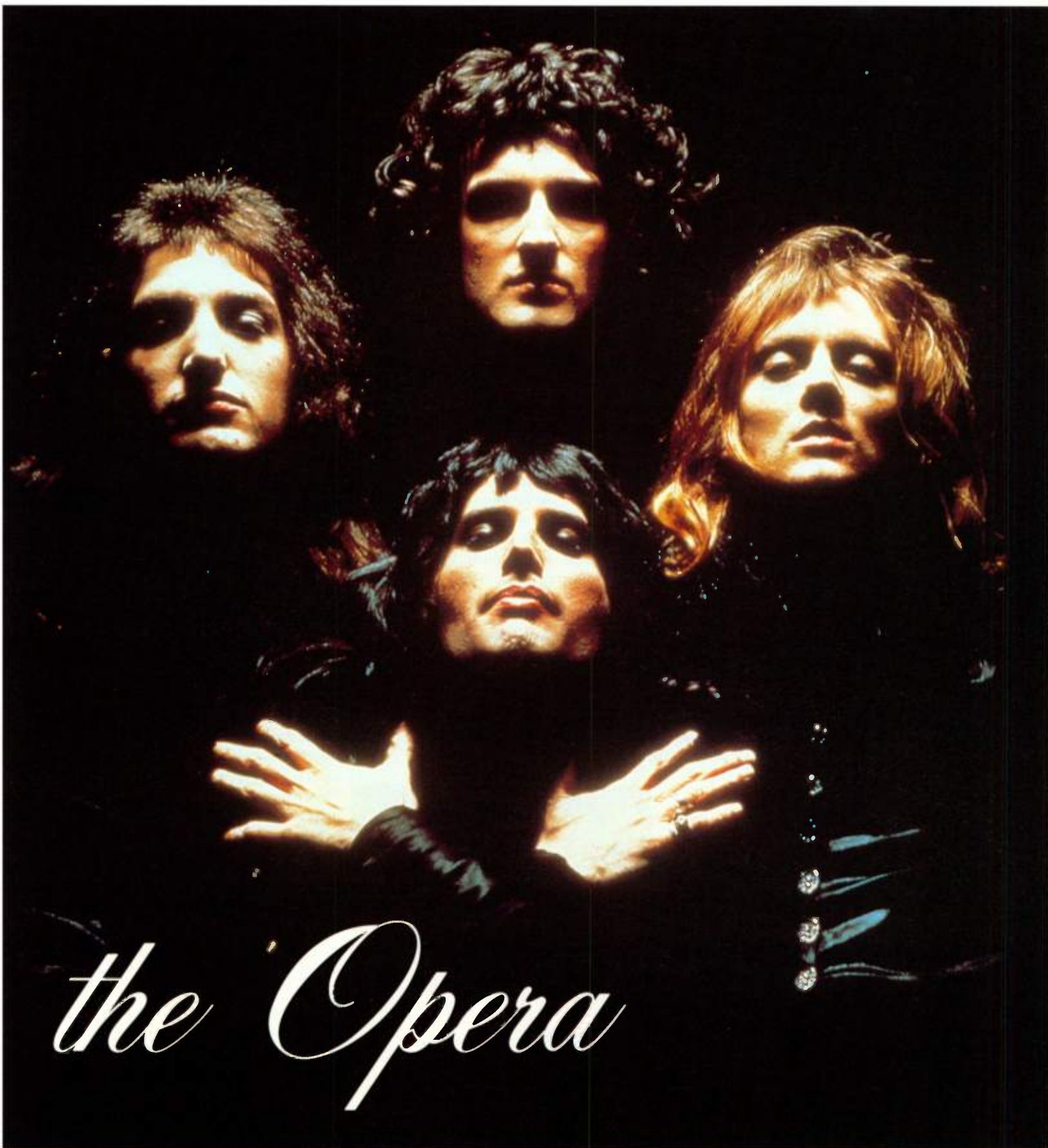
### 'THIS IS WHERE THE OPERA SECTION COMES IN...'

Baker recalls his first hearing of the song: "We were going out to dinner one night and I met Freddie at his apartment in Kensington. He sat down at his piano and said, 'I'd like to play you a song that I'm working on at the moment.' So he played the first part and said, 'This is the chord

dictate the phrasing of the background vocals. But we wouldn't have had enough tracks left for the rich backing vocals if we hadn't gone down this route.

"The opera bit was getting longer, and so we kept splicing huge lengths of tape on to the reel. Every time Freddie came up with another 'Galileo', I would add another piece of tape to the reel, which was beginning to look like a zebra





# *the Opera*

crossing whizzing by! This went on over a three or four day period, while we decided on the length of the section. That section alone took about three weeks to record, which in 1975 was the average time spent on a whole album.

"We formed a 3-part harmony by recording one harmony at a time and bouncing. So we did three tracks of the first part and bounced it to one track, three of the second, and three of the third.

We would then double bounce to one section, so that particular phrase would have a 3-part harmony just on one track. We would do this to each background vocal part across the song and ended up with fourth generation dupes on just one of the parts. By the time we mixed two of the other parts together, the first part was up to eight generations. This was before we wore out the master and began making 24-track to 24-track tape transfers. Once



# QUEEN: 'BOHEMIAN RHAPSODY'

► that had happened, the distortion factor on those vocals was very, very high."

Although a project of this magnitude would understandably cause anxiety among many in Baker's position, the technical restraints of the era did not alarm him. "If something had to be longer, we would just add extra tape. If we needed more tracks, we would track bounce to free some more room on the tape. The making of 'Bohemian Rhapsody' was basically one continuous track bounce!"

Due to the complex nature of the recording, it is not surprising that the occasional vocal faux-pas was noted by Baker's keen ears. He was not militaristic, however. "There were a few harmonies that were a little dissident, such as two notes next to each other which weren't quite spot on in passing phrases. We left those there, because they weren't classed as mistakes. In classical music they are allowable, whereas in rock music they normally are not. But in passing phrases it seems to work OK. If there was anything we heard at the time which we thought we wouldn't get away with, we would just wipe it and re-record it. So everything you hear was planned, albeit disjointedly planned, the way it should be."

## POSITIONING & Miking

How were the Queen band members positioned in relation to each other for the backing track?

"Roger Taylor sat behind his drum kit at the live end of the studio and John Deacon was against the wall, with his Marshall bass stack on the right-hand side as you looked out of the control room window. Brian was in a portable isolation booth

and Freddie was at the piano, close to the window.

"We weren't into multiple snare miking back then, so there was just a single mic on the snare. We tended to use mostly condenser mics at that time

*"Every time Freddie came up with another 'Galileo', I would add another piece of tape to the reel... That section alone took about three weeks to record, which in 1975 was the average time spent on a whole album."*

and generally Neumann U67s or U87s on the toms and overhead. The transformation between U67s or U87s was going on at that point and studios usually had one or the other. An AKG D12 was used on the bass drum. They were the days before the D112, which seems to be the standard now. John's bass was DI'd. Studios tended to make up their own DI boxes then, because no manufacturers appeared to be making them. They weren't active DI boxes either: people would make them with a transformer sticking out of the end with wires going all over the place. There was always a slight sound loss when you plugged them into the amp, so we had to compensate for that. We also used an Electro-Voice 666 and sometimes a Neumann U67 condenser on John's cabinet to pick up a bit of air.

"Freddie's piano was miked with two Neumann U67s and we also set up a Shure mic for his guide vocal. He didn't sing all the way through the backing track takes, just the first couple of words of each line as a reference for the band."

But, as ever, much experimentation was undertaken before Brian May's guitar sound was perfected. "We used to have a few different types of mics set up, from which we would choose or blend signals for any one given sound, and it's a technique that I still use today. Brian's Vox AC30 amps were backless, so we also set up some mics behind them and near the wall, to capture some ambience and the full spectrum of the guitar sound. There was always a lot of experimentation going on during our sessions. Brian generally used AC30s but John Deacon

had also thrown together something like a Tandy Radio Shack speaker with a 3 Watt amplifier, and we tried that with a treble booster. We tried putting microphones down metal and concrete tubes to

## TRIDENT DAYS

Roy Thomas Baker served his 'audio apprenticeship' at Decca Records in the heady mid-1960s, starting as a tea boy-cum-second engineer and quickly progressing to an engineer's role. Then, in early 1969, Baker joined the newly-opened Trident Studios as a staff engineer — a move which was to help make his name. "It was a great period for me, because it gave me the chance to work with international artists," says Baker. "One day I'd be working with Zappa, the next Santana, and I'd be going from American music, which I love, to American-orientated English music like T-Rex and Free. It was a great stepping stone."

Trident was one of the first UK studios to have 8-track facilities, a sufficient reason for The Beatles to temporarily leave their Abbey Road 'home' for the recording of 'Hey Jude'. In friendly competition with George Martin's AIR production company, Trident started its own independent initiative, Trident Audio Productions, after luring some of the country's best engineering talent, including EMI's Ken Scott and Robin Cable from Saga.

"Ken was working with Bowie and Robin was engineering for Elton John and other more mainstream acts with Gus Dudgeon. The people at Trident weren't too happy about starting a production company, as they felt they would be competing against their clients for studio time, but they realised there was a lot of talent out there which needed an outlet. It was around then that I first met Queen."





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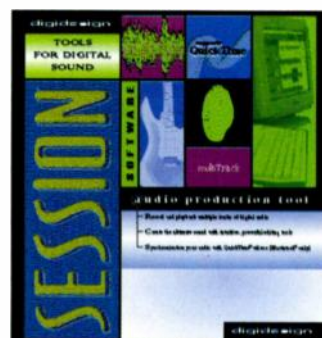
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# QUEEN: 'BOHEMIAN RHAPSODY'

► get more of a honky sound, and it all seemed to work. It certainly all stands up today when I hear it all again."

## 24-TRACK DILEMMA

While the first three Queen albums had been recorded on 16-track equipment, 'Bohemian Rhapsody' benefitted from 24-track technology, although not without a few problems.

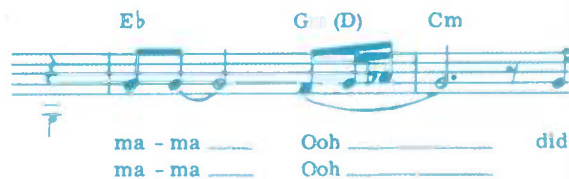
"We found that the different 24-track machines we used had different formats, but we managed to compensate for that. We just used the one machine, because there was no syncing available to us. We started off at Rockfield on the Studer 24-track, which looked like a huge fish fryer. Then we did the vocal overdubs at Scorpion Studios, where they had a Telefunken machine. Telefunken had this great idea to make their edge tracks (1 and 24) wider than the inside tracks, because they claimed there would be a higher risk of dropouts on the edges, but this made their machine totally incompatible with others. Unfortunately, Telefunken's attitude was: 'We invented the tape machine, we can do what we want!' So we threw that machine out and used a variety of machines from there onwards, including an Ampex which sounded phenomenally good but had transport tension problems: a track would play at a different speed by the end of the reel. The only contemporary machine we never tried was a Stephens."

## THE ROYAL MIX

Along with engineers Mike Stone, Gary Lyons and Geoff Workman, Baker took the helm on a variety of consoles at the sessions, including a custom-built desk at Rockfield, a Cadac

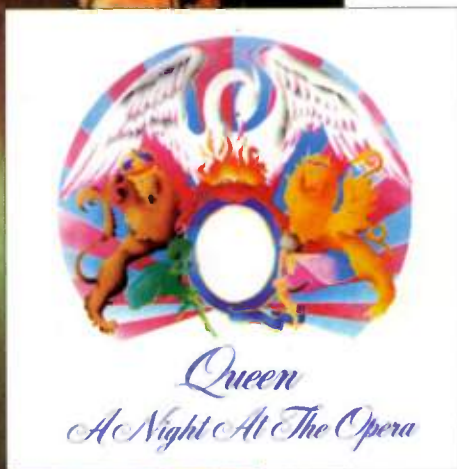
at the Roundhouse, and "an old, blue Neve with big knobs on it" at Wessex. When Baker and Queen retreated to SARM (East) Studios for the mixing sessions, they were treated to a Trident B console.

"That console was the second B-series model that Trident delivered from Malcolm Toft. It was a great board with such a unique sound, although I couldn't say why. I noticed that when it was resold, it was described as the board used to mix 'Bohemian Rhapsody', and I think they got more money than they originally paid for it. We used an MCI machine at SARM which we called 'Munchy, Crunchy and Intermittent', because it was always falling apart!"



Now famous for his work with The Art Of Noise and Trevor Horn, and productions for Spandau Ballet and Mick Jagger, Gary Langan was a fresh-faced, 18-year-old assistant engineer at SARM when he came to work alongside Baker, Stone and Lyons on the 'Bohemian Rhapsody' mix. Langan's first task at the sessions was to put together a composite multitrack master from the three distinct sections of the song. He says: "Nobody really knew how it was going to sound as a whole 6-minute song until it was spliced together. I was standing at the back of the control room and you just knew that you were listening for the first time to a big page in history. Something inside me told me that this was a red letter day, and it really was."

One new item of equipment which was installed at SARM only days before the 'Bohemian Rhapsody' mix was the Alison computerised mixing system. Langan laughs: "It



## THE NIGHT AFTER THE OPERA

Although Queen and Baker were united in the belief that 'Bohemian Rhapsody' should be a single, the song's 6-minute length gave EMI's decision-makers cause for concern. "It was, after all, breaking all the rules," says Baker. "So we rang EMI and told them we had a single, inviting them down to have a listen. We told them how long the track was and before they had even heard it, the comment was, 'Oh, I don't know. I don't think we'll be able to get any radio play with a song that long.' We said, 'But you haven't heard it yet.' They said, 'Well, just going by what the current formula is, if it's longer than three and a half minutes, they won't play it.'

"The way I rationalised it was that there had previously been Richard Harris' 'MacArthur Park' and Barry Ryan's 'Eloise' (1968) which were very long, and that justified to me that it was probably the right time to release a long song and get away with it. We thought

we'd better get some outside advice and around the corner to Scorpion Studios was Capital Radio, where Kenny Everett worked. We invited him over, for his professional opinion, and his response was very animated. He said, 'I love this song. It's so good, they'll have to invent a new chart position. Instead of it being Number One, it'll be Number Half!' It was the oddest thing I'd ever heard! So we all went out for an Indian and Ev asked for a copy. We had a reel-to-reel copy but we told him he could only have it if he promised not to play it. 'I won't play it,' he said, winking...

"On his radio show the following morning he played the beginning of it, saying, 'Oh, I can't play anymore, 'cause I promised.' Then he played a bit more later. Eventually, he played the track 14 times over the course of the weekend. By Monday, there were hordes of fans going to the record stores to buy 'Bohemian Rhapsody',

only to be told it wasn't out yet. There was a huge backlash at our end from EMI's promotion department, who told us we were undermining them by giving Capital Radio a copy. But they said that we had no option, because they told us that nobody would want to play it. In the meantime, John Reid [Queen's then new manager] had got together with the MD at EMI Records and they just went ahead and started to press the single. During the same weekend that Ev was playing the song, there was a guy called Paul Drew, who ran the RKO stations in the States. He happened to be in London and heard it on the radio. He managed to get a copy of the tape and started to play it in the States, which forced the hand of Queen's USA label, Elektra. It was a strange situation where radio on both sides of the Atlantic was breaking a record that the record companies said would never get airplay!"



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# QUEEN: 'BOHEMIAN RHAPSODY'

*"I was standing at the back of the control room and you just knew that you were listening for the first time to a big page in history. Something inside me told me that this was a red letter day, and it really was."*

► was the first automated system in the world, but it was ridiculous because it never worked properly! You had to store data on two tracks, so you'd end up with no more than 22 tracks of music on your tape, to provide room for the data."

Baker adds: "It was an old VCA system, which was responsible for the distortion at the end of the opera section. If you listen to the record closely you'll notice it. But there wasn't a single thing we could do about it. It was a combination of the extra track-bouncing and the use of the old VCA technology that was employed for the computerisation. When it got to that stage, the meters were so pinned that the VCAs in the board would not take any more volume. So we had to turn the computer off and the end rock section of 'Bohemian Rhapsody' was actually mixed by hand in the traditional way, where we each had control over a fader or group of faders."

It was planned that the highly pronounced snare beat at the beginning of the heavy rock section would be a distinct edit point, its crashing velocity a by-product of the manual mixing. "That was the point at which the VCAs were turned off," Baker explains, "but I did also push it there. You hear a marked difference on the end section, where it totally cleans up; it's crystal clean and loud. It wasn't planned that way; it was purely an error because we couldn't get rid of that distortion. It didn't worry me too much though, because one of the trademarks of Queen was the heavily saturated sound."

"On *Queen II* and some of the big Queen themes, especially 'Bohemian Rhapsody', the generation copies caused so much distortion on Roger's drum

## NO SYNTHS!

Queen's early albums were all notable for the inclusion of the phrase 'Nobody played synthesizer' in the sleeve notes. Many people assumed it to be a reaction against the growing use of synthesizers in rock and pop music, although producer Roy Thomas Baker insists that this was no moral protest.

"There was no stipulation that we wouldn't have any synths, but the statement 'No synths' was printed on the album sleeves because of peoples' lack of intellect in the ears department. Many people couldn't hear the difference between a multitracked guitar and a synthesizer. We would spend four days multi-layering a guitar solo and then some imbecile from the record company would come in and say, 'I like that synth!'"

without even knowing it, in the same way that with an electric guitar, if you turn it up to 10, you'll hear distortion. But that became the band's sound."

## CREATIVE TENSION

With a band whose four individuals were no shrinking violets when it came to writing songs and taking the creative lead, one of Roy Thomas Baker's major tasks was to singularly encourage the band to work as a concise unit while keeping the distinctive Queen sound. "It was a more difficult situation than working with a band with only one songwriter, because they were all so good. But it didn't matter who had written the song; it still had to sound like a Queen record."

"They were great to work with, although like most bands there was an element of internal bickering. I always told them that it was too embarrassing for them to have an argument in front of everyone in the studio. So I would always make a room available for them to go to and argue in private. I think most of their arguments were about who had the B-side — that royalty thing. I remember Roger moping about because he really wanted his song, 'I'm In Love With My Car', on the B-side of 'Bohemian Rhapsody'. He locked himself in the tape closet at SARM and said he wouldn't come out until they agreed to put it on!" [Eventually, they did.]

The trend-setting video, made to promote the single, was directed by Bruce Gowers and cost just £4000, but information regarding the total cost of the audio recording seems to have disappeared. "It must have been very expensive," Baker comments, "but it wasn't something that worried me, because it didn't seem to be my department. As always, I was out to make the best record possible. I was just given a start date and a deadline for the whole album. We were still mixing one of the songs for the album during the press playback at the Roundhouse, so the press heard one track as

## GARY LANGAN & SARM

SARM started life at the beginning of the 1970s as a tape copying facility with two Revox machines, trading in Osborn Street, Whitechapel, as 'Sound And Recording Mobiles'. Encouraged by his session musician father, Gary Langan joined SARM straight from school. He recalls: "Gary Lyons and Mike Stone taught me everything I knew about engineering. There isn't anybody these days like those two guys. Compared with many of today's engineers, they had a different, better level of technical skill."

Langan first became involved with Queen when Roy Thomas Baker brought two songs from the *Sheer Heart Attack* album to SARM for remixing. "After working at SARM on a few projects, it seemed that Queen didn't want to mix anywhere else for some time. So I ended up working on all of their 'Marx Brothers' albums — *A Night At The Opera*, *A Day At The Races*, and *News Of The World*."

"The only band with whom I'd worked was Queen; I didn't know about how other bands recorded. So spending weeks doing guitar solos with Brian and even more weeks doing vocals seemed like the norm to me. My job was really to learn and look after the band. To be 'seen but not heard' was the task in those days, but I became really good friends with all of them."



tracks that it became a trademark sound in itself — which people have since tried to copy with outboard equipment. Even today, people are still trying to recreate that in-your-face distortion with machinery! So by accident we started a trend



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# QUEEN: 'BOHEMIAN RHAPSODY'



## MEETING ROYALTY

It was in 1972 while on an inspection tour of the De Lane Lea studio complex in Wembley, North London, that Roy Thomas Baker first met Queen, who were then still using the band name Smile. He recalls: "Queen were recording free of charge while the engineers tested. I didn't know of the band then and I was more concerned with going over to see what this big, new studio was like. That's when I ran into the guys and heard their demos. They were doing a song called 'Keep Yourself Alive', which immediately sounded like a hit to me. I just thought that here was a band doing something new and fresh. You could tell Queen were so good just by listening to the musical content at that stage, and sitting down and chatting to Freddie Mercury."

After signing to Trident Audio Productions, Queen began work on their debut album [Queen] with Baker and engineer John Anthony during 'downtime' at Trident, often working from 2am through to the following lunchtime. Brian May's idea for lush, multi-layered guitar parts was already in place by the time of Baker's arrival. "Brian was already on to something different, in terms of trying to orchestrate his guitars in a different way to how most people would approach it. I had quite a bit of an orchestral background through working on classical music at Decca, and that helped with structuring the phrasing of the guitar parts. We never thought of Brian's guitar as a raunchy instrument, like most guitarists do; it was an orchestral instrument. Brian's great strength was in phrasing a part then double-tracking or harmonising very accurately and quickly."

The gong which graces the dying moments of 'Bohemian Rhapsody' made its debut on the experimental 1974 Queen II album. "It became a trademark which started with us pissing around during the second album. We were experimenting with ideas, both musically for themselves and technically for me. Freddie said to me, 'If there are any ideas that you've had that you can't use with boring, human type bands, we'll try them out on this.' A lot of it was backward cymbals, backward gongs, and backward tom fills. Anything that Queen ever did was encompassed in that second album. Queen II was like the 'kitchen sink' of every known Queen effect. Musically, there were the ballads, the heavy bits, and complex arrangements — it all stemmed from there. Phrasing too, and everything had to be done by hand, because there were no effects boxes that could do it automatically. We had to get tapes and run them around the room by hand, just to get phasing."

► a rough mix. We never worried about budgets at that time, but it was cheaper to record then."

Unfortunately, there are no rough mixes around to audibly demonstrate how 'Bohemian Rhapsody' was created in stages. This can be attributed to Queen's paranoia of having unfinished recordings lying around the studio. Baker explains the rationale behind it: "We never did a rough mix because we all had Philips dictaphones that we'd stick near the studio monitors and record a mix for private listening. We'd attempt some rough mixes ourselves for other songs, just to see if edits would work, but rough mixes had a habit of getting into the record company's hands prematurely. So if we ever did any, we would hide them or disguise them. Once, at Trident Studios, Billy Cobham was working next door and we hid our tapes in that control room, labelling them 'Cilly Bobham'. If it had been labelled 'Queen', we knew that EMI would have a copy the next day."

## CREATIVE MONUMENT

20 years on from the original release of 'Bohemian Rhapsody', Baker rightly believes that the song still deserves attention as a creative monument. "I listen to it now and it's a great piece of art, although I didn't realise at the time we had made a classic. It was the first combination of opera and rock, and the summit of everything we were doing before recording and mixing became automated. If we hadn't produced certain effects by hand, nobody would have bothered to invent the box that did it automatically, and I'd like to think that a lot of the stuff we were doing in the '70s started trends and got copied later by machines."

After working on the album *A Night At The Opera*, Baker took a break from the Queen camp and concentrated his activities on American bands, only to be coaxed back by Roger Taylor for one more Queen album (*Jazz*) in 1978. Does 'Bohemian Rhapsody' represent the pinnacle of Baker's achievements?

"It's definitely one of several, but I saw a backlash against over-production so I changed. One of the ways was to get involved with The Cars, because I could use all my production techniques as a way of under-producing. The punk thing was bubbling under and bands were trying to get through with a more raw, understated sound, and I really enjoyed making sparse records with The Cars and Alice Cooper. I could

see the backlash coming, though, just as I could see it happening in the 1980s and out of that came Pearl Jam and Nirvana. There are times I can clearly recall where I have made a conscious move to change my direction, and 'Bohemian Rhapsody' was the pinnacle of my over-indulgence as a producer."

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# MAKING MORE OF YOUR **EMU** **Proteus** **PART 2**

**PAUL FARRER** looks  
at ways of using  
*Proteus/2* samples to  
create a convincing  
orchestral arrangement.

**S**ome people feel that the arrival of the polyphonic synthesizer didn't do a great deal in helping people write better music — after all, the only previous electronic keyboard was the organ, so there was a great temptation to play polysynths in the same way. The ability to play up to 10 notes at a time (five with each hand), many feel, is a bit of a musical short-cut when you're trying to emulate orchestral sounds, and the current massive appeal of monophonic synths seems to suggest that, in many applications, one note can be more effective than many. This is not simply an 'analogue-retro' point of view either, and if we delve much further back into musical history it's easy to see that this instinct for monophony (if that's the right word) stems from hundreds of years before Robert Moog was even born.

The depth and harmonic density of any orchestral piece is entirely due to the fact that most orchestras (in the traditional sense), are comprised almost entirely of groups of monophonic instruments. Each instrument, or instrumental section, plays a single musical line, which, when combined with other elements of the orchestra, form the individual parts of the chord. As you can imagine, if you take the trouble to work out every single woodwind, brass and string line, it gives you much more scope to add

detail and variation than if you were playing block chords. In this way, composers such as Bach and Vivaldi, were able to construct mind-bogglingly complex and ornate orchestral works, whilst retaining often very simplistic chordal progressions.

## **PROTEUS/2 (THE SEQUEL)**

'Wot, no big fat string sounds?' might well be your initial thought as you flick through the Proteus/2 presets, and you'd be right. But don't be fooled into thinking that a four second symphonic hall reverb and severe reduction of the string section attack time warrants an immediate contract scoring the next Steven Spielberg film. The Proteus/2 is designed rather differently, and a brief play of the Demo sequence is guaranteed to give you that 'how come my stuff never sounds like that?' feeling.

The internal architecture of the Proteus/2 is set up to help you get the most out of programming orchestral parts from this monophonic point of view, and an obvious place to start is to decide what kind of orchestra you're working with. Very often, a good way to familiarise yourself with the kind of things that orchestral samples are capable of is to start by looking at the individual instruments themselves, as opposed to the bigger 'ensemble sections'. The best way to explore this is by constructing a multitimbral patch consisting of only the Proteus' solo instrument presets. This



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► is particularly helpful for added realism because, in most cases, the playable range of the preset is limited to the actual range of the instrument itself.

Begin by building your own collection of string instruments — for example, within your multitimbral setup, start with the 'Solo Cello' on channel one, 'Solo Viola' on two, and 'Solo Violin' on channel three. Still keeping things simple, move onto the woodwind section. Flute on four, Oboe on five, and so on, until you have the first 12 or so

rear (very often, slightly to the right), and just before you fall off the back of the stage, you come across the percussionists (see Figure 1).

However, with programming smaller solo ensembles, the panning is very much left up to the individual, and providing there isn't too much of an imbalance of levels between inherently loud, and inherently soft instruments (such as trumpet and violin), almost anything goes. When planning your panning, keep in mind that a real

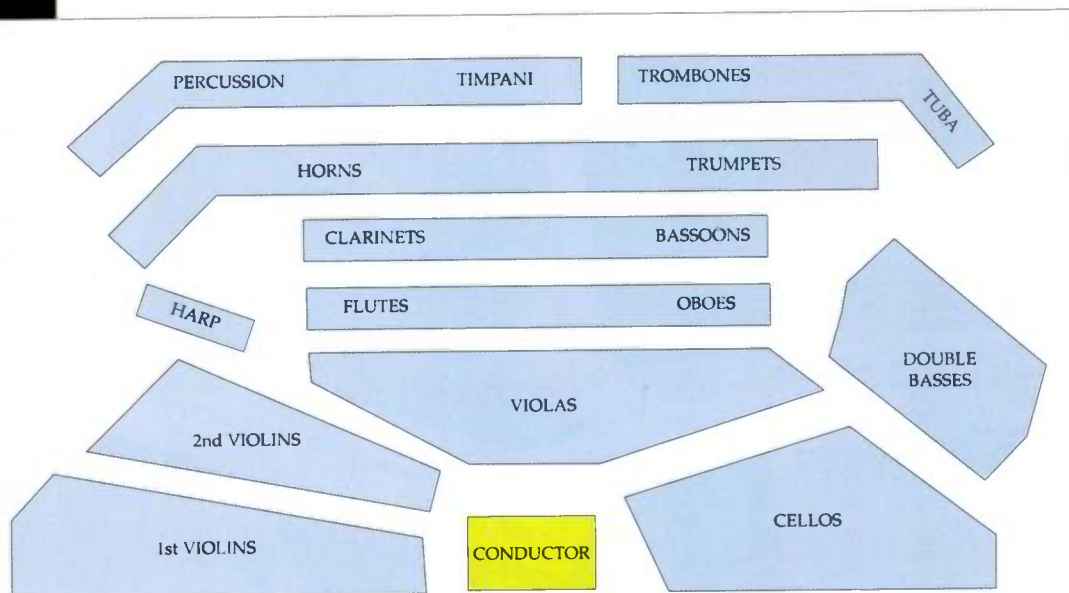


Figure 1: The layout of a modern Symphony Orchestra.

channels filled with a good selection of the solo instruments (take a look at the Multitimbral Setup Chart elsewhere in this article). Once you've conscripted your solo players, you can then select suitable ensemble string and brass parts to emulate the various orchestral sections where several players follow the same score.

Just as with the layout of the symphony orchestra, the pan settings are also very important. Traditionally, the first and second violins are to the left of the conductor, with the violas slightly to the right, and cellos on the extreme right at the front. Double basses are positioned behind the cellos, and the woodwind section usually sit centrally behind the violins and violas. The brass section is bringing up the

orchestra seldom has a wide stereo spread, because a lot of what you hear is room reverb, and reverb tends to dilute the apparent width of the stereo image. To make your mix sound more realistic, choose a concert hall setting, and use more or less equal amounts on all the members of your virtual orchestra. You wouldn't hear different types of reverb in real life, so there's little sense in using one reverb setting on the strings and another on the brass, for example.

## MODULATION & COMBINATIONS

Last month, I talked about programming the 'Realtime Modulation Control', and how the pitch-wheel could be assigned to control the volume of a

## MUSICAL BASICS

In most cases, simple chords are formed from three different notes, the first being the root note (or tonic). In the case of A-major the tonic is 'A'. Next is the fifth (or dominant), and in the case of A-major, the dominant is 'E'. We define the chord as a major by adding the third (or mediant), in this case 'C-sharp'. To define the chord as a minor, simply drop the third by a semi-tone, making the 'C-sharp' a 'C-natural', turning the chord into an 'A-minor triad'. This arrangement is often exploited in the string sections — for example, the cello plays the first, the

viola the third, and the violin plays the fifth, creating a simple triad using the first three instruments of our multitimbral setup. The bass note (usually, but not always, the tonic), can be strengthened further by the double bass, or that often overlooked, but versatile instrument, the bassoon. The third and fifth can also be sweetened, by pairing the flute and clarinet a third interval apart on the mediant and dominant notes.

If you now imagine that each of these instruments have to work their way through even the most simplistic

chord structure, you'll soon see how easy it is to construct very intricate sounding musical sequences. Take, for instance, the corny old 'C-A-F-G' bassline, and see how much variety you can build into the format of these four chords alone. If you get stuck, just remember that variation is the key to retaining the interest in very simple musical formulas. Try swapping the bass instrument from cello to bassoon, or the excellent bass clarinet sample (preset 29). With the cello no longer stuck in the bass, why not give it an expressive counter melody to play with?



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► given sample. This works especially well with the Solo Cello preset, and gives you plenty of scope for adding all sorts of dramatic swells and fades over the course of the cello line, just as a real cellist would.

Also try programming with combinations of instruments that you wouldn't normally use. For example, English Horn and Tuba may not sound like a match made in orchestral heaven, but providing their ranges sound realistic, and you are careful with the pannings and velocities, there is still plenty of scope for interest. For me, one of the finest instrument samples I've yet heard come out of a sound module has to be sample number 38, 'Oboe with natural vibrato'. As a solo instrument over an orchestral backing, this preset simply oozes realism and feeling. It's also a very versatile sound, working well as both a bright, detailed up tempo instrument, and a mysterious, expressive lead line. Try pairing it against preset 36 ('French Horn 1'), for a rich and surprisingly realistic result.

## PERCUSSION

When it comes to orchestral percussion, generally speaking there really is only one golden rule to observe: less is more. The dramatic power of a good set of timps (such as preset 50), or the odd cymbal crash (preset 51, 'Gong/Cym') is unparalleled if these are used in the right place. Used sparingly, the percussion section is perhaps the greatest device for adding emotional vigour to your pieces. Good percussion doesn't necessarily have to stop at just the timps and cymbals, however, and the Proteus/2 has provided us with a wide selection of other useful percussion samples with which to make the most of this often overlooked section of the orchestra. You might like to emulate Stravinski or Prokofiev, and experiment with a syncopated tambourine rhythm (great for adding pace, and excitement), or perhaps a triangle at the start of each bar? Single note crescendo timpani rolls also work very nicely if you copy the same part to the triangle; this gives you all the power of the bottom-end plus the detail of a good selection of top-end harmonics.

Tschaikovsky's famous '1812 Overture' requires the firing of military cannons [*Is there a GM preset for that? — Ed.*] during its performance, and these, along with all the other instruments, are scored in the conductor's manuscript. This may seem a little extreme (particularly if you have to decide where to position your microphones!), but it shows that radical experiments with percussion can be very effective. Try de-tuning the Tam-Tam sample (number 69) by a couple of octaves, and see if you can't encourage

## MULTITIMBRAL SETUP CHART

Channel	Sound	Preset	Pan
1	Solo Cello	00	+3
2	Solo Viola	01	+P
3	Solo Violin	02	-4
4	Flute	24	-3
5	Oboe	26	+5
6	Engl Horn	27	+6
7	Clarinet	28	-4
8	Bassoon	30	+1
9	Fr Horn 1	36	-3
10	Trumpet 1	39	-1
11	Trombone 1	43	+4
12	Tuba	45	-4
13	Percussion 1	59	-3
14	Percussion 2	58	+3
15	Pizzicato 1	17	+P
16	Harp	60	+2

your neighbours to move house by doubling it up with the orchestral bass drum (sample 56).

Another favourite is, of course, the Tubular Bell (preset 57) — resonant, unusual, and above all, easy to programme. Tubular bell samples, like so many others, seem to work better playing in a slightly lower register, as opposed to a higher one. The Glockenspiel (preset 55), is again effective for adding top-end definition to string lines. This should be used with caution, though, as excessive use may evoke images of your least favourite marching kazoo band....

## COMMON MISTAKES

Firstly, the thing to remember is that programming orchestral pieces realistically requires a fair understanding of the instruments themselves. Think about their strengths individually, and also their limitations. It's impossible for the whole string section to be able to play pizzicato (plucked) at the same time as playing legato (bowed), so try having one section pluck whilst the others bow. Secondly, an orchestra is capable of some large variations in volume — consider the difference between a brass instrument playing at its quietest and the same instrument at its loudest. Also don't forget the orchestra's ability to increase and decrease its volume very quickly — many people do. Of course, many instruments change tonally between loud and soft, and the Proteus/2 allows for this; '36 French Horn 1' is a much softer sample, as compared to preset '37 French Horn 2' which is very much a 'forte' instrument.

Lastly (but most importantly), never, ever be afraid to experiment. Very often, the greatest advancements in music have come from the most unusual, avant-garde ideas, and the Proteus/2 is, in my opinion, an ideal platform to expand your musical vocabulary (though the techniques here apply equally to any good orchestral sound sources). Mozart was, after all, considered the Stockhausen of his day, and as far as your music is concerned, never let anybody tell you that there are 'simply too many notes'.

## SOME ORCHESTRAL CONTRADICTIONS

The Proteus/2 refers to preset 27 as 'English Horn'. The 'Cor Anglais' (or the thing that Paul McCartney is holding on the front of the 'Sergeant Pepper' album as it is perhaps better known), is slightly misnamed, because it is not even remotely a horn, and probably didn't originate in England. Despite

seldom being made out of anything other than metal, the flute remains in the woodwind section, and even though the saxophone has yet to find its way completely into the modern-day symphony orchestra, it would never be classed as a brass instrument on account of its reed mouth-piece!



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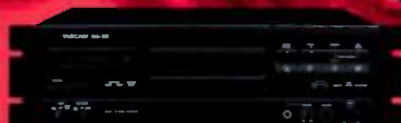


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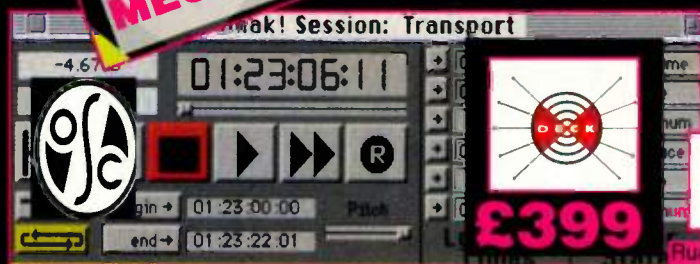
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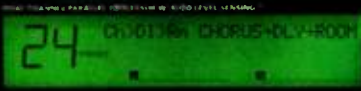


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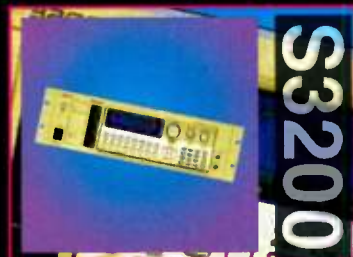
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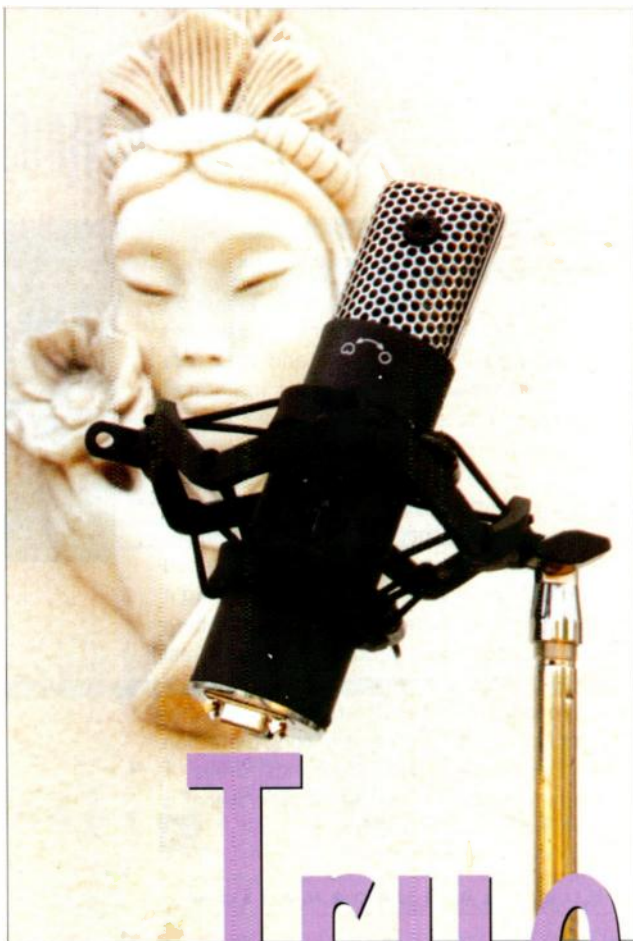
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Groove Tubes MD3 valve mic and Shock Therapy shockmount.



steel tube, some 8.5 inches long. Ventilation holes in the side of the case keep the circuitry cool, and allow the glow of the valve to shine through. The mic can be mounted directly onto a conventional mic stand, using the threaded socket cut into the base of the body, and an optional shockmount is available.

As the mic has a valve preamp, it can't be run from phantom power, so you have to use one of three purpose-built Groove Tubes PSUs. The difference between the PS1, PS2 and PS4 power supplies is simply the number of mics they can power at one time, and any of the mics will run on any of the power supplies. The new model DP1 valve DI preamp will also run off these power supplies.

The power supply connects to the mics via a locking 9-pin 'D' connector situated on the base of the mic body, and although these are terminally ugly connectors, they are both cheap and reliable. The audio signal leaves the PSU via a conventional

**PAUL WHITE** turns his critical ear to three Groove Tubes valve mics, and concludes that they are more likely to tell you what you want to hear than the unabridged truth.

# True Lies

## GROOVE TUBES MD1/ MD2/ MD3 VALVE MICS

**M**ost guitar players will be familiar with Groove Tubes as a source of selected amplifier valves, and a manufacturer of quality guitar amplifiers, but over the past few years, they've broadened their range to encompass valve studio equipment, including compressors, equalisers, and microphones. It's a few years since I first looked at the MD1 and MD2 microphones, and I was impressed by the benignly-coloured tonal character of these mics, which really flattered

balanced XLR connector, and all the mics are transformer balanced.

Valve mics are prized for their interesting tonality, not for their accuracy, and the Groove Tubes mics are no exception. The MD1 features a large-diaphragm capsule, amplified via a dual triode valve run from an high tension of 120 volts. Looking at the frequency response curve, the overall response is nominally flat (give or take a couple of dBs), although there are a couple of peaks, one at 7kHz and another at 10kHz, as well as a deliberate (but slight) LF rolloff below 500Hz, to help counteract the proximity effect when the mic is used up close. When used at a distance of six inches, which is common in the studio, there's around 4dB of bass boost, centred around 120Hz or so, which adds a nice, intimate warmth to the sound. Being a tube mic, the noise figure isn't quite as low as for a state-of-the-art, solid-state preamp, but in normal studio miking applications, the mic is more than adequately quiet. Unlike some capacitor mics, the MD1 has no pad switch, and no high-pass filter.

The MD1 has the bright, yet rich tone associated with valve mics, as well as a liberal dose of what I call the late-night DJ, throaty character which flatters most vocalists.



Groove Tubes MD1.

vocals. Both mics are still in production, but the main purpose for including them here is to compare their performance against the new MD3 model.

### THE MD1

The original MD1 is a side-address cardioid capacitor mic, built into a 2-inch diameter stainless

### GROOVE TUBES MICS

#### PROS

- Warm, intimate valve sound.
- Distinctive styling.

#### CONS

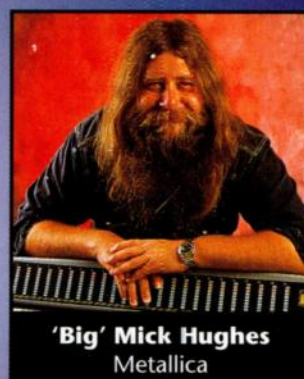
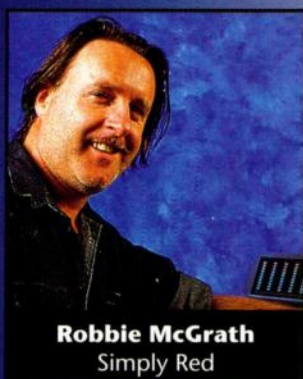
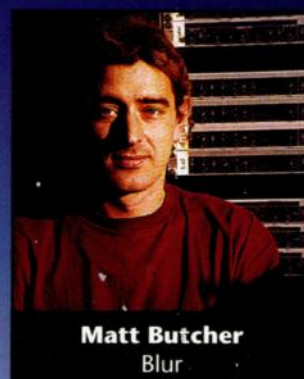
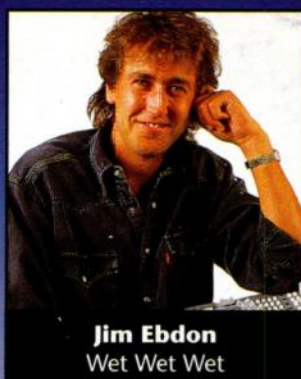
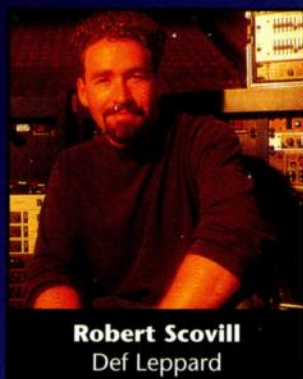
- Not as quiet as top-end, solid-state mics.

#### SUMMARY

The ideal microphones for the vocalist who wants a larger-than-life sound.



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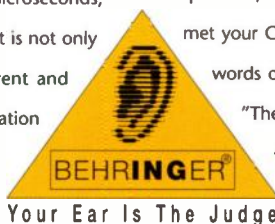
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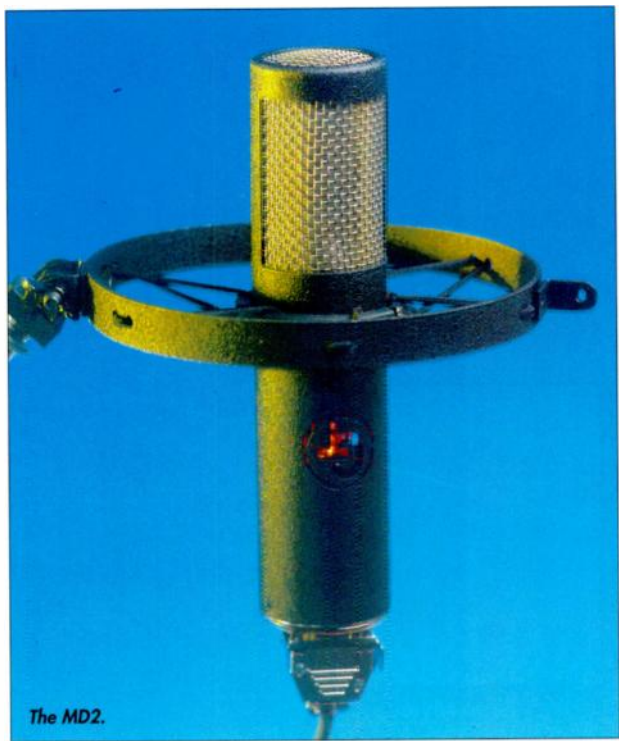
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# Groove Tubes Mics



## THE MD2

The MD2 is externally identical to the MD1, except that the body is coated in a suitably vintage black crackle finish. Again, a large-diaphragm capsule (hand built using a 3-micron, gold-sputtered mylar diaphragm) is used. A new valve preamp circuit was designed for the MD2, incorporating a Sensitivity Level control on the base of the mic (in place of the threaded stand insert), which varies the polarisation voltage on the capsule. This

provides a 20dB control range, extending the maximum SPL to a massive 150dB.

The dual-triode, 12AX7 valve stage is designed to maintain a fast transient response, and the main difference between the MD1 and MD2 is that the MD2's response extends right up to 20kHz. Subjectively, the MD2 has all the warmth of the MD1, but has a little more air around the top end, and seems to handle delicate, transient sounds particularly well. It is still very flattering, but at the same time sounds more honest than the MD1. Both the MD1 and MD2 sound great on acoustic guitars and percussion instruments, as well as on vocals, and users also report good results on sax.

## THE MD3

Like the MD2, the MD3 has a crackled black, tubular body, but the basket is more conventionally shaped, and is fabricated from chromed (or maybe just highly polished?), perforated stainless steel. Inside the basket is a secondary layer of metalised sheer cloth, which provides further capsule protection, as well as RF shielding.

The capsule looks a little different to the ones used in the first two models, but it is still a large-diaphragm (1.25 inches) design, utilising a gold-sputtered, 3-micron mylar diaphragm. Interestingly, the capsule has a rear acoustical port, which may be opened or closed to provide both cardioid and omni response patterns from a single diaphragm. To adjust the pattern, a small screwdriver must be inserted through one of the holes in the basket, and although the job looks pretty straightforward, it is just possible that a real klutz could slip, and trash the capsule!

As with the MD2, a sensitivity control is fitted to the base of the mic, extending the maximum SPL handling from 130dB to 150dB in 2dB steps. Included with the MD3 is an ST1 Shock Therapy shockmount, and a removable pop filter — as with the MD2, there is no standmounting thread, so you have to use a shockmount of some kind. It's worth mentioning that the Shock Therapy is a serious, heavy-duty mount, and puts some of the competition to shame!

Once you turn it on, it's immediately evident that the MD3 is a no-holds-barred vocal mic, that makes no pretensions to tonal honesty. If it could talk, it would probably say something like, "Don't confuse me with the facts, I'm here to sell records!". I have a good collection of large-diaphragm capacitor mics, most of which were chosen for their larger-than-life tonal characteristics, but in a side-to-side comparison with the MD3, they all sounded insubstantial, airy, and rather thin. The MD3 has a very solid, rather middly sound, which pushes vocals right to the front of a mix. It's hard to describe, but it's rather like having the best attributes of a good dynamic mic, combined with the warmth and detail of a more conventional large-diaphragm mic. If anything, the sound is even more flattering to vocals than the other two models in the range (and they do a pretty good job at lying through their teeth), so that in most cases, what you hear is a lot closer to how you'd like to sound, than

## SPECIFICATIONS

### MD1

Pattern	Cardioid
Frequency Response	40Hz to 16kHz +/- 2dB
Equivalent Noise	28dB (A Wtd)
Sensitivity	34dB (1kHz 0dB= 1V/microbar)
Max SPL	132dB
Maximum Output	1V RMS

### MD2

Pattern	Cardioid
Frequency Response	40Hz to 20kHz +/- 2dB
Equivalent Noise	28dB (A Wtd)
Sensitivity	Adjustable from -30dB to -50dB (1kHz 0dB= 1V/microbar)
Max SPL	Adjustable from 130dB to 150dB
Maximum Output	1V RMS

### MD3

Pattern	Omni, Sub-Cardioid, and Cardioid
Frequency Response	20Hz to 22kHz +/- 2dB
Equivalent Noise	26dB (A Wtd)
Sensitivity	Adjustable from -28dB to -48dB (1kHz 0dB= 1V/microbar)
Max SPL	Adjustable from 130dB to 150dB



how you *actually* sound. I imagine that like other vocal mics, certain characteristics suit some voices better than others, but it's difficult to imagine any rock or pop vocal not sounding good through this beast. This is one mic that definitely sounds as distinctive as it looks — it almost had me believing that I could sing, although more conventionally held wisdom suggests that this is not the case!

## CONCLUSION

All three Groove Tubes mics are wonderfully flattering on vocals, but the new MD3 takes the concept of rose-coloured glasses to new extremes. Punchy vocals become solid enough to touch, while those with less powerful voices can be beefed up in a way that no equaliser ever seems to manage. The rather clunky packaging is actually quite distinctive once you get used to it, and the only disadvantage is that you have to buy a relatively costly power supply to make the mics work. This is true of all valve mics, but it does put the package price close to the top end of what a semi-pro studio owner can afford. Even so, if you do a lot of vocal work, you might find that these mics help impress your clients, and if you buy two or more mics, or include a valve DI box in your plans, then the unit cost falls because you can use just one of the multi-output PSUs to drive up to four mics/DI boxes. If you're serious about recording vocals, and you aren't averse to

**THE PRICE OF GROOVES: THAT PRICING STRUCTURE IN FULL**

You don't just buy Groove Tubes mics in a carrying case with a cable and shockmount — it's not that simple! Whilst you can buy the mics as individual items (of which more in a minute), they are primarily sold in one of the three Groove Tubes systems. All prices in this box include VAT.

<p><b>SYSTEM 1 £1041.69</b></p> <ul style="list-style-type: none"> <li>• MD1 Mic</li> <li>• PSU</li> <li>• Mic cable</li> </ul> <p><b>SYSTEM 2 £1507.57</b></p> <ul style="list-style-type: none"> <li>• MD2 Mic</li> </ul>	<p>• PSU</p> <p>• Mic cable</p> <p>• 'Shock Therapy' shockmount</p> <p><b>SYSTEM 3 £1926.34</b></p> <ul style="list-style-type: none"> <li>• MD3 Mic</li> <li>• PSU</li> <li>• Mic Cable</li> <li>• 'Shock Therapy' shockmount</li> </ul> <p>In addition, the DP1 DI Box/Preamp is available for £399. All the components available in the systems are also available individually at the following prices:</p>	<ul style="list-style-type: none"> <li>• MD1 mic £680.50</li> <li>• MD2 mic £1146.38</li> <li>• MD3 mic £1565.15</li> <li>• PSU1 power supply £272.20</li> <li>• PSU2 power supply £308.84</li> <li>• PSU4 power supply £518.23</li> <li>• 'Shock Therapy' shockmount £157.04.</li> <li>• 25-foot mic cable £88.99</li> </ul> <p>The systems are designed to be expandable, and Groove Tubes EQs and compressors are currently nearing release for use with the mics. For more news on these, stay tuned!</p>
---	---	---

artificially flattering the end result, you really ought to hear these mics, especially the MD3.



## FURTHER INFORMATION

- £** The pricing structure is extremely complex — for details see the 'Price of Grooves' box.
- A** Sound Technology plc, Letchworth Point, Letchworth, Herts, SG6 1ND.
- T** 01462 480000.
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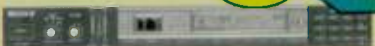


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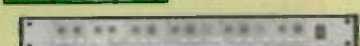
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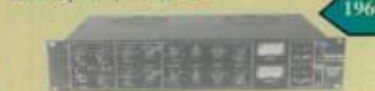


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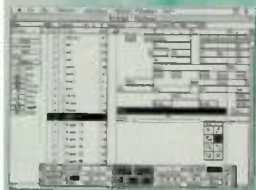
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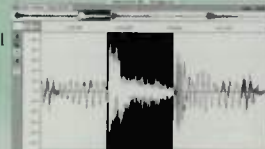
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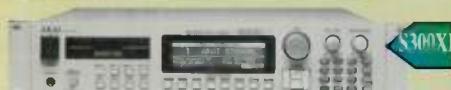
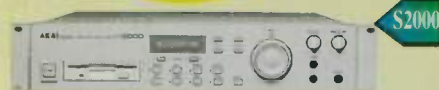
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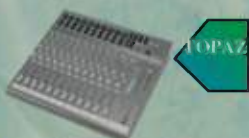


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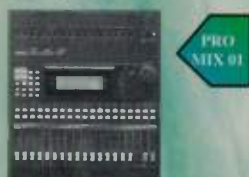
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**PAUL WHITE trips off to California to discover the inside track on sampling, resynthesis, Darwin, and the future power generation of musical instruments from industry pioneers, Emu Systems.**

**M**ost MIDI musicians know of Emu Systems through their E-series samplers and Proteus synth modules, but what may be less well known is that Emu started out as a development company and was responsible for many of the innovations that turned up in other manufacturers' instruments. For example, the keyboard scanning system used in the first generation of analogue polysynths was developed by Emu, as was the SSM analogue filter chip utilised in the late Sequential Circuit's legendary Prophet 5.

Emu then moved into building their own analogue synths and digital samplers, but were taken rather off guard in the mid-Eighties by

technology, not the least because of their immensely powerful H chip, which implements the Z-plane filtering. This filter is the secret behind the amazingly versatile Morpheus synthesizer, and the same chip is being used in their latest generation of samplers.

I met up with Emu's team leaders at their Scotts Valley offices in California to try to persuade them to tell me what they were going to do next. I left feeling that I had been at least partially successful. The following comments were picked out of a long conversation held over a noisy lunch, with Emu's Dave Bristow acting as spokesman. After lunch I managed to record a brief interview with Dana Massie, Emu's DSP Research Manager, Matt Ward, who is responsible for Digital Audio

# California Dreaming

## SAMPLING THE FUTURE WITH E-MU



*Emu's Product Marketing Manager, Dave Bristow.*

Akai's low cost \$900 sampler and almost went out of business. From what Emu tell me, it was a pretty close thing, but the company bounced back with the Proteus I, which was a huge success story, and put Emu firmly back on the map.

Since the company was bought out by Creative Labs (the Far Eastern company responsible for the SoundBlaster range of PC soundcards), Emu Systems has been able to expand its R&D team even further. The company has already established new frontiers in both sampling and synthesis

Systems and looks after the hard disk recording side of the operation, and Dave Bristow, Electronic Musical Instruments Product Marketing Manager, who most UK readers will remember from his days at Yamaha as an FM synthesis specialist.

My first question was to ask if Emu had any new ideas for making samplers easy to use.

**Multi-sampling instruments, creating loops and keygroups, is so difficult and time-consuming that most sampler owners now seem to rely on library material or sampled snatches of other people's material. Do you have any plans to make sampling easier?**

"There are two ways to make sampling easier. Currently, you load your samples in, you place them across the keyboard, loop them and so on, and our design engineers are always considering ways to make that sort of housekeeping a lot easier. Bob Bliss, a senior design engineer who has been associated with Emu's Emulator series for a very long time and responsible for many of its innovative features, has always believed that many aspects of sampling can be made more automatic, useful and user-friendly. You'll notice on the latest EIV software, for example, that the automatic placement of samples is becoming more efficient, and it will also automatically loop samples for you. Bob's developed many algorithms which we hope to introduce to the market later on in the form of upgrade software for EIV and e64.

"On the other side of sampling is analysis, for which you need a special analysis engine at the front end. You might say, for example, 'Here is a



high velocity sound at a high pitch'. Then you'd give it another sound and say 'This is a low sound at a high velocity, or low velocity, or whatever'. You'd feed it maybe three or four samples and have the analysis engine work out the in-between stages and regenerate intermediate samples where necessary. As yet, I don't know of any instruments that incorporate an analysis front end, but in principle this is one way to go."

**This sounds like a half-way house between sampling and full resynthesis, something that many of us have been discussing on and off for the past few years.**

"That's right, but before you can do resynthesis, you have to develop the analysis engine. Many people still don't realise that a good piano sample isn't just a matter of pointing a microphone at a piano and sampling it. A good piano preset might contain many different samples, painstakingly laid out in layers with different dynamics."

**I could argue that traditional instruments such as the piano might best be left to specialist sound designers to produce — what interests me more is the creative use of samplers to shape new sounds or to use existing sounds in new ways.**

"That's the thing about resynthesis — the more resynthesis you can do, the more real-time control you have and the more knobs you can give the user. You also use less memory, because you're not storing loads of different samples. While the EIV is presented to the market place as a sampler (and that's naturally what people are buying it for at first), nonetheless it's also an incredibly powerful synthesizer and great sound creation instrument."

**I guess a practical half-way stage would be to resynthesize your sounds off-line, ie. in non-real-time, and then put the results back into memory like a conventional sampler.**

"One of the things we're talking about now is sample editing. The EIV currently has a Wave Editing module, which is a tremendous off-line audio editor. You can do all sorts of really cool things, though admittedly some of the more off-the-wall things, such as Transform Multiplication, can take quite a long time to crunch through, and we're looking at ways of extending and speeding up these processes. I think if you go through the EIV with a fine tooth comb, you can see the elements of these ideas, and over the next six to 12 months, we're looking to produce EIV/e64 software and hardware upgrades, along with some new products, that will extend both our sample editing and sound creation capability."

**With samplers starting to include more synth-like features, and in the future resynthesis capabilities, does this mean that in years to come the sampler and synthesizer will become one instrument?**

"I think that for source/filter types of synthesis, you're right. The sampler is supreme for that kind of work, so long as there's no real-time audio wave file manipulation needed. The distinction between samplers and synths is really becoming a make-believe line. However, pure synthesis is certainly out there, and there are lots of models, and at Emu we do have some strong cards to play"

**But surely with the DSP power you have in your current samplers, you can tackle just about any type of digital synthesis?**

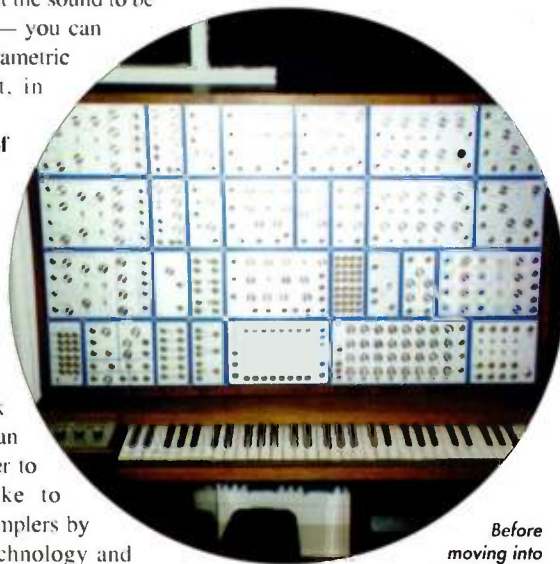
"Our real-time synthesis is already very good; the parametric synthesis is very flexible and ideal for real-time control. You can even use an Emulator now as an additive synthesizer, by using the many layers of polyphony to provide a series of sine wave partials. When you've created your sound using these partials, you hit the Resample button to create one new sample and then switch back into real time, but with all the polyphony available again. If you want to then add real-time controls — for example, you want the sound to be brighter when you play harder — you can use the Z-plane filter from the parametric synthesis section: Voice Edit, in Emulator terminology."

**The long-term implication of this is whether we'll continue to see new Proteus models or whether the future belongs to a hybrid box with the words 'synth' and 'sampler' stamped on it?**

"To be quite honest, there is a fundamental cost issue here — you can produce a playback module a lot cheaper than you can produce a sampler. But in answer to your question, we would like to contribute to the wider use of samplers by expanding and applying our technology and embedding our know-how in products to make them easier to use and suitable for ever more various music or audio applications."

**How much further can you take cost-effective synth modules to make them more attractive to the market place?**

"We believe that we have a couple of kernels of technology that enable us to do some things that nobody else can do. Not only do we have 128-note polyphony at a price point nobody else can equal, but we also have patent protection on the method. Filtering technology is another technology kernel, and our ASIC [application-



*Before moving into samplers, Emu made modular synthesizers like this early model.*

*"Emu isn't short of creative ideas; it's choosing which ones to use that is the difficult task!"*

specific integrated circuit] has been proven in the Morpheus, Ultra Proteus, EIV, and e64.

"We're not looking to become the budget tone module leader at this point, but we are looking to address the next level, where quality and flexibility are important. Our last two modules were the Morpheus and Ultra Proteus, and since then we've really concentrated on samplers for the last couple of products, but we have other synth-like sound module ideas that are imminent and we would like to combine the strengths of our polyphony and our filtering into those modules."



## GENERAL MIDI

**Is there any strategic reason why Emu haven't brought out a General MIDI module?**

"We haven't consciously avoided it, it's really that the GM market exploded at a time when Emu was resource limited. Our architecture at that time didn't lend itself readily to the GM structure — and to be honest, there's also a certain stigma attached to GM amongst serious users here in the States. We could certainly produce a really nice GM module, and we haven't ignored the issue; in fact, our sound design department have developed sampler banks of extremely high quality GM sounds already. But the concern is that if we made a professional GM machine something like Ultra Proteus with everything on-board, including Z-plane filtering and 128-note polyphony, just because there was a GM badge on it, some people might see it as inferior in some way. In Germany and the UK, General MIDI is a positive thing, but in the USA that's really not yet the case."

**How about building the machine without a GM badge and then sell an inexpensive plug-in card to switch on the GM side of things? That way you could sell the stigma as an option!**

"That's a great idea — pay him money!"

## EVOLUTION OF DARWIN

On returning to the company's headquarters after lunch, I had a chance to study Emu's latest key product. At the Frankfurt Music Messe earlier this year, Emu unveiled the prototype of an 8-track hard disk recording system, codenamed Buckeye, which appeared to be largely based on their existing EIV sampler hardware. Matt Ward, Emu's Product

"What we have is an 8-track hard disk recording system that can have an internal or external disk drive. We're currently planning to ship a basic version without a drive, as well as a version with an internal 1 Gigabyte hard drive — which will give you around 22 minutes of 8-track recording time. The system comes with four analogue inputs and eight analogue outputs, but is expandable to eight analogue inputs. There is S/PDIF digital I/O and SCSI as standard, as well as a card option for a SCSI connection to a PC computer (separate to the data SCSI connector). There are three other options, including an ADAT digital I/O card.

"We feel that there are three basic customers for Darwin:

- Someone who hasn't yet bought a tape-based multitrack and is interested in an affordable yet powerful random access alternative to the DA88 and ADAT.
- Someone who currently owns an ADAT or DA88 that wants to expand their system. Darwin is a powerful 8-channel expander for an ADAT or DA88.
- The third group are computer sequencer users who want to affordably integrate a powerful HD recorder into their system. Currently this means upgrading from *Vision* to *Studio Vision* or from *Performer* to *Digital Performer*, adding Pro Tools hardware and learning a new interface. With Darwin's MMC and MTC support, a user gets 90% of what he wants in an integrated sequencer hard disk recording package for less money, and without having to learn a complicated software package.

"Darwin is designed to be simple to use: it has a basic tape machine transport, eight track arm buttons, and eight meters. There's a 10-key pad that can be used to access locate points, and the display is a large 240 x 64 LCD with six soft buttons. Part of the plan was to come up with a system that didn't have as steep a learning curve as computer-based systems, but which still provided you with all the necessary visual feedback for full-featured digital editing. It had to be accessible to the hard disk novice and I think our interface comes nearer to being like a tape recorder than a computer-based system.

"We have a feature which I think is really important: you can make 99 different versions of the same project without creating any new audio data — it just creates pointers to the file. You can try out many versions of a song, or you can even bounce six tracks down onto two, then put the bounced tracks back into your original project. We're calling that the 'Virtual Slave Reel' feature, because it's very much like using slave reels in an analogue multitrack context."

**And everything is non-destructive, unless you decide you need to erase something to free up disk space?**

"Once you create a new version, you can do anything to it without affecting previous versions."

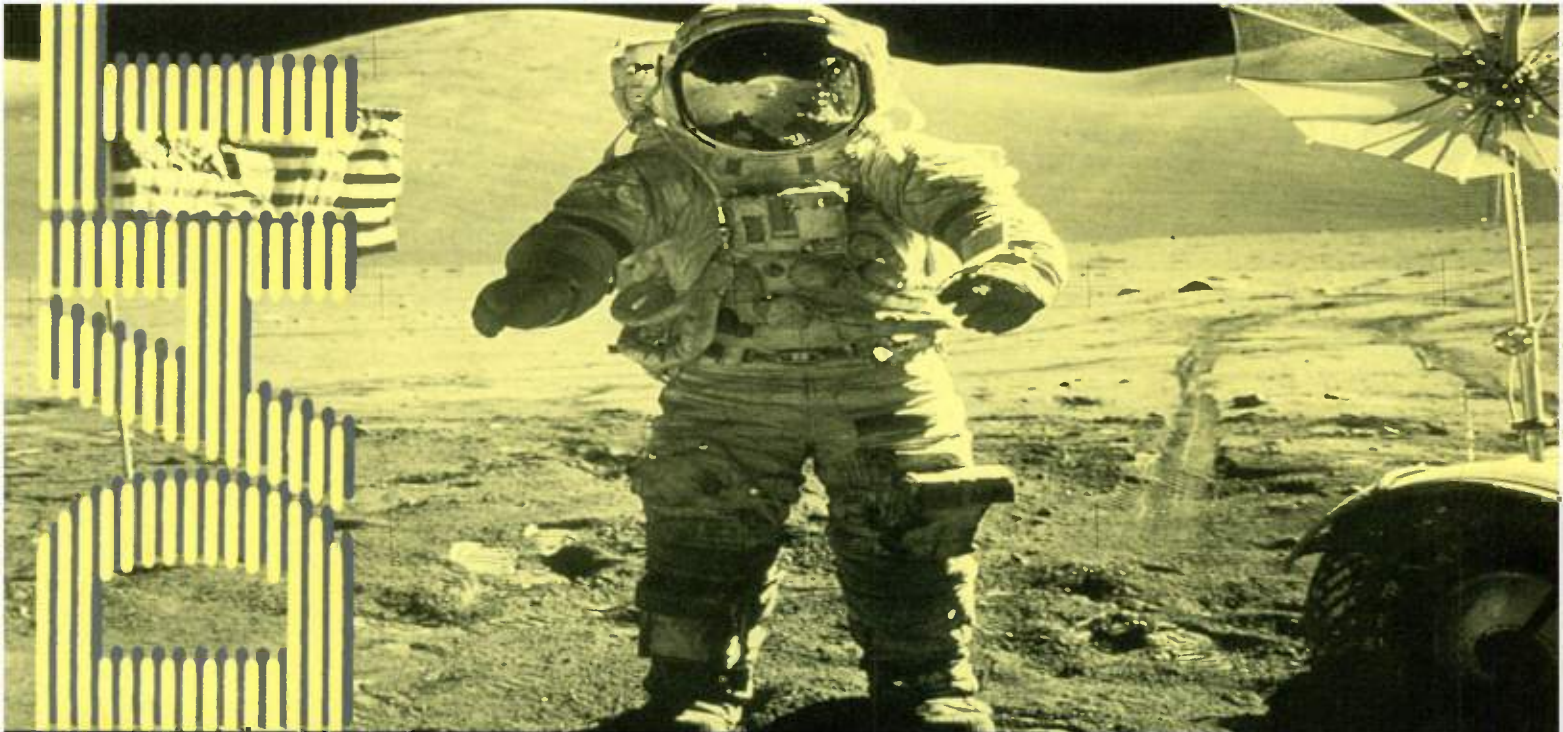


The newest product from Emu is Darwin, an 8-track hard disk recorder.

Marketing Manager for Digital Studio Systems, gave me a run through the product, due to be released under the name Darwin, and explained Emu's approach to hard disk recording.

Matt Ward: "While there is, conceptually, a lot of similarity between hard disk recording and sampling, there's a lot of technical work involved in getting the material onto and off hard disk in real time that has necessitated us developing our own disk engine. However, now it's been done, it can be used in future products. So, some of what's in the recorder is common to the EIV, but there's a lot of new stuff in there as well, including the user interface.





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# E-MU Systems

► but recording is of course a destructive act — there are up to five levels of undo, and if you don't have another version, and you record over something more than five times, you can't get the original back.

"The routing screen lets you route any of the inputs to any of the disk tracks, but we also provide three useful preset routing patches. The 1-buss preset takes anything that's routed into input 1 and sends it to all eight tracks, so you can record it on



*Audity — another vintage Emu synth from the past.*

any track you like without repatching. The 2-buss setting sends the two inputs to even- and odd-numbered tracks, while the 4-buss setting feeds the inputs to 1/5, 2/6 and so on.

"We have separate +4 and -10 inputs and outputs, and the internal 8-channel mixer provides control over pan and gain. It's really like a headphone cue mixer, but you can use it to do an internal digital bounce.

"All the tracks can be named on the edit screen and they are graphically represented as physical tracks on the screen. The whole idea is to make the unit as easy to operate as a tape machine, but with the added benefit of cut/copy/paste editing and random access. The aim is to make a system that appeals to those users who want a hardware platform rather than a computer-based system, but where they want more visual information than they can get from a machine that has only a numeric display."

## Z-PLANE FILTERING

Next, I was lead to the newly-created Tech Center, a joint research enterprise between Creative Labs and Emu. There I was introduced to Dana Massie, the company's DSP Research Manager, who explained where the Z-plane filtering idea had come from.

Dana Massie: "Dave Rossum, Emu's founder, deserves the credit for that. He decided in about 1989 that he was going to design a digital filter chip — he has a lot of experience designing filters and designed one of the first analogue filters

on a chip. His chip went into Sequential's first Prophet 5 synth. When he came to do the digital filter chip, he decided that it should be powerful enough to be able to talk — it should be able to do phonemes and arbitrary formants. That chip came out in 1989 and was used in the Emax II sampler, but there it was only doing simple 2-pole resonant filtering. The problem was that it was so powerful, people weren't sure how to control it. It could handle 14th-order filters, which meant there were 28 different parameters to control, and my contribution was to come up with a simple method of using them in a musical way by putting them into what we call the 'filter cube', as used in the Morpheus. The cube is just a way of mapping musical dimensions onto synthesizer dimensions. For example, you can map things like velocity, keyboard position and a controller position onto the three axes of the filter cube.

**Because of the way the filters behave, I understand that you decided to present the filters as predefined sets, rather than leaving everything open-ended, to avoid overwhelming the end user?**

"The chip is amazingly powerful, but as with all filters, there are lots of little quirks. And then there are more basic things, like if you have a filter with a 12dB peak and another with a 10dB peak and they cross, you end up with a 24dB peak — which makes it really easy to create something that overloads. By pre-packaging the filters, we could keep those intermediate peaks from getting out of control."

**Couldn't you have built software limiting into the filters to prevent overload?**

"Well, we could, but detecting the peaks becomes complicated. I think with what we've learned, we could do it now, but it takes a lot of CPU power. We see a great future for source/filter synthesizer models and the Morpheus was just the first step."

**Would it be possible to manage a series of filter squares and have these morph from one into the other without overload problems? This would still retain operational simplicity but would allow the user to define the start and end characteristics of the filter morph, rather than being bound by the characteristics of a preset cube?**

"That's conceivable and we have been looking at a number of schemes. Since we designed the Morpheus, the company was bought by Creative Labs and Creative has invested in setting up the Tech Center, so we went out and hired a bunch of people — we hired two PhDs, two Masters degree candidates, and we're planning to hire more. These guys are a lot smarter than I am and they have taken the filter design problem much further. We are still in the research phase, but I'd say there were possibilities for multi-dimensional cubes. Instead of interpolating between preset filter types, you give the user access to higher level parameters — the parametric filter functions could be accessed directly, while other functions could be

*"What musicians seem to want is traditional, acoustic expressivity, and that's the hardest thing to produce."*



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► mapped to multiple controllers.

"The idea of filter squares is a very good one, and at a higher level the four corners of a square could be full instrument families. We're looking at control schemes where all the control parameters might be interpolated, including envelopes, but if you go too far you get back to the complexity problem."

**Being realistic, aren't you always going to have to present the filter characteristics as a series of presets, whether they're cubes, squares, frames or whatever, because if you didn't, virtually nobody would be able to work with the complexity of it?**

"We learned a lot from customer feedback after

we launched the Morpheus, and though most people thought the machine was very powerful, some of them still found it too hard to programme. Why is it that sampling has become the dominant synthesis model? We all know that sampling has expressivity limitations, but it still dominates the current synth market because it is relatively easy to use. That's not true of any other synthesis model we've got today. But I believe that sampling is effectively analysis/resynthesis. When you record you're also analysing, even though what you're analysing it into isn't really all that flexible. While physical modelling is really exciting, it suffers from the complexity barrier problem and I think that it's gradually moving towards where we're moving. We're moving towards greater expressivity in sampling while physical modelling is moving towards greater accuracy — we're at opposite ends of the same spectrum. The way we want to move sampling is through analysis/resynthesis.

## ANALYSIS/RESYNTHESIS

Dana Massie: "When you look at the libraries on filter bank analysis, it looks like a solved problem, but what you discover is that the total problems involved in making something musical end up being very large. We've discovered that full-bore analysis/resynthesis with source/filter models is a hard problem. There are rumours that Yamaha put something like 500 man years into physical modelling and Korg has put maybe 50 man years into their physical modelling program. Our approach is to see how we can incrementally release powerful but simple tools that people can learn to use a piece at a time."

**Is it possible to take a hybrid approach to resynthesis, where you combine existing sampling technology with resynthesis? For example, can you envisage a sampler type of instrument where you sample perhaps one low note and one high note from the instrument, and then analyse them with a view to synthesizing all the in-between notes? By auto-correlating the two samples, it may be possible to separate out those elements which simply vary in pitch as the note is changed, from the filter formants, and frequency components that don't relate to the note being played. It may then be possible to reconstruct the desired sound by using traditional sampling to create part of the sound and resynthesis to create the other components. This may not sound quite as accurate as a good multi-sample, but it would be quick, easy, and there'd be no changes of tone at the end of a keygroup. Furthermore, you could do all kinds of creative things — like feeding in a low note from a piano and a high note from a vibre to create a new instrument that morphed from one sound to the other across the width of the keyboard.**

"We have looked at some ideas that are very close to what you describe, and what we're finding is that we can get back the note we started with, no problem. But to create the variations, the musicality of the instrument, we need to be able to vary the

## MORE ON MORPHEUS

Before leaving Emu HQ, I returned to Dave Bristow's office where he was working on a very interesting new development that looks likely to find its way into a future product. He said that he could tell me all about it if I wanted, but then he'd, sadly, have to kill me — so I tactfully changed the subject to the Morpheus and its position in the market place.

Although successful, Morpheus doesn't seem to have sold in such large quantities as more conventional synths, yet when you consider what people are prepared to spend on a digital instrument designed to imitate an analogue synth, my own feeling is that there might be a large number of prospective purchasers out there who haven't yet appreciated what Morpheus is about or what it can do. After all, it offers all the classic analogue waveforms and filter types as well as a huge number of sampled sounds and complex filter types.

Dave: "I think there's a lot of truth in what you say, and all the popular percussive filter sounds are so easy to do using Morpheus. You just have to listen to some of the stuff on our Dance/Rage voice card to appreciate what's possible. Standard filter sweeps are almost undertaxing the Z-plane filter, but they're in there waiting to be used and brought to life. What's more, Morpheus is 16-part multitimbral so you get a lot more than you would from a single-voice lead synth.

"The trick with Morpheus is to explore each corner of the filter cube to find out where the really resonant stuff is. Treat Morpheus as a mono synth and it gives you as good a honking lead sound as the dedicated mono units out there. Presentation seems to have a great influence on what synths are popular, and perhaps Morpheus in its understated 1U rackmount box doesn't have the same visual appeal as some of the lead synths currently on the market."

For me, the exciting thing about Morpheus is when you get away from the traditional filter sounds and start to impose things like changing vowel sounds on a sample, which gives it a very organic quality.

Dave: "Absolutely, and like any musical instrument, you have to take care how you use it. The sound cards are there now for the users who don't want to programme everything from scratch, and of course you should use MIDI real-time controllers to really bring the sounds to life. In some ways it's a pity that Morpheus wasn't

available in a keyboard, so that we could supply all the right controllers."

Most keyboards offer just a couple of wiggly wheels on the left-hand side, and that's about it. How would you suggest people add more performance control to Morpheus?

Dave: "I've successfully demonstrated a breath controller with Morpheus to really control expression, but a lot of people find these devices a little strange to use. Don't forget that up to four freely assignable real-time control sources can be brought in to Morpheus and mapped to filters in each individual preset. A footpedal is always a useful control source, as it leaves both of your hands free to play. Part of my mission with Emu is to make sure that as much real-time control is built into new products as possible. Emu has very powerful synth engines, and what you said in an SOS article quite a few months ago about people wanting more physical controllers and knobs is very true."

One thing a lot of people fail to realise is that when you're using a sequencer, you can use the same physical controller to overdub several tracks of control data on different controller numbers. So with an instrument like Morpheus, you can do a lot to articulate the sound after you've recorded the basic track.

Dave: "Absolutely. Sometimes I like to do what I call 'timbral sequencing' — in any sequencer, you can take a simple chord and then play with the timbre of it, rather than changing notes, using controller information on appropriate presets. If you want to have fun with ambient music, that's one way to do it."

Have you tried building pressure controllers under modulation wheels, so you can press at the same time as you bend?

Dave: "We've tried a number of things like that, but not every good idea finds its way into a product, for various reasons. The comforting thing here is that Emu isn't short of creative ideas; it's choosing which ones to use that is the difficult task!

"Now we have Z-plane filtering in the EIV and e64, making it a very powerful engine both for sampling and synthesis, so it makes sense to use this hardware as the platform for our next generation of instruments. One important feature of our EIV system is that it is software updatable, allowing it to grow. We have plenty of ideas, but ultimately, we have to decide which ones will both satisfy our customers and pay the bills."



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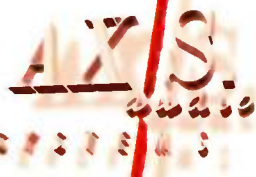
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*Emulator I sampling keyboard.*

musicians seem to want is traditional, acoustic expressivity, and that's the hardest thing to produce."

I imagine there's a lot Emu could do to create expressivity by the subtle use of Z-plane filters in a fairly conventional sample-based synthesizer?

"Oh yes, there's no question about it. What we have found is that there's a tremendous amount of work involved in harnessing it, keeping it under control, and making it efficient enough to produce sound sets. We can play something that represents a piano through a filter which illuminates all the different partials, and that is very exciting, but we don't know how far we can take that. We're looking at lots of ways of taking Morpheus to the next step. Nobody has ever had a filter chip that is this efficient for this low a cost, and we're convinced we can go a long way with it."

In Morpheus, you're using the filter chip in almost a Vocoder mode, but I imagine you could do a lot more?

"Yes, and some of the most interesting Morpheus sounds are the very subtle ones, but David [Bristow] was one of the most talented people for voicing it, and he'd get frustrated at times because the tools we had were too limited for what he wanted to do. But we shouldn't overlook the fact that even with its limitations, many of which were necessary to make it relatively easy to use. Morpheus is a remarkable instrument and I'm constantly amazed at what I can get out of it. To this day, nobody has come out with a machine with that kind of horsepower for modifying the musical spectrum."

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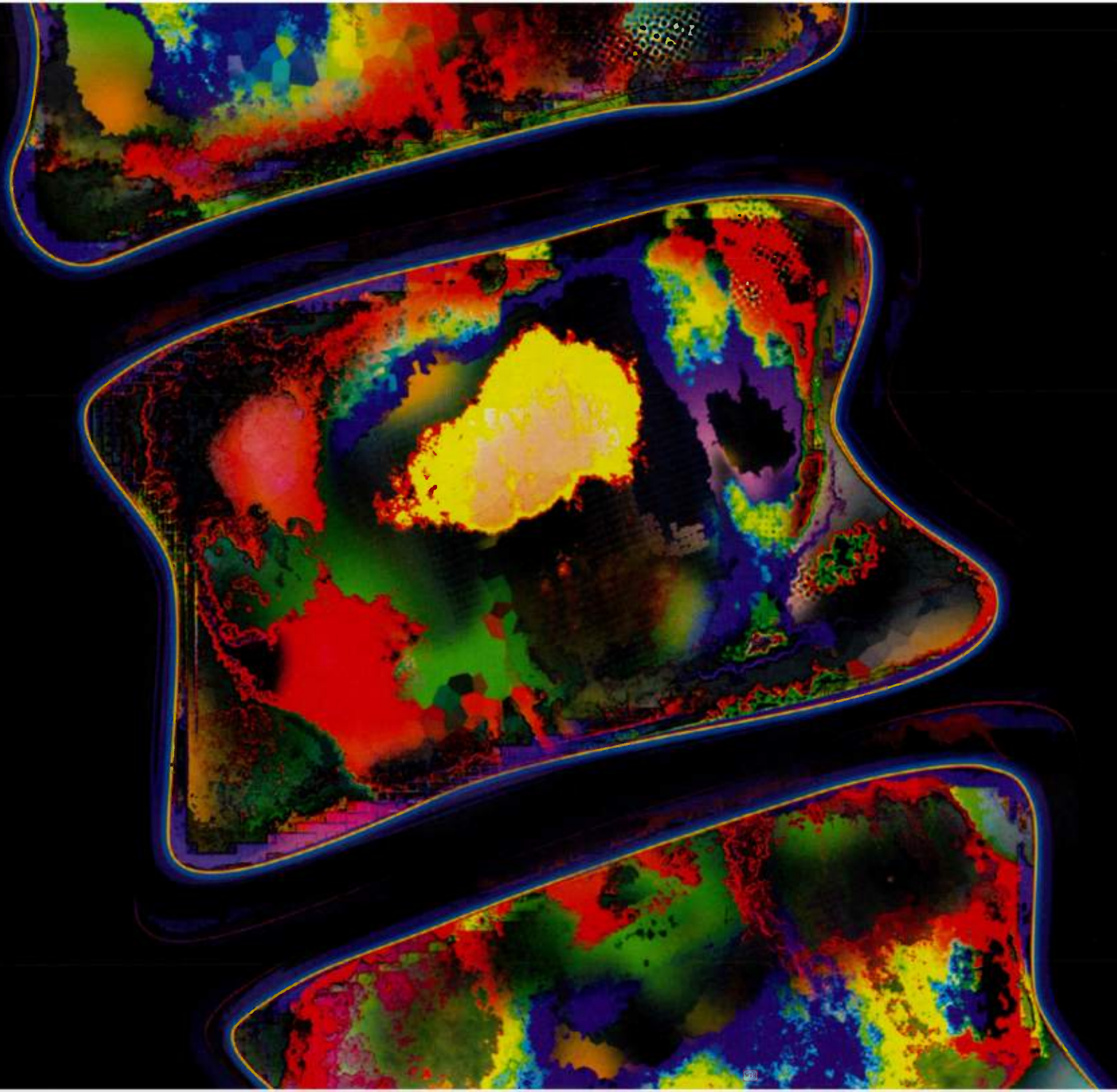
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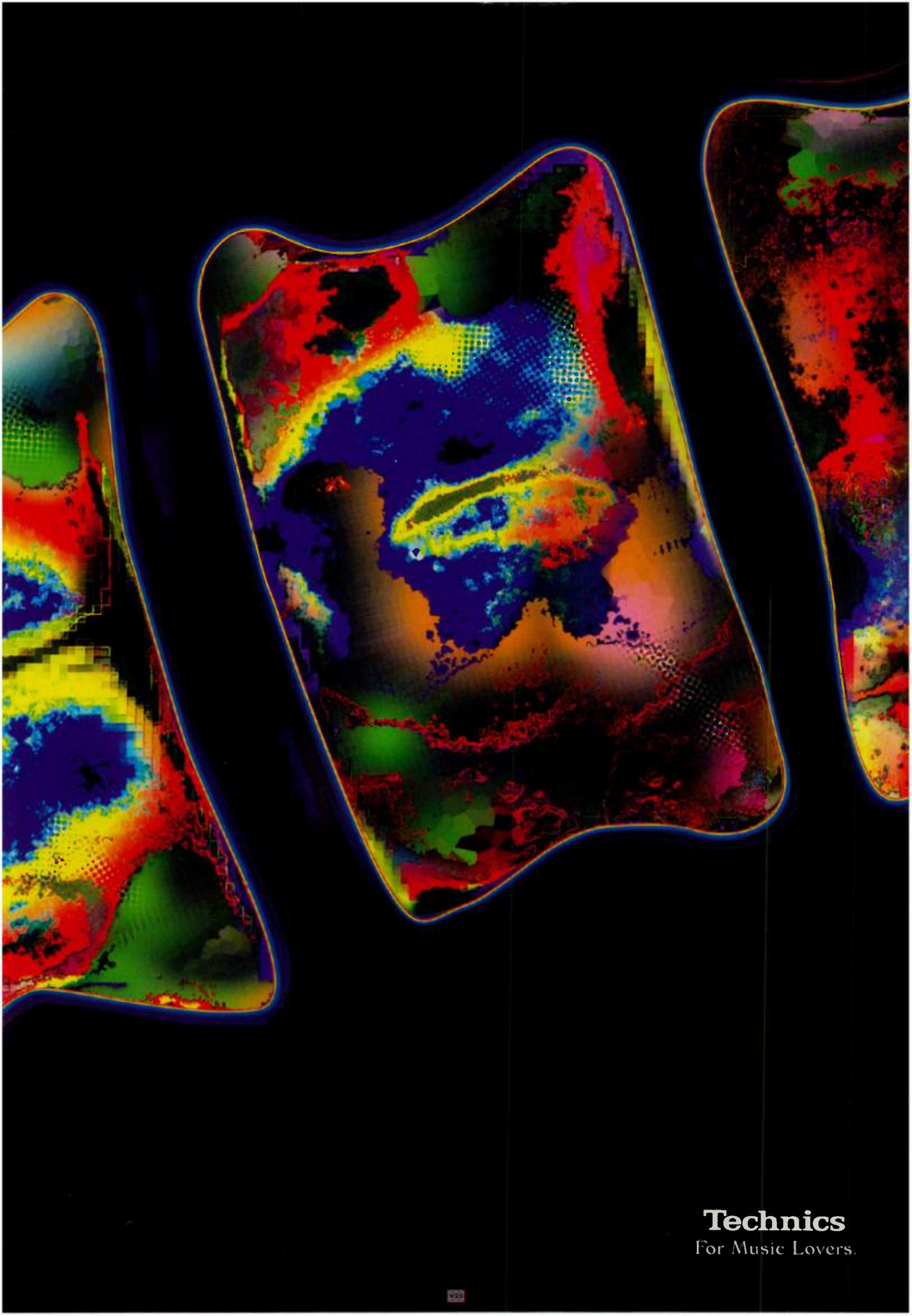
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# MIDI basics

## PART 3

*What are MIDI messages and what do they do? PAUL WHITE explains.*

Over the past couple of months I've introduced the concept of MIDI and explored the basic role of MIDI sequencers, but as I've already hinted, there's a lot more to MIDI than simply sending note information from one machine to another. In computer terms, MIDI is simply a serial data link system and you could, in theory, send any kind of musically relevant digital information along it. Unfortunately, because MIDI is a **serial** system, packets of information have to move in single file, one after another. If you try to put too much data down the cable, you end up with the MIDI equivalent of a traffic jam — which might leave you with some notes apologising for arriving late!

Because there is a limit to how quickly you can pipe data down a MIDI cable, MIDI can't be used for the transmission of audio or sample information in real time, though you can transfer samples in non-real time from a computer sample editor to a sampler using MIDI's Sample Dump protocol (if you're prepared to put up with the slowness of it).

### MIDI CHANNEL MESSAGES

The majority of MIDI messages are **Channel** messages. As the name implies, these messages are accepted by the receiving device (synth module, drum machine etc) on the basis that they are addressed to a specific MIDI channel. MIDI notes

are Channel messages, as are all other types of performance data relating to Velocity, Release Velocity (where supported), Pitch Bend, Controller Data, Aftertouch, Polyphonic Key Pressure, and of course Program Changes. Whereas a MIDI note is a fairly basic type of MIDI message requiring only a Note-On event followed by a Note-Off event, controller information can be far busier, and if you look at the event list in a typical sequencer after you've recorded a part which uses lots of Pitch Bend, you'll probably find that the Controller change events outnumber the notes by at least 10 to one.

Aftertouch also throws out an enormous amount of MIDI data, whether the receiving device can make use of it or not, and if you're experiencing inexplicable MIDI timing problems, try turning off the aftertouch on your master keyboard. It's good practice to switch off aftertouch unless you're using it in, as unnecessary aftertouch data will quickly fill up your sequencer's memory.

If you own one of the rare keyboards that isn't velocity-sensitive, whenever you play a note it will be sent with a fixed velocity level of 64, which is a little too low. So it's best to increase this value to around 100 using your sequencer's edit facilities. If you don't do this, the signal-to-noise ratio of the receiving instrument won't be as good as if all the notes were playing at or near maximum level.

Any MIDI message that includes a variable value (such as MIDI note number or controller information) comprises, in addition to the MIDI channel address, two parts: one to say what sort of message it is, and the other to say what value is being transmitted. Because MIDI is an 8-bit system where seven of the eight bits are used to carry data values, the maximum range of a conventional MIDI message is from 0 to 127. This limit also applies to musical notes, which means MIDI can address a maximum of 128 different notes. Similarly, you can only address 128 different patches directly over MIDI, but with modern synths coming packed with more and more sounds, MIDI **Bank Change** messages are often used to access multiple sound banks, each containing up to 128 patches.

### MIDI CONTROLLERS

Modern synths may look pretty inscrutable, but there are lots of parameters that can be twiddled in real time using MIDI Controllers — such as wheels, pedals, or simply Controller data created in your sequencer. MIDI effects units are also often provided with some form of real-time control, so you could, for example, send MIDI Controller messages to vary the delay time of an echo effect during performance, or to change an EQ setting. Quite often, instruments and effects units allow you to assign which Controller relates to a specific parameter. So the Modulation Wheel on your synth, to take one example, could be used to control the reverb decay time of an effects unit or the filter brightness of a synth module.

MIDI Controllers can be divided into two main types: those that are variable or continuous (like a knob) and those that are either on or off (like a





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# MIDI basics

switch). For example, a Sustain Pedal is simply a switch, so it can only be on or off, whereas Pitch Bend is described as a **Continuous Controller** because the actual position of the Controller is transmitted. In theory, MIDI could allow you to have up to 128 different Controllers working at the same time, but this is far greater than would ever be needed in practice. This being the case, the architects of MIDI have reserved Controllers 122 and upwards for selecting the various MIDI modes (Local On/Off, All Notes Off, Omni Off, Omni On, Mono On and Poly On). MIDI modes aren't really Controller messages at all, but this just seemed like a convenient place for the designers to put them! (See 'MIDI Modes' box.)

## MIDI MODES

Most of the time, we use our synths polyphonically and set to a specific MIDI channel, so we rarely give MIDI modes a second thought. But there are actually four possible modes of operation defined by the official MIDI Spec.

- **MODE 1: OMNI ON/POLY.** In practical terms, this means that the instrument will play polyphonically but MIDI channel data is ignored. In other words, whatever you send it, on whatever channel, it'll have a go at playing it. Some older instruments still default to Omni On mode when they're first powered up, which can be a nuisance as you have to switch them back to Omni Off mode before you can use them in a multi-keyboard setup. There are few things that sound worse than a single synth trying to play back an entire composition — including the drum parts! The only good thing about instruments defaulting to Omni mode is that shop assistants with little or no MIDI experience can usually get a sound out of them.

- **MODE 2: OMNI ON/MONO.** This is the monophonic equivalent of Mode 1. Mode 2 is little used, but if you want a polyphonic synth to behave like an old monosynth, then it may be useful. Mono mode is also useful for guitar synths, where each string controls what is in effect a separate mono synth, but this requires Omni mode to be switched off.

- **MODE 3: OMNI OFF/POLY.** This is the most commonly used MIDI mode, especially for MIDI sequencing. In Mode 3, the instrument responds to messages only on its own MIDI channel and plays polyphonically.

- **MODE 4: OMNI OFF/MONO.** This is the monophonic equivalent of Mode 3. Before multitimbral synths came along, Mode 4 was incredibly useful because it was possible to use simple 4-voice synths (such as the Casio CZ101) to play four different mono sounds on four different MIDI channels. Now that we have multitimbrality coming out of our ears, this kind of dodge is perhaps less important than it previously was. However, Mode 4 is still vital to MIDI guitar players, who need to have each string working on a separate MIDI channel in order to be able to bend notes or apply vibrato on independent strings. Because each string of a guitar is mono (it can only play one note at a time), it makes sense to use the receiving synth in Mono mode to emulate the way a real guitar handles notes.

The remaining slots are broken down into Continuous Controllers 0 to 63, Switch Controllers 64 to 95 and Undefined Controllers (free for future use) 96 to 121. If you look at MIDI Controllers 0 to 31, you'll find that they are duplicated in slots 32 to 63, the reason being that by using two Controller messages rather than one, you can generate Controller information with a much higher resolution than 128 steps. In effect, one Controller provides you with 128 steps and the other puts up to 128 smaller steps within each of the larger ones, providing 14-bit resolution. Controllers 0 to 31 handle the most significant 'bit' (MSB) of the data while Controllers 32 to 63 handle the least significant bit (LSB). In practice, most instruments stick with the basic 128 steps, though I have experienced instruments where the Controller data is only read with 4-bit or 5-bit accuracy, which means that functions like pitch bend have noticeable steps in them rather than operating smoothly. However, some modern synths use both MSB and LSB Controllers to provide Bank Change commands.

As touched upon earlier, Controllers are particularly useful for adding movement and interest to electronic sounds, where parameters such as filter frequency or effect level can be changed during performance. You can also create some very interesting dynamic effects by using one or more MIDI Controllers in conjunction with a MIDI effects unit, but you don't have to operate all the Controllers as you play. If you're working with a sequencer, Controller information may be

recorded on a separate track (usually after you've recorded the basic notes), simply by going into record, then moving the appropriate Controller wheels, sliders or pedals but without playing any notes. Using this technique, you can create MIDI

volume changes, pan position changes, and timbral changes — and if you feel really creative, you can construct short Controller sequences which are related to the tempo of your song, then save these for use in future compositions.

## MIDI SYSTEM MESSAGES

MIDI **System** messages have no particular channel address, so they are received by all the instruments in your MIDI system. The most common form of System message is related to timing in the context of drum machines and sequencers, and perhaps the most important of all these messages is **MIDI Clock**. MIDI Clock is related to the tempo of the sending device and provides 96 clocks for each 4-beat bar of music. A practical use of MIDI Clock is to synchronise a drum machine to a sequencer, with either one acting as the 'master' timing source. The machine(s) being controlled (often known as the 'slave'), must be set to **external MIDI sync**, which means that it will follow the tempo generated by the master device.

Of course, there's more to getting in sync than a simple timing clock — the slave device needs to know when to start and stop, so MIDI also includes **Start**, **Stop** and **Continue** messages. There also needs to be a way of getting into sync if you commence a MIDI sequence from a point that isn't the start of the song, which is why the **MIDI Song Position Pointer** (SPP) message was added. This is quite transparent to the user, but on starting your sequence, a Song Position Pointer message is sent which tells the receiving MIDI device how many one sixteenths of a bar have elapsed since the start of the song. Using this information, the slave device can lock up almost instantaneously and start at the correct beat and bar of the song. All the so-called 'Smart FSK' tape-to-MIDI sync boxes rely on MIDI Song Position Pointers to work.

MIDI also includes something called **Active Sensing** (though it isn't always implemented), which is MIDI's way of checking that a connection exists between several devices. In reality, it's the MIDI equivalent of the receiving device shouting "Are you still there?", and a short while later the transmitting device shouts back "Yes!" If a Yes is not forthcoming, the receiving device assumes the transmitting device has gone off in a sulk and, metaphorically speaking, takes its ball home! What actually happens is that the receiving device shuts off all notes that are playing. If it didn't do this and the MIDI cable was accidentally unplugged between a Note-On being sent and a Note-Off being sent, the receiving instrument would continue to play that note until it eventually rusted away!

Because MIDI sequencers can hold more than one song in memory, MIDI also includes a **Song Select** message. As you might expect, tunes can be requested by number in the range 0 to 127.

Nowadays we're all very used to MIDI instruments being perfectly in tune, but it is still possible for MIDI-controlled analogue synths to drift in pitch over a period of time, unless they incorporate intelligent auto-retuning systems.



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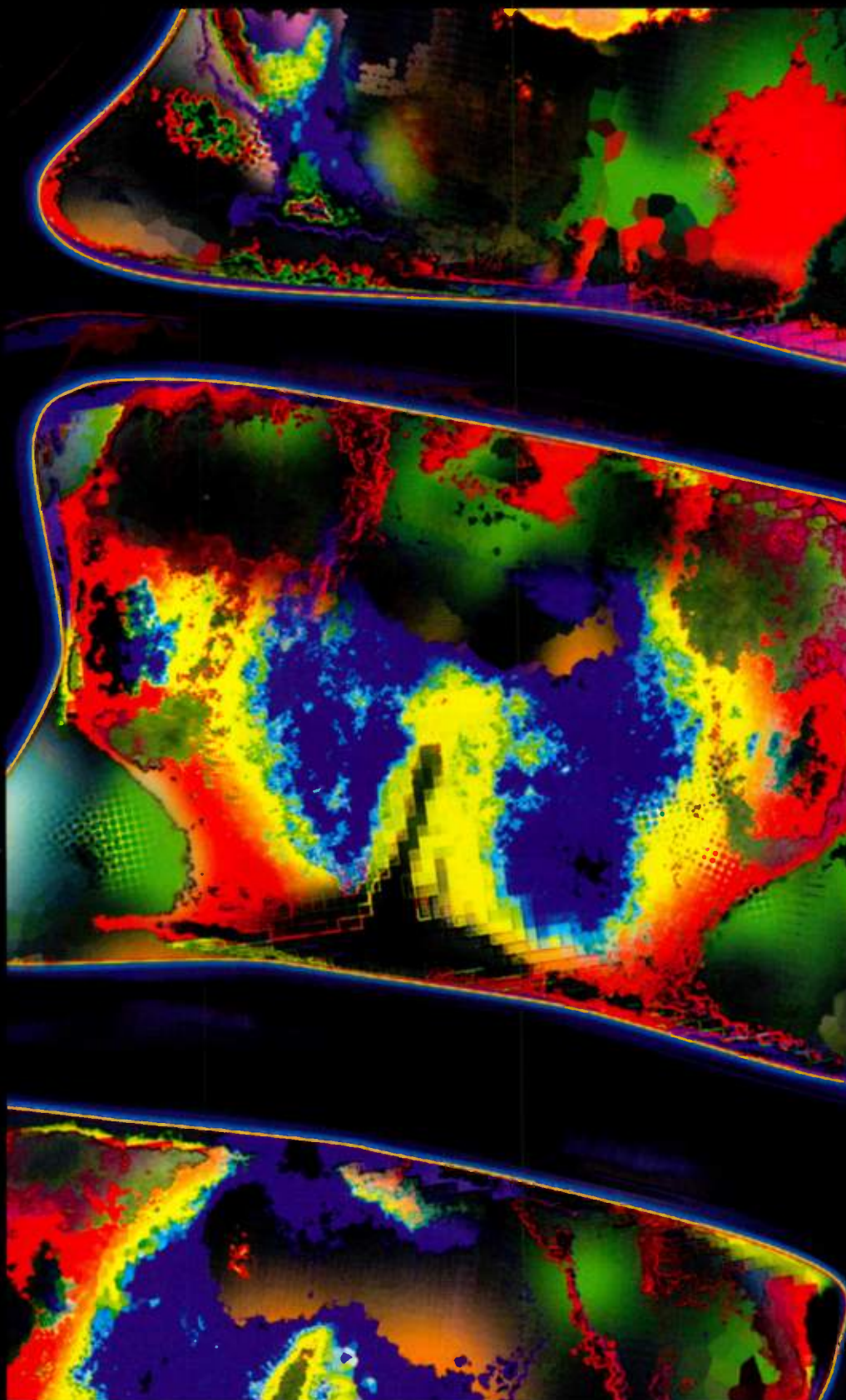
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# MIDI basics

*"...you should be aware that different instruments can legitimately respond to the same MIDI message in different ways."*

However, many of them do have an internal tuning routine which can be initiated manually or over MIDI, using a **Tune Request** command. If a Tune Request command is sent, all the MIDI instruments in the system that have a tuning routine will give themselves a quick checkover and retune to their own internal reference. There's no guarantee that they'll all end up at the same pitch, but at least the thought was there!

## SYSTEM EXCLUSIVE MESSAGES

**System Exclusive** (or SysEx) messages are also part of the MIDI System message portfolio, but whereas the rest of MIDI is pretty precisely defined, SysEx is provided so that manufacturers can build instruments with unique facilities yet still conform to the MIDI Specification. For example, the programming parameters of analogue and digital synths tend to be quite different, so if you want to allow the user to get at these parameters via MIDI, then a system such as SysEx is the only viable means of doing it. It's important to be able to adjust parameters via MIDI, because if this wasn't possible, editor/librarian programs would have no way to pass patch information back and forth.

Since SysEx messages are only recognised by the instrument type for which they are designed, there's no worry that your drum machine might try to interpret a message intended for your Waldorf Microwave and blow a fuse. The way this works

connect the MIDI Out of the instrument to your sequencer's input, put the sequencer into record mode, and then activate the SysEx dump procedure.

The SysEx data usually takes a few seconds to record, after which it can be played back into the instrument at any time to restore the patches you saved. If you are in the habit of using lots of different patches in your songs and you don't have enough user memories to hold them all, you can store a SysEx dump in your sequencer, right at the start of each song, to automatically set up the required patches for you. Depending on how long the dump takes, you may have to leave a few bars of count-in to allow it to finish before the music starts. Once you've loaded your new sounds, it might be a good idea to mute the SysEx track, otherwise the patches will get reloaded every time you start the song sequence from the top.

## AND FINALLY...

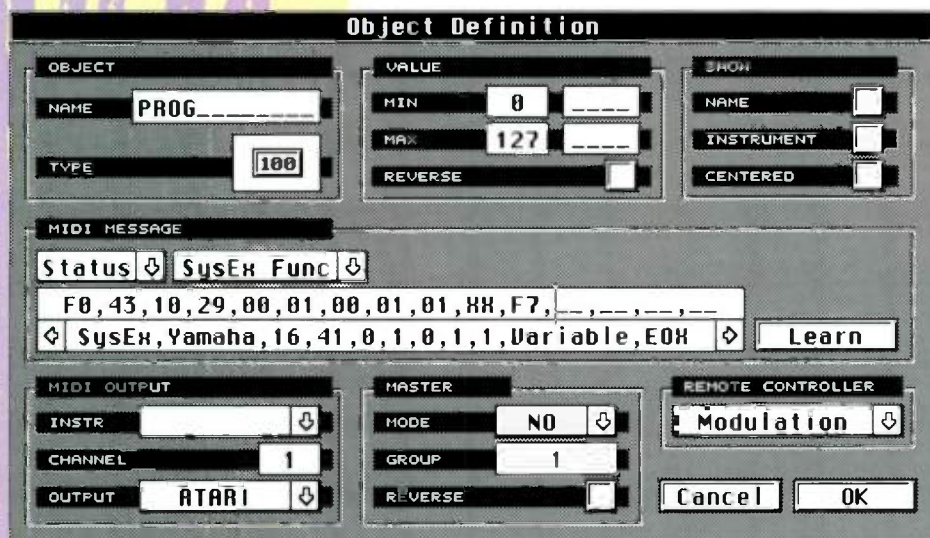
If you expect every MIDI instrument to support every feature implemented in the MIDI Specification, you're destined to lead a sad and disappointed life. Most new instruments support most of the features, but few are actually compulsory and about the only thing you can take for granted is that a MIDI synth will send and receive MIDI note data. If a MIDI message is received by an instrument incapable of responding to that message, then the message is simply ignored. However, you should be

aware that different instruments can legitimately respond to the same MIDI message in different ways. For example, the Pitch Bend range of an instrument is not tied to the data received but is specified in the MIDI menu of the instrument itself. Here, full movement of the Pitch Bend wheel (or a full range of Pitch Bend messages) can be made to shift the pitch by as little as one semitone or by as much as an octave. Unless all your instruments are set to the same Pitch Bend range (two semitones is popular), you could end up with an horrendous discord.

Very few instruments incorporate Polyphonic Key Pressure or Release Velocity, but just about everything you can buy now (other than some really basic home keyboards) is velocity-sensitive and even relatively inexpensive keyboards have aftertouch. Some older instruments (like my otherwise deeply-revered Proteus 1), don't respond to MIDI Bank Change messages, which can be rather frustrating, and you may also find some instruments which refuse to respond to Controller 7 (Master Volume) commands, my old Yamaha EMT10 being one of them. If in doubt, the back of the relevant equipment manual should show a table of what MIDI facilities are supported.

SOS

*Next month I'll be taking a first look at samplers and sampling.*



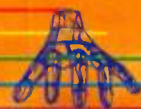
An example of a System Exclusive message for a Yamaha synth.

is that each SysEx message kicks off with a manufacturer's ID code — if the identification code isn't recognised by the receiving instrument, then the rest of the message is ignored.

Only very advanced MIDI users tend to have more than a passing association with MIDI SysEx data, but anyone can use it at a basic level for copying patches or banks of patches from a synth into a MIDI storage device, such as a sequencer or MIDI data filer. You'll find that most modern MIDI instruments have a SysEx dump facility tucked away somewhere in their MIDI configuration pages — all you have to do is



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*Now surprisingly affordable, call Gav for details.*

## Yamaha CBX-D5 latest

E-Magic add **CBX-D5** support: **Logic Audio 2.5**, the latest version of this stunning software for the Mac, not only supports all Digidesign hardware and stand-alone PowerPC audio circuitry but also provides the first stable MIDI/Audio sequencer for this excellent Yamaha hard disk recorder on the Macintosh. Run Logic 2.5 on a much less powerful Macintosh with the CBX-D5 hardware, complete with 4-band parametric EQ per channel and studio quality effects. **Only £1499 per four channels.**

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We have just found this great new Falcon software for DAT editing and audio post-production applications. At **£349**, it even comes with a CD-ROM of sound effects and atmospheres.

*Talk to John for all things Falcon.*

## B.M.F. STOP PRESS

Ring Ray for more details on the exciting new **Korg Prophecy**, the latest **Roland JV1080** boards and stand alone modules, and the revolutionary **Yamaha Dance workstation.**

He's also got the inside track on the **Akai samplers** which are so new they weren't even shown at BMF.

The Digital Village

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# More Sounds Of Quality

*Offering evolution  
not revolution, the  
feature-laden K2500R  
packs one heck of  
a sonic punch.  
PAUL WARD remains  
impressed...*

## KURZWEIL K2500R

**A**s a committed K2000 user I have waited with some anticipation for the next generation of Kurzweil synthesizers to roll off the production line. Given the K2000's reputation for quality, power and ease of use, it is fascinating to contemplate how Kurzweil will attempt to better it. In last month's preview I mentioned that, on the face of it, the K2500 series essentially represents a bigger and, potentially, better K2000 rather than any fundamentally new technology. Now, with a few weeks of solid use under my belt, I can confirm that my first impressions were accurate. With this in mind, I'll often make comparisons between the two instruments during the course of this review. Therefore I'd recommend any interested parties not already familiar with the K2000 series to get hold of SOS March 1992, wherein the K2000 was first reviewed.

### CONFIDENCE BUILDING

The K2500R comes in a weighty, 3U rackmounting package, exhibiting the kind of build quality that immediately inspires confidence. On the rear panel are a host of sockets to make meaningful contact with the outside world. In addition to the main stereo mix sockets, Kurzweil have blessed the K2500R with a healthy array of eight separate outputs, configurable as four stereo pairs if desired. Each of these sockets can also be used as an insert point to provide extra processing before sounds arrive at the main mix outputs. A pair of digital audio outputs are available from either the XLR electrical AES/EBU or the optical I/O connectors. The ubiquitous trio of In/Out/Thru MIDI sockets is present, although Kurzweil have added a useful feature where the Thru port can also double up as a second MIDI Out, if required — although this will only produce a copy of the data appearing at the normal MIDI output. Two SCSI ports are provided for connection to external disks, CD-ROM drives, or a computer. The K2500R also implements the new SMDI (SCSI Musical Data Interchange) sample transfer format for vastly increased data transfer rates between compatible machines.

Since the review model came with the sampling option installed, several other connectors were present, including digital inputs of both the optical (on the front panel) and electrical (rear panel) kind, and front panel mounted analogue inputs in the form of a pair of low impedance XLR mic connectors and a high impedance stereo quarter-inch jack socket. I found this single stereo jack frustrating. Since most stereo sources will usually sport a pair of jack or phono connectors, the use of a special adaptor is required — and these adaptors are the first thing to go missing when you need them most!

The front panel is largely dominated by the

240 x 64 pixel backlit LCD. The display is clearer and brighter than any other that I've come across to date — in fact, the K2500R's display is so powerfully bright that I wanted to dim it a little after a while!

Beneath this display are six 'soft' keys, whose operation is determined by the functions displayed just above them on the currently selected screen. To the left and right of these are the Edit and Exit buttons. I wish these were more clearly marked, speaking from much bitter experience! Just below the soft keys are the eight mode buttons that provide the most basic navigation around the K2500's internals. These give access to Program, Setup, Quick Access, Effects, MIDI, Master, Song, and Disk modes (see 'Operational Modes' sidebar for further details).

To the left of the display is a pair of up/down buttons for scrolling through program layers, MIDI channels, or Quick Access banks. To the right of the display we find the four cursor control buttons, an alpha wheel, a pair of incremental up/down buttons, and a numeric 'telephone style' keypad with Enter and Cancel keys. The front panel is completed by a headphone socket, volume control, and the MS-DOS compatible (other manufacturers please take note!) high density disk drive. An internal hard drive to a maximum capacity of 1 Gigabyte can be accommodated, which improves slightly on the K2000's maximum size of 760Mb.

### NEW ROM SOUNDSET

Kurzweil have provided a new ROM soundset of 200 programs and 100 setups for the K2500R, including a whole new collection of drum samples. The arrangement of the programs follows a much more logical pattern than those in the K2000, with groups such as pianos, strings, drums, etc located in contiguous program slots. Even allowing for the use of Quick Access banks, this makes the selection of programs much easier and quicker, meaning less time spent using the search functions and more time making music — no bad thing.

The K2500R's base ROM of 8Mb holds a delightful collection of 16-bit samples, including the usual complement of pianos, strings, brass, voices, 'traditional' sawtooth and square waves, and some more esoteric types such as formants, harmonic partials, and FM transients. Kurzweil's reputation for high quality samples is certainly upheld here, being essentially the same as those in the K2000 (some have been tweaked slightly), with the notable exception of the new set of drum samples. Optional ROM SoundBlocks can take the

## KURZWEIL K2500R £2999

### PROS

- Very powerful workstation/production capabilities in a small package.
- High quality sound.
- Expandability.
- Ease of software upgrades.
- Slick operating system.
- Compatibility with a wide range of sample formats.

### CONS

- Use of the sequencer can involve a lot of twiddly button-pushing.
- Limited assignment of global effects for multitimbral use.

### SUMMARY

This is a quality workstation with a friendly user interface, eminently capable of sounds and arrangements of epic proportions. If you don't feel a burning need for the extra polyphony, the additional drum channels, the higher level of hardware expandability, or those new drum samples, then you might find the older K2000 a less expensive alternative. With Kurzweil's track record of regular, worthwhile software updates, however, the ease and simplicity of upgrading from disk must also be taken into account. Highly recommended, if your overdraft can run to it.



# & Distinction



K2500R up to a maximum of 28Mb of onboard ROM samples (the K2000 is restricted to 24Mb), including the Contemporary and Orchestral blocks and a new 4Mb Stereo Grand Piano.

One of the things that made the K2000 so special was the ability to load samples into RAM (up to 64Mb) and feed them into the powerful VAST (Variable Architecture Synthesis Technology) synthesis engine in exactly the same way as if they were onboard ROM objects. Eight SIMMs sockets allow up to 128Mb of sample RAM to be added to the K2500R, in the form of Macintosh-type 30-pin SIMMs. There is no need to buy the sampling option to make use of this feature, which should certainly be of interest to anyone who either already owns a sampler, or merely wants to access third-party sample libraries. The ability to access Roland, Akai, and Ensoniq sample libraries, as well as reading AIFF and WAV sample files, gives the K2500R access to a potentially huge sound library.

## SAMPLING OPTION

With the SMP2-R sampling option fitted I was able to put the K2500R through its own acquisitional paces. Sampling is simple, quick and

rewarding here, with plenty of digital and analogue recording options, including sampling of the K2500R's own output. Sampling can be set to begin as soon as a button is pressed or when the

## OPERATIONAL MODES

- **PROGRAM** mode is likely to be where the K2500R will spend most of its working life. Here you can select the current program for any of the 16 MIDI channels.
- **SETUP** mode allows three programs to be layered on any three MIDI channels. This is useful for performance, for instance, when you might need more than one program split across the keyboard.
- **QUICK ACCESS** mode provides a method of grouping programs or setups in blocks of 10, for easy instant selection from the numeric keypad. These groupings may, for example, be by song or by type, such as 'Bells' or 'Analogue', with each Quick Access bank capable of being named accordingly.
- **EFFECTS** mode is, predictably enough, where the effects processor can be manipulated, perhaps to lock the effect to prevent its changing with the

currently selected program.

- **MIDI** mode is where the K2500 is told how to handle both received and transmitted MIDI data, perhaps to filter out pitch bend or program messages, for instance. Several options can be set for each individual MIDI channel, such as its audio output or whether it will respond to MIDI program change messages.

- **MASTER** mode defines those parameters that affect the machine as a whole, such as global tuning and intonation.

- **SONG** mode gives access to the K2500's sequencer.

- **DISK** mode is where the loading, saving, deleting and other manipulation of disk objects is performed.

The mode buttons also double up as selector buttons for edit functions, such as layer muting or skipping between marked pages.



# KURZWEIL K2500R

► input level reaches a predetermined threshold. One of the friendliest features is the display of the number of clipped signal peaks following a recording, which is a useful aid for getting the sampling level as hot as possible before distortion becomes a problem.

Once safely captured, there are a myriad of processing options available to manipulate the



samples, including normalisation, pitch shifting and volume ramping, alongside the more conventional looping and truncation functions. As to sampling quality — what goes in comes out — 'nuff said.

**VIVE LA DIFFERENCE!**

User programs, keymaps, and song data are all held in battery-backed RAM, which is expandable from the basic 240Kb to 1.25Mb (in the K2000 this was limited to 760Kb) by way of the optional memory upgrade kit.

The K2500R remains compatible with existing K2000 libraries, although changes in some keymaps and the new drum samples may necessitate the use of Kurzweil's 'K2000-compatibility' diskettes. Once I'd loaded the compatibility files into the K2500R I was able to load in all my old K2000 banks with no trouble at all. Phew!

For all practical purposes, there are few operational differences between the K2500R and a K2000 with version 3 software installed. The extra 48 notes of polyphony will obviously make a large contribution to the size and complexity of arrangements that the K2500R can handle. Additionally, the K2500R can now simultaneously

handle up to eight drum programs. For anyone who has experience of a K2000 the significance of this will not go unnoticed, but for other readers I will explain...

Each 'normal' (non-drum) program in the K2000/K2500R can have up to three 'layers', each of which contains a keymap (which is basically a collection of samples spread across a number of keys). A layer is processed by one of the 31 possible algorithms, consisting of up to five DSP (Digital Signal Processing) functions such as filtering, EQ, distortion, etc. A 'drum' program, however, may contain up to 32 layers, allowing for the selective treatment of 32 different voices. More importantly, these 32 layers do not necessarily have to consist of actual drum *sounds*. This

provides the potential of some truly enormous layered programs for pads, lead, bass, or gargantuan sound effects.

Obviously, these monster programs require more processing power to produce than a simple 3-layer program, so the older K2000's 68000 CPU limited the user to only one such drum program at a time. A parameter on the 'Master' page defines which MIDI channel will have the privilege of accessing these programs. The K2500R, with its more powerful 68340 CPU, always allows MIDI channels 1-7 to make use of drum programs, with the 'Master' page parameter now allowing the user to define an eighth channel. Even with an available polyphony of 48 notes, it is unlikely that you are going to get much joy by making each of your programs a 32-layer behemoth, but you are less likely to see those annoying brackets around a program name (meaning that the current MIDI channel cannot use it). Certainly, a couple of 4- or 5-layer string pads is now no longer taboo.

Apart from this, there are few major surprises in the K2500R's operating system. This doesn't trouble me at all. I think that Kurzweil pretty much got things right from the start of the K2000's life and the process of software upgrades has refined things to a point where few major gripes can still exist. Also, I must say it is still a pleasure to see frequencies calibrated in Hertz and amplitudes in Decibels, rather than the 'finger-in-the-air' 1-99 settings prevalent on other manufacturer's offerings. True, some of the DSP concepts may take some time to grasp, but programs can be as simple or complex as you feel comfortable with, and the friendly navigation features do a sterling job of helping you through it all.

The K2500R's operating system is held in Flash ROM. In practice, this means that software upgrades are made much easier. Rather than having to perform major open-heart surgery on the machine to fit new chips, an upgrade can be effected from floppy disk. Kurzweil are making

## 32-TRACK SEQUENCER

The K2500R's 32-track sequencer remains one of the best I have seen on a workstation. All the cutting, copying, quantising, and bouncing functions that you could ever hope for are there in abundance, even down to an event editing screen. The sequencer will drive external synths, with a 'soft-thru' re-channelise feature giving painless access to these synths without having to change channels on a mother keyboard. Chunks of sequences can be triggered from a keyboard with the corresponding pitch and velocity changes transposed onto the sequence as it plays. Any track can be defined as a 'drum' track to prevent its

contents being transposed. All in all, the sequencer is a truly inspirational tool for jamming, either alone or with a few friends — and it's FUN, which definitely gets my vote every time!

For more serious use I would be unlikely to choose this sequencer in preference to a software-based package with a mouse and large display, but neither would I be averse to using it in a situation where access to a computer would be problematical. In any case, Standard MIDI Files can be both read and written in Type 0 format, so swapping work between computer and K2500R is a viable proposition.





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# KURZWEIL K2500R

- software releases available from an on-line communications service and this (together with the fact that Kurzweil have made their floppy disks MS-DOS compatible) should make upgrading about as easy as current technology will allow.

## GLOBAL EFFECTS

I must admit to being disappointed that Kurzweil have not taken the opportunity to improve upon the K2000's effects handling capabilities. As with most workstations, effects are applied globally, which is often undesirable for a multitimbral arrangement. Some manufacturers offset such

problems by offering the ability to apply varying amounts of effect to each program within a multitimbral setup (like, for instance, Korg's Wavestation). Unfortunately, the K2500R either applies the amount of effect globally set for all audio assigned to the group A outputs, or no effects at all by assigning to another output group. This inflexibility will remain one of my main gripes with an otherwise excellent implementation of a multitimbral environment.

Also, with many of today's workstations and synths offering two discrete effects processors, the K2500R's complement of a single multi-effects processor 'hard-wired' across the mix outputs seems rather limited in comparison. Help is at hand, however, in the form of the optional KDFX 4-stereo-buss effects board, but not without the extra cost involved.

The effects themselves (courtesy of the Digitech 256 effects chip) are of excellent sonic quality. I have heard complaints that some find the effects in the K2000 to be noisy, but I feel this is probably more down to poor gain management than the processor itself. For myself, I have few complaints about the quality or quantity of effects on offer, both on the original K2000 or here. Kurzweil, to their credit, have made significant changes to the effects patches held in the K2500's ROM to improve the output levels and allay any further criticism.

For the future, Kurzweil are promising several optional upgrades, including the aforementioned KDFX effects board with direct digital output and digital stereo insert, and an 8-channel interface to AES, ADAT, and DA88 data formats. Keyboard versions of the K2500 are also planned with an intriguing 3-zone ribbon controller, reminiscent of the old Yamaha CS80. All tantalising prospects, so watch this space.

## CONCLUSION

If I was to tell you about all the other nice features in the K2500R's armoury (such as the object management system, macro files, sample auditioning, and graphic mixer pages) I could probably have this article serialised in a Sunday magazine for the next three months. As it is, I'll just say that if you like what you've read so far, then you'll love the rest.

If you were impressed with Kurzweil's previous offerings, then you are unlikely to be disappointed by the K2500R. We are seeing evolution, not revolution, here in a product that enhances the K2000's winning formula with a little more muscle from the 48-note polyphony and a little more flexibility from the eight drum channels. The sound remains warm and powerful (rather like having your brain hugged through your ears), leaving me in no doubt that, when it comes to sample-based synthesis, Kurzweil are still up there leading the field.

The K2500R is not cheap, but neither does it deliver a cheap performance. If push came to shove, I could manage quite happily with a decent mother keyboard and this device alone. I certainly know of one other musician who borrowed this K2500R for a couple of nights and would now be quite prepared to have it replace his entire multi-synth rig! With the addition of a couple of decent effects processors, I doubt that anyone would realise that all the sounds were emanating from a single machine. For a workstation, this is probably the greatest accolade anyone can give at the moment. If you do have other synths and sound sources in your setup, then don't forget that the K2500R's separate outputs can all be used as external inputs, effectively giving you an 8-channel mixer into the bargain.

One nagging doubt remains, however. With machines now capable of 128-note polyphony and physical modelling technology beginning to filter down to a more affordable level, it is uncertain whether the enhancements within the K2500R will be sufficient to excite a market place that is perhaps looking for more far-reaching innovation. Only time will tell.

SOS

## FURTHER INFORMATION

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*"The sound remains warm and powerful (rather like having your brain hugged through your ears), leaving me in no doubt that, when it comes to sample-based synthesis, Kurzweil are still up there leading the field."*

## FAVOURITE K2500R PATCHES

If you get the chance to check out a K2500R, then the following sounds should bring some instant aural gratification:

- 1 Acoustic Piano — still one of the best, in my opinion.
- 69 Marimba/70 Excited Marimba — show how subtle use of the DSP engine can transform a basic sound.
- 79 Moogy Bass 2 — Mod wheel and Data slider vary cutoff and resonance. As close to an 'authentic' analogue sound as any sample-based synth has come.
- 87 Strummer Guitar — frighteningly realistic acoustic guitar.
- 97 Gospel Organ — warm and gutsy. Mod wheel speeds up rotary speaker effect.

And while you're at it, flip into Setup mode and try out 58 Swing Trio — I could play around with this one all night!



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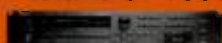
deposit = £69  
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deposit = £199  
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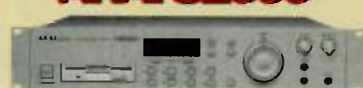
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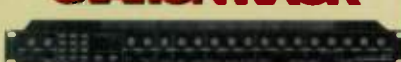
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# DMT-8

## Your 'wish list' multitracker

If someone asked you to design your ideal multitracker you'd no doubt have strong ideas of what it should include, what it should look like and how it should perform.

### DIGITAL QUALITY

First, we suspect, on your 'wish list' would be ultra high quality recording. Digital recording without compression or compromise.

### 8 TRACKS

And 8-tracks would be nice. 4 tracks might have been OK for Mr Pepper and the boys but lay a few vocals and a guitar part or two and it leaves little room for much else. No, it would have to have 8 tracks. On the mixing side, you'd no doubt want something that's quiet, flexible, with great EQ and lots of inputs. Oh, and plenty of input options on mixdown.

### EASY INTEGRATION

You'd also want a machine which integrates easily into the Midi environment, generating MTC without losing tracks, and transport controllable via a software sequencer.

### FOSTEX BRAND

And, no doubt, you'd want a machine which is backed by a company with years of recording and innovation experience.

### THE BOTTOM LINE

Finally you'd probably want all this in a great looking box, which is a snap to use and at a price not much above conventional analogue multitrackers. Allow us to introduce your 'wish list' - The new Fostex DMT-8 Digital Multitracker.



### TRUE CD QUALITY RECORDING

Some digital recorders ask you to make do with compression - resulting in 'muddy' recordings.

Professionals don't accept this sort of cost cutting so why should you?

The fact of the matter is that CD-quality recording demands full linear 16-bit resolution digital to analogue conversion at a sample rate of 44.1kHz.

A specification which the Fostex DMT-8 meets with ease.

With its own 32-bit RISC CPU it gives 8 tracks of CD-quality recording and playback, to and from an internal 540 MB Quantum hard drive.



**8 INPUTS: 4 INSTRUMENT / MIC, 4 INSTRUMENT**  
Channels 1-4 have a 'wide-range' trim fader (-10dBV -50dBV) for perfect mic level matching while channels 5-8 are ideal for instrument inputs. The channel strip has two inputs: main and SUB enabling monitoring of recorded tracks during recording which can be used as a line input during mixdown.

**CHANNEL EQUALISATION**  
Two parametric EQ's High Mid (1kHz - 16kHz +15dB) and Low Mid (60Hz - 1kHz +15dB).

**FLEXIBLE OPERATION AUXILIARIES**  
2 AUX sends. Dual-function rotary pots enable SUB or post-fader main input to be selected as send source.



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The DMT-8 has instantaneous search to zero or any cue point. This feature alone speeds up the recording process and offers little interruption to your inspiration and ideas flow.

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**Fostex** WRB

# 8 Track



## 22 INPUTS IN REMIX

Nice touches include 4 track simultaneous recording, non-destructive audio editing, MTC sync, 3 kinds of timebase, 6 memory locations, a handy dual-function jog/shuttle wheel for digital scrub without pitch change, Auto Locate to ABS 0 and ABS End, archiving via DAT, and individual track outputs.

Plus you get a flexible in-line mixer with superb EQ and no less than 22 inputs in remix! Yet with all this sophistication it's incredibly easy to use, adding new meaning to that often mis-used phrase

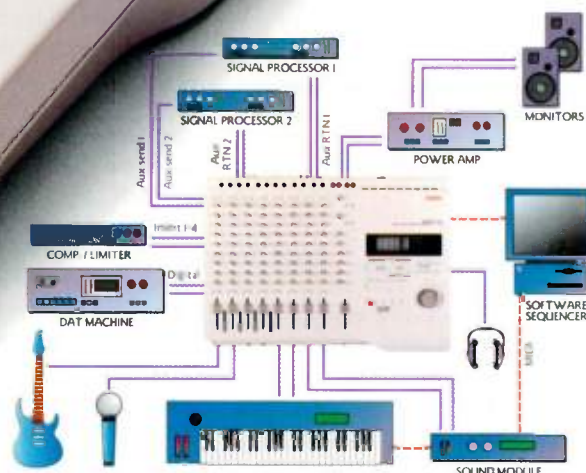
"tapeless studio".

## NON DESTRUCTIVE EDITING

*Backing vocals great on the first chorus, but a bit shaky in the second? Why waste time recording them again? With simple copy and paste editing you can take those great vocals on chorus 1 and paste them over the less than perfect ones in chorus 2.*

*This simple procedure can be carried out on selected tracks or on all eight at once. And with the handy undo feature, mistakes don't have to be final.*

*Note: When copied, audio is written to a part of the hard disk called the 'clipboard', the contents of which can be reviewed at any time with a simple button push.*



## TYPICAL DMT-8 STUDIO SET-UP SYNCHRONIZED TO AN EXTERNAL SOFTWARE SEQUENCER

The DMT-8 is ready to slot right into your Midi based set-up giving you CD-quality digital recording of guitars, vocals, etc. to add to your sequenced keyboard parts. And without sacrificing any of the recording tracks. Auto punch in/out with rehearsal is available and on mixdown you have easy control of up to 22 inputs on remix catering for all those keyboard and sound module outputs.

Use a DAT machine to archive disk drive data and to digitally master your recordings.

# Digital Recording

**Fostex**



***It's not a new synth — it's seven! Korg's amazing new Prophecy offers analogue and FM synthesis, and physical modelling, and still costs under £1000. Unsurprisingly, SOS staff have been dying to review one ever since it was unveiled at this year's Frankfurt Musik Messe. Lucky man GORDON REID won the toss...***

**T**his is the story as it was told to me... In 1987, the former Sequential Circuits design team (responsible for classics such as the Prophet 5 and Prophet VS) began working for Korg. The company immediately bundled them out of sight, locked them in a room full of computers and said "design something for us". Locks were locked, bolts were bolted, and most people forgot that they had ever existed.

Years passed. Every day somebody from Korg would shove some food and water through a hole in the door. Then, one day, there was a timorous knock from inside. Locks were unlocked and bolts were drawn. When the door was opened, a pasty-faced individual peeked out, blinked in the light, and said, "We've designed something. It's called a Wavestation". "What does it do?" asked the guys from Korg. "Well, it's sort

hole in the door. Then, quite recently, there was a knock from inside. An *extremely* pasty-faced individual peeked out and said, "We've done what you asked". "What does it do?" asked the guys from Korg. "Well, it does analogue synthesis" said the pasty-faced one. "And FM. Oh yes... and physical modelling of plucked strings. And brass. And reeds. And, before you shove us back in the room... it does all that for less than £1,000." Thus did the Prophecy, as they say, come to pass.

## OUTSIDE AND IN

Externally, the Korg Prophecy is a light but robust 37-note monosynth with a velocity- and aftertouch-sensitive keyboard. The styling is, to my eyes, new and refreshing, although a few people have commented on its similarities to the Yamaha VL1... A 2 x 40-character backlit LCD dominates the control panel, and is surrounded by buttons to the left and right, and knobs underneath. Conventional modulation and pitch-bend wheels, plus the 'log' (a combined mod-wheel and pressure-sensitive ribbon

# A Prophecy Fulfilled?

## KORG PROPHECY SOLO SYNTHESIZER

of a wavetable synthesizer, with vector synthesis, and wave sequencing". "Not bad" said the guys from Korg. "Now get back inside and design something else".

Years passed. Every day somebody from Korg would shove some food and water through a hole in the door. Then, one day, there was another timorous knock from inside. The door was opened, and an even pastier-faced individual peeked out, blinked in the light, and said "We've designed something else". "What does it do this time?" asked the guys from Korg. "Well, it does analogue synthesis" said the pasty-faced one. "And FM. Oh yes... and physical modelling of plucked strings. And brass. And reeds. And it can be programmed to handle any new synthesis techniques that may come along in the future... and it does them all simultaneously. We've called it the Open Architecture Synthesis System, or OASYS for short."

The executives at Korg were delighted, and instead of shoving the team back into their room, bought them dinner at an expensive Japanese restaurant. But there was a problem. At £10,000, the OASYS was expensive. Very expensive. So Korg turned to the developers and said, "Sorry guys, we've got to put you back in your room. We need something cheaper, something that will appeal to the average musician. Something, to be blunt, that we can sell in the mass markets."

Months passed. Every day somebody from Korg would shove some food and water through the

controller), round off the package. Most people will either love it or hate it. I love it...

Round the back, you'll find the inevitable MIDI In, Out and Thru, alongside inputs for an expression pedal, an on/off (sustain) foot-switch, and a socket for an EC5 MIDI controller. This can be used for patch selection when your hands are otherwise occupied. There's also a socket for a RAM card that will store arpeggiator patterns as well as patches. And, finally, there are the stereo audio outputs.

Internally, the Prophecy is just a computer, although it boasts no fewer than five processors. Three of these are the Texas Instruments TMS57002 DSPs used in the Korg G-series effects. The other two are for housekeeping: an NEC V55 looks after the user interface, key-scanning, and display, and a Toshiba H8 (which I've never heard of) looks after the three DSPs.

## SYNTHESIS

You programme the Prophecy using the five knobs known as Performance Editors (which can also modify sounds in real-time for live synthesis) and 32 of the 40 multi-function pushbuttons. But be warned... as soon as you start playing with the editing, you start losing chunks of your life: begin fiddling at 8.00pm, and suddenly the sun is coming up.

Why is it so involved? Answer: Sheer synthesis power. For example, although the Prophecy features five distinct methods of synthesis, it offers

### KORG PROPHECY £999

#### PROS

- Mind-boggling power and flexibility.
- Having, in one neat box, seven markedly different synths...
- ... costing merely £142 each.
- Everything else.

#### CONS

- The sheer number of parameters (or is that a pro?).
- Having to learn how to play a real synth all over again.
- Not owning one.

#### SUMMARY

The return of the mighty monophonic synthesizer. Who knows, maybe the late '90s will see the re-emergence of guys wearing long flowing capes who fling knives into their keyboards. Playing the Prophecy stirs some long-forgotten feelings, and when you consider the functions you get for the price (less than £1,000, remember) there's almost no excuse for buying anything else.







# THINK TWICE<sup>2</sup>

## BEFORE YOU BUY YOUR NEXT LIVE MIXER

**O**NCE UPON A TIME a serious Live Console meant a serious investment - a huge machine whose cost was almost doubled by having to hire extra roadies just to lift it! These days, Spirit's relentless research into providing affordable professional solutions has led to the last word in cost effective Live Sound mixing - Live 3<sup>2</sup> and Live 4<sup>2</sup>. Starting at just £739 + VAT, these new consoles offer even more power than their predecessors, and more than many other mixers costing several times as much. The culmination of months spent talking to engineers and musicians about what they actually needed, Live 3<sup>2</sup> and Live 4<sup>2</sup> offer a host of professional features and optimum sound quality, in frame sizes that no longer require a team of strongmen to lift them. For the full story read on:

### Quiet, Bullet-Proof Mic Preamps

Ask any engineer and he'll tell you that you'll never achieve a professional live sound without top quality mic preamps. In other words, it's vital that they provide enough gain range to deal with any source without adding any noise to the input signal. "Ultramic Plus" is Spirit guru Graham Blyth's

most transparent preamp ever, ensuring that Live 3<sup>2</sup> and Live 4<sup>2</sup> produce noise-free mixes. In addition, an incredible padless 66dB of gain range means you can plug

in anything from line level electronics to the "hottest" of mics without running out of headroom or gain. Quite simply, it's the highest signal level mic preamp yet seen in professional audio.

### Flexible Auxiliary Switching

Every band has different requirements for foldback and effects, depending on band size, the venue, and a host of other factors. A professional quality desk must be able to deal with these variables. Four of Live 4<sup>2</sup>'s six auxiliaries can be set to pre- or post-fader, with three of Live 3<sup>2</sup>'s four aux's pre/post settable; in other words it's just as easy to have a foldback- or effects-heavy configuration.

### Individual PCBs

Even though Spirit consoles are built to be durable, accidents will happen. So each channel on Live 3<sup>2</sup> and Live 4<sup>2</sup> has its own individual circuit board, making maintenance or replacement easy in the rare cases that mad axe-wielding groupies or badly misplaced pints of beer cause a

### Balanced Inputs

These are essential in live situations for reducing potential noise and hum. All inputs (even the stereo ones) are balanced on Live 3<sup>2</sup> and Live 4<sup>2</sup>, keeping the noise floor to a minimum. In addition, both desks' outputs are impedance-balanced so that long cable runs are possible without the worry of interference from lighting rigs and electrical equipment.

### Comprehensive EQ

Powerful, corrective EQ is essential in live situations to cope with varied venue acoustics and band members operating at competing frequencies. Spirit's legendary 4 band EQ with two swept frequencies is available on Live 3<sup>2</sup> and 4<sup>2</sup> to provide you with even more control over your sound. In addition, both consoles offer new, more powerful 18dB per octave High Pass Filters, which combat low-end muddiness caused by stage rumble and mic popping. And if that's not enough, there's also an EQ In/Out switch, so you can compare treated and untreated sounds during rehearsal without the fiddle of having to reset all your controls. Why buy imitation "British EQ" when you can have the real thing?

### Consistent Controls

Your mix can only be as good as the accuracy of your controls. Unlike other manufacturers, Spirit specify components with specially designed potentiometer laws that guarantee predictable response to any movement. Our new pots were designed from the ground up to ensure consistent gain all the way around their travel.

channel to go down. Unfortunately, this is not always the case with some so called "professional" live consoles. Because they use single boards for whole rows of inputs, this type of mishap can lead to the catastrophe of whole banks of channels going down at once.

## WHAT'S IMPORTANT LIVE

After 22 years of creating classic front-of-house consoles, Soundcraft co-founder Graham Blyth knows how to design a professional mixer. Many of the world's leading artists have toured with Soundcraft consoles, whilst many prestigious installations boast a Soundcraft desk.

Designed exclusively by Graham, Spirit consoles adhere to the same high design principles: High Sound Quality, Ease of Use, Rugged Construction, Flexibility, Consistent Controls, and Bullet-Proof Mic Preamps.

Beware of other live desks that don't share these qualities.

PRICES FROM  
£739 + VAT

LIVE 3<sup>2</sup>

LIVE 4<sup>2</sup>

EXPANDER

DUST COVER

ACCESSORIES



# LIVE 3<sup>2</sup> LIVE 4<sup>2</sup>

## APPLICATIONS

**Any Live situation:** ■ Small Band PA ■ Public Address ■ PA Hire ■ Theatres ■ Colleges ■ Clubs ■ Places of Worship ■ Conferencing

## MAIN FEATURES

■ Four Frame sizes: 8, 12, 16 and 24 channel  
 ■ Separate Mono Bus ■ 4 band EQ with two swept Mids ■ EQ In/Out Switch ■ High Pass Filter on every mono input ■ 4 Aux's with 3 pre- or post-fader ■ 2 Stereo Returns ■ 2 Stereo Inputs ■ Inserts on every channel ■ New UltraMic<sup>+</sup> Preamps

## APPLICATIONS

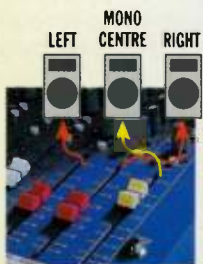
**Any Live situation where 4 groups are required:**  
 ■ Front-of-House Console for Bands, Theatres, Clubs & Venues ■ Public Address ■ PA Hire ■ Places of Worship ■ Recording (via Direct Outs)

## MAIN FEATURES

■ Five frame sizes: 12, 16, 24, 32 and 40 channel, with separate mic input on each mono channel  
 ■ 4 Stereo Inputs for Keyboards or Tape Returns in addition to the mono inputs (2 on 12 ch.) ■ 4 Groups, with 4 additional Stereo Returns ■ 4 Mute Groups ■ 6 x 2 Matrix section ■ New UltraMic<sup>+</sup> Preamps ■ Phase Reverse Switch on every mono channel ■ Independent Phantom Power Switching on every channel ■ Direct Outs on every mono channel, for individual effects or multitrack tape sends ■ 4 band EQ with two swept Mids ■ EQ In/Out Switch ■ High Pass Filter on every mono input ■ 6 Aux's with up to 4 pre- or post-fader ■ End cheeks removable to reduce road case size

### Why Mono Out on Live 3<sup>2</sup>?

Most Mixers in Live 3<sup>2</sup>'s price bracket only offer simple stereo outputs, which sometimes limits your scope in performances when certain elements of the mix need to be highlighted. For example, Live 3<sup>2</sup>'s extra mono bus allows you to separate a vocal PA or an announcer from a music mix. Alternatively, the mono bus can be used to feed a separate bass bin to reinforce bass frequencies. You can even use the Mix L&R as subgroups to feed a mono master.



### Matrix Outs

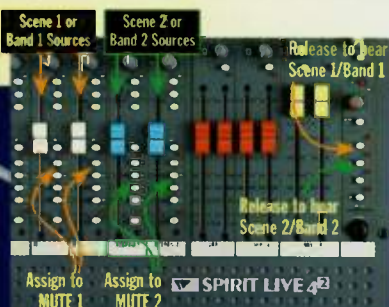
Effectively, Live 4<sup>2</sup>'s two matrix outs give you a couple of extra mixes in addition to the mix and 4 groups. Including the 6 auxiliaries, that's 14 in all! Derived from the four subgroups and the Mix L&R outs, they allow you to run extra speakers in addition to the main Front-of-House mix. Use them to feed band side-fills, centre speaker clusters, delay towers at outdoor events, or on-stage monitors.

### A Mic Input on Every Mono Channel

This means 40 separate Mic inputs on the 40 channel frame size - enough for the most demanding budget-minded band, and all in a width of just over 1.5 metres! Not even professional Live mixers at twice the price offer this many mic inputs as standard.

### Live 4<sup>2</sup>'s Mute Groups

Up to now, only the largest FOH consoles have featured Mute Groups, which allow lots of channels to be muted with a single button push. Live 4<sup>2</sup>'s four mute groups allow you to get through those difficult cues with just one pair of hands, scene-set theatre performances, or even set up the mic channels for your main band in advance, including fader position, and leave them up whilst the support act is playing.



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# Korg Prophecy

► the Prophecy, the answer became obvious within minutes. There is an indefinable 'something' about certain instruments: the Minimoog, the Mellotron, the Yamaha CS80, the Roland Jupiter 8, the Hammond C3, the Fender Rhodes... and the

demonstrations of up/down arpeggiation that sounded like nothing so much as a Juno 60, and random arpeggiation reminiscent of a Jupiter 8. An uncannily realistic soprano sax solo was followed by a demonstration of the harmonic changes that

you would expect to hear when a guitarist moves the position at which a guitar string is plucked. This then metamorphosed into an overdriven, distorted, screaming lead guitar. There was an uncanny bass guitar played using slap and hammer, as well as more traditional fingering techniques. A demo of tonguing and overblowing a Trombone was followed by a snatch of 'Amazing Grace' played on bagpipes which, as the 'virtual' arm pressure was released, had the drones decaying as the bag deflated. Finally there was the 'outro': an enormous lead synth solo with resonance, filter modulation, oscillators entering and leaving the mix for feedback effects, and just about everything else. An instantly recognisable snatch of the solo from ELP's 'Lucky Man' (originally played on a Moog IIC) had everybody grinning. All very smooth, very powerful, very convincing. The Emperor was well and truly wrapped in his winter woolies.

If this sounds a bit overwhelming (and it was) you don't have to go far to convince yourself just how powerful and expressive the Prophecy can be. No further, in fact, than your local music emporium and the Prophecy's demonstration programs. These dramatically show off 16 of the factory programs — analogue synths, basses, brass, flutes, and others — and demonstrate the extremes of mood and expression that you can coax from the log and the other real-time controllers.

## PLAYING TECHNIQUES

This brings us neatly to the following question: can you simply plug in a Prophecy and expect it to sound like a genuine saxophone or a wall full of painstakingly programmed Moog Modules? The answer, I'm afraid, is no. Give a novice gut-scratcher a Stradivarius, and he (or she) will still sound like a



The 'log' and mod wheels.

Prophecy quickly proved that it too has a great deal to offer: depth, delicacy, expression... The demo had huge Moog modular-type sounds with multiple oscillators, detune, and rasping analogue filters with bags of resonance. There were analogue sync-sweeps, more 'Emerson-style' Moog emulations with the oscillators tuned in 3rds and 5ths, glitch-free resonant filter sweeps, and acid synth-basses with pitch-bend and portamento. Bell-like FM sounds were followed by analogue sounds modulated to emulate wave sequences. There were

## MODELLING COMPETITION

Yamaha launched physical modelling little more than a year ago. The VL1 caused a mighty stir in the press, excited a small handful of players with spare wads of cash and enough time to learn to play it, and then quietly went away again. But Yamaha is the master of designing hugely expensive instruments that prove to be test-beds for technology that eventually becomes an industry standard. In the '70s, the GX1 begat the CS80, and soon after, the GS1 was the forerunner of the DX7. Nevertheless, this time Korg has beaten them to the punch. Notwithstanding the VL1's little brother, the VL7, the Prophecy is without doubt the next generation of physical modelling synths, both in its approach and

its price. Yamaha's Self-Oscillating Virtual Acoustic Synthesis (S/VA) demands breath control, and to some extent the VL1 and VL7 stand or fall by the ability of the player to blow into a mouthpiece, manipulate mod wheels, and play. The Prophecy is cheaper, more immediate, and more flexible. Whether Yamaha will now launch a killer synth in direct competition with Korg remains to be seen.

In the meantime, players have just four modelling synths from which to choose: the VL1, the VL7, the Clavia Nordlead, and the Prophecy. Which is more suitable depends upon the eventual use. The Nordlead costs nearly £1500 and only offers analogue-style synthesis,

but it does so with 4-voice polyphony and 4-part multitimbrality. The bitimbral VL1 and monophonic VL7 concentrate far more on orchestral imitations and perhaps have the edge in terms of imitative realism, but, at £3995 and £2195 respectively, they remain more than twice as expensive (per voice) as the Korg.

Despite its obvious similarities to the Yamaha VL7, the Prophecy will almost certainly be most often compared to the Clavia Nordlead, arguably the first physical modelling 'analogue' synthesizer. There's a comparison table elsewhere in this article which compares these two synths and (since it's such a yardstick) the Minimoog.



novice. In our case, and despite the quality of the Prophecy's sound generation, simply pressing down the notes will produce a sound rather like a synthesized saxophone, or a poorly programmed Moog. The reason is this: physical modelling has made it possible not only to reproduce single notes with realistic timbres and modulations — after all, a good sampler can do that — but also to recreate the nuances and sounds that occur within and during the transitions between those notes. So, if you want to sound like you're playing a particular instrument, you've got to *play* like you're playing that instrument. For example, the more competent your control of parameters such as 'air pressure' and 'embouchure', the more realistic any brass or reed model will sound. To put it another way (and here's a statement guaranteed to wring cries of dismay from some players) the better you play your synth, the better it sounds. And that, in the absence of a breath controller, means learning to control the log, the ribbon controller, the ribbon's pressure sensitivity, the two wheels, the velocity sensitivity, and the pressure sensitivity.

## LIMITATIONS

It's almost impossible to discuss the Prophecy in terms of any limitations. OK, so it's limited to seven sound creation methods — but that's still six more than almost any other synth ever released. Maybe the effects section is a little limited compared to, say, a Quadraverb, but then this is a monosynth, and not a piece of outboard equipment. Wait, I've found one — there's no breath controller! Then again, the Prophecy responds to and can route every MIDI controller to just about every parameter you can think of!

Taking things a little more seriously, there are three areas in which Korg could have made improvements — two concerning the hardware, the other to do with software. Firstly, the pressure exerted by the log's return springs is too high. While this might sound trivial, the Prophecy is performance-orientated, and the response of the controllers should be as near-perfect as possible. On production models, the moulding of the log will be slightly different to the prototype you see here (and much kinder to the fingertips), but my feeling is that the spring loading should be slackened off. Secondly, it seems a shame to limit the Prophecy to just three octaves. Sure, that was good enough for most monosynths, but real classics such as the Minimoog, ARP 2600, and even Korg's own 800DV had 44- or even 49-note keyboards. Clavia and Yamaha seem to have learned the lesson (with their Nord Lead and VL1 respectively), and it's a shame to see the Prophecy limited in this way.

Finally, let's worry about the software — and, in particular, the initial impenetrability of the operating system. This is a direct consequence of the enormous flexibility of the Prophecy, and could be a serious limitation, at least in terms of players quickly and easily programming the sounds that they want. Korg could, and maybe should, have mitigated this by providing a better display. Two

## THE ENGINEER — PHILL MACDONALD

Phill Macdonald is well known as one of Korg's programmers and technical support staff. But when he's not creating and manipulating PCMs, he leads a secret existence as an Electronics Engineer. He seemed the ideal target for some tough questions...

Spill the beans, Phill... what is 'physical modelling'?

"It's a difficult concept to get across, made harder because there are so many ways to model a signal. But all the Korg algorithms developed using Synth-Kit treat a sound as a combination of a resonator, plus a driver that 'excites' it.

"In the plucked model, for example, the response of a string is simulated by a resonator constructed from a wave-guide with two delays, plus feedback paths back into the middle. The amount of delay fed back into the resonator controls the decay characteristic of the string, and the amount of high-frequency damping defines the loss within the note. The pulse that you fire into the 'joint' between the two delays is the driver, and the different pulse shapes control how the model is 'picked'.

So any sound can be derived by taking a resonator and applying an impulse to start it 'vibrating'?

"In the string model, the driver is a pick, and the output from the model will differ according to the shape of the pick, the aggression with which you hit the 'string', and the nature of the pick itself. After all, a harpsichord is quite different to a picked bass, which is quite different to a thrash metal punk guitarist using a 10p piece. The Prophecy offers control over all those parameters."

And the reed and brass models?

"They're entirely different — a lot more complicated. The brass resonator is an expanding cylinder modelled as a series of tubes of increasing size that are connected to each other to simulate a bell. The driver is also very complex — it's a mini-model of the human lips and palate. This has its own set of complex parameters which simulate the way the instrument is blown, and hence control the tone.

"A physical model is just a concoction of various elements each designed to simulate a specific task, so the reed model is similar to the horn model, but the driver is different — it's a reed rather than the lips and palate, and it has a different set of parameters appropriate to adjusting the character of a reed. The tube part of the model is similar to the brass resonator, but reed instruments can be wooden as well as metallic, and some are cylinders rather than cones, so the reed model has a number of further differences. Essentially, to get the woodiness and tone of an oboe, the Prophecy uses the saxophone model — but then passes the sound through a filter block set up to resonate like an oboe. You can even remove the reed from the model, leaving you with just a tube. This gives you flutes and blown bottles. Some of the solo stringed instruments in OASYS have loads of filters acting as very complex resonators for the body of, say, a violin.

"It's called a *physical* model because you're building a computed replica of what actually generates the sound — the Synth-Kit layout for a Hammond Organ model looks pretty much like a simplified Hammond circuit diagram! The model is just a representation of the real thing, and while the nature of some acoustic instruments is a bit hard to explain, especially if you try to account for everything that's going on, you can take all the physical characteristics of the instrument and try to duplicate them in the model.

"Unfortunately, people have got the idea that

modelling is a hugely complex synthesis system developed by rocket scientists for other rocket scientists. But the parameters within the Prophecy are really quite straightforward, and certainly not impossible to understand. Whilst the algorithms may be complex, we've defined a set of points at which meaningful values can be inserted.

Could you have defined other parameters that would allow the player to tweak the sound in different ways?

"That depends upon the complexities of the models themselves. Up to 90% of the combinations of all possible parameters and values would create meaningless sounds. And within some models, there's a tendency for parameters to interact with each other. So we grouped those that perform usable functions together, and gave them a specific name. That way, when you manipulate a value, you could be changing three or four factors within the model. We've simply brought forward the best parameters and the most useful ranges.

How about the analogue model? Does its structure relate to any particular monosynth?

"I'm particularly pleased with the analogue side of things. It sounds good and, in the UK, it's probably the most important aspect of the Prophecy. Our demonstrations have concentrated on the analogue emulation, because it's perceived as the instrument's biggest market. But as for relating the Prophecy to a classic synth... not as such. Think about it. All three-oscillator 24dB/octave analogue synths should sound the same, but they don't. The reason is this: a lot of these instruments have some unusual quirk that makes them individually desirable. That quirkiness, and therefore the synth's character, can be programmed into the Prophecy via the modulation matrix. The matrix also means that you can't relate the Prophecy to a simple synth such as a Minimoog or Odyssey. Look at its facilities: cross-modulation, ring modulation, oscillator sync, pulse width modulation, three oscillators, six envelope generators, the serial and parallel digital filters [the filters can be run in series as a single 24dB/octave filter, or as two separate 12dB/octave filters, each offering high pass, low pass, band pass, and band reject modes, all with resonance — Ed] — short of a dreaded Moog Modular there's no analogue monosynth like it. But, on the other hand, if you want to make the Prophecy sound tinny and weedy like a TB303, and have all the knobs interact as they do on a 303, that's quite possible. So maybe the Prophecy is the monosynth to replace all your other monosynths — provided that you only need one at a time! I certainly aimed for that when I was creating some of the patches.

What happens to a signal once it's passed through the models?

"The models' outputs run through what is, essentially, the front end of a synthesizer like the O1/W. You still run the waveform through a wave shaper, mixer, and filters — you just create that initial waveform with a model rather than a PCM or an oscillator. Not that the electronics of the Prophecy are the same as an O1/W, I'm just using that as an example of the principle."

Why does the Prophecy need three DSPs?

"The sound source itself is generated in one DSP. Things like the filtering, wave-shaping and mixing are dealt with by another one. And then the effects are handled by the third. But the processors aren't dedicated; the programming can change the tasks each is performing."



### 3 GREAT SYNTHS COMPARED

	PROPHECY	NORDLEAD	MINIMOOG
<b>Oscillators:</b>			
Audio Oscillators	3	8 - 24	3
Polyphony	1	4 - 12	1
Number of oscillator types	7	1	1
Number of oscillator modes	12	4	1
Number of waveforms	Unlimited	Unlimited	6
Pulse Width Modulation	Yes	Yes	No
LFO Pitch Modulation	Yes	Yes	Yes
Audio frequency Pitch Mod.	Yes	Yes	Yes
Oscillator sync	Yes	Yes	No
Sync modulation	Yes	Yes	—
Fine Tuning	Yes	Yes	No
Cross Modulation	Yes	No	No
Ring Modulation	Yes	No	No
Noise	Yes	Yes	Yes
Pitch bend	Yes	Yes	Yes
<b>Performance Capabilities:</b>			
Number of notes	37	49	44
Velocity Sensitivity	Yes	Yes	No
Pressure Sensitivity	Yes	No	No
Modulation wheel	Yes	Yes	Yes
Pitch controller	Yes	Yes	Yes
Ribbon controller	Yes	No	No
Other controllers	Yes	No	No
<b>Filters:</b>			
24dB/oct LP filter	Yes	Yes	Yes
12dB/oct LP filter	Yes	Yes	No
High pass filters	Yes	Yes	No
Band pass filters	Yes	Yes	No
Band reject filters	Yes	No	No
Filter resonance	Yes	Yes	Yes
Filter oscillation	Yes	No	Yes
Filter tracking	Yes	Yes	4 options
<b>Envelopes:</b>			
Dedicated Envelopes	—	2 x ADSR	2 x ADSD
Assignable Envelopes	6 x ADBSR	1 x AD	None
No. of Envelope destinations	97	4	2
Envelope inversion	Yes	AD only	No
Linear response	No	Yes	Yes
Exponential response	Yes	No	No
<b>LFOs:</b>			
Dedicated LFOs	4	2	Osc3 has LFO mode
No. of LFO destinations	103	6	2
Number of LFO waveforms	30	3	6
Sample & hold	Yes	Yes	No
<b>Arpeggiator:</b>			
Arpeggiator	Yes	Yes	No
No. of fixed modes	5	3	—
User programmable modes	5	0	—
<b>Effects:</b>			
Number of effects	7	0	0
Wave-shaping effects	2	0	0
<b>MIDI:</b>			
MIDI capability	Yes	Yes	No
MIDI channels	16	16	—
Multi-timbrality	No	4-part	—
SysEx functions	Yes	Yes	—
Functions controlled by MIDI	Almost all	5	—
Velocity sensitivity	Yes	Yes	No
Aftertouch sensitivity	Yes	No	No
<b>Miscellaneous Functions:</b>			
Portamento (Glide)	Yes	Yes	Yes
Transpose +/- octave	Yes	Yes	No
Trigger modes	3	3	1
<b>Standard Memories:</b>			
Patch memories	128	99	0
Performance memories	—	1	0
<b>Expansion Cards:</b>			
Patch memories	64 per card	697 per card	0
Performance memories	—	100 per card	0

## Korg Prophecy

► lines of 40 characters with no graphics simply aren't the right tools for such a detailed instrument. But... would potential purchasers have paid the extra £150 for a full-sized screen? Such an increase would have taken the Prophecy well over the magic £1000 mark. Another solution would be for Korg to supply a software editor to run on a Mac, PC, or Atari ST. Unfortunately, although they have an editor that they're using to programme the factory voices, it only runs on an NEC computer with its own high-powered DSP expansion boards. Whatever the answer is — even if it turns out to be a 6ft x 4ft wall-chart — something should be done to make the power of the Prophecy more accessible. There are so many quality sounds crowded together inside its silver-grey case that they are almost cracking the plastic to get out. And editing, once mastered, opens the doors to genuinely new sounds.

### CONCLUSIONS

Oh my god! How can I summarise such an instrument in so few words? It will take years to plumb the Prophecy's depths. This review has barely scratched the surface of its capabilities, although it must be emphasised that nothing in the Prophecy is particularly arcane or impenetrable in the way that the DX7 was, it's just that there's so much of it. Anyway, here goes...

Though many have tried, no manufacturer has ever succeeded in wresting the King of Monosynths crown away from the Minimoog. But maybe, just maybe, Korg have cracked it. Analogue anoraks might complain about the digital parameter access editing, and argue that "it can't possibly be like the real thing" (whatever that means), but too many of them forget that the bottom line with any synthesizer is the *sound*. That was true in 1970, and remains so today. By that measure, whether emulating an analogue synth, a sax, or a bass guitar, the Prophecy stands up to the closest scrutiny. As for value for money, a 1970 Minimoog cost, at today's values, about £5,000. All seven synthesizers that comprise the Prophecy will set you back less than 20% of that. Indeed, they'll cost you little more than double the typical prices being asked for the rash of quirky 'retro' analogue monosynths that hit the streets during 1994 and 1995.

Stop messing around. Forget paying £1,000 for a 20-year-old Minimoog. Make your apologies to the guy trying to sell you a BassStation. Put your money back in your pocket. The Prophecy is in the shops now. Go grab your bank manager and knock him about a bit until he gives you another few hundred quid. Then go and get gob-smacked like the rest of us.

SOS

### FURTHER INFORMATION

£ £999 inc VAT.

A Korg UK, 8-9 The Crystal Centre, Elm Grove Road, Harrow, Middlesex HA1 2YR.

T 0181 427 5377.

F 0181 861 3595.







**PAUL WHITE checks  
out the new features  
in this latest update  
to Emagic's MIDI  
recording  
environment.**

**E**magic *Logic* users should be very pleased with this latest update, because in addition to enhancing the feature-set and making the program easier to use, the package contains a brand new manual which is infinitely better than the collection of loosely related works that has built up since *Logic* was first launched. The manual is quite slim (barely an inch thick) and is far more user-friendly, especially to first-time users and those with limited MIDI experience. I got my hands on the Mac version, but the other platforms will reach v2.5 very shortly and most of my comments are equally applicable.

The very latest features are described on blue pages at the start of the manual, so that they can be identified and replaced when the next formal manual update is released. The binder is big enough to accommodate double the number of

complicated bit of software very clearly.

To make it even easier to get up and running, the program disks now come with an Apple-style installer routine, and when you boot it up, you'll notice a new title screen which (for no adequately explained reason) resembles a spiral galaxy with a pulsating Malteser at its centre! And so to the upgrade itself...

## THE UPGRADE

So what was wrong with the last version? As a fairly regular *Logic* user, I feel that there's little wrong with the previous version itself — it's very stable and it lets me do what I need to do — but all software has its own little frustrations and foibles that begin to irritate you when you use it a lot, and *Logic* is no exception. For example, not being a musically literate person, I use the Matrix (piano-

# UPDATE!

## EMAGIC LOGIC 2.5

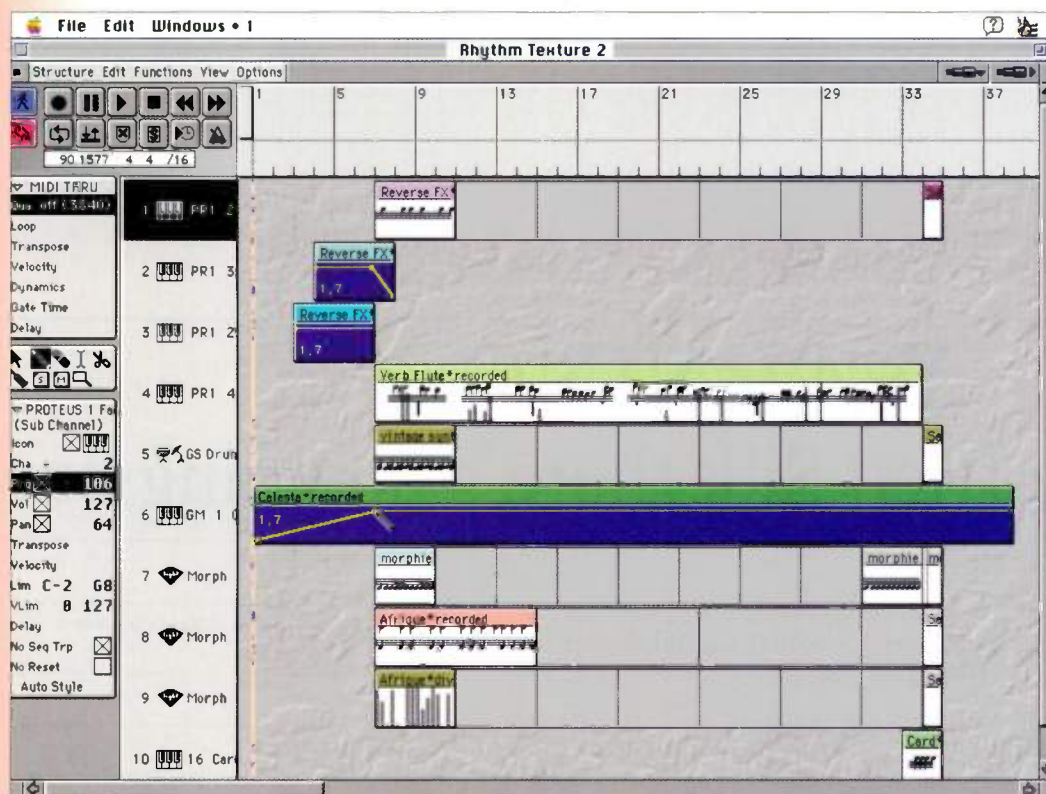
pages, leaving plenty of room for expansion. The introduction page includes the not entirely original phrase 'Don't Panic!' in large, friendly letters. This helps set the tone for the rest of the manual, which makes a good job of explaining a potentially

roll) editor quite a lot and I've always wanted that to open whenever I double-click on a sequence, rather than the Score editor. Well, my wish has finally come true, because v2.5 has a *Preferences* option that lets you select your own default edit window.

Once you're in the Matrix window, colour monitor owners will notice that the bars depicting the notes are now in glorious colour. Selecting the crosshair tool

and using the mouse to increase or decrease the velocity of any selected notes, you'll also notice that the notes now change colour — the louder they are, the more red they become.

Another welcome addition to this page is the *Quantise* button, which provides access to the full quantisation menu for selected events. But one irritation that still remains is that you'll often select an event only to find a dialogue box dropping down which claims that the 'Last Operation Exceeds Folder or Sequence Length — Adapt Size?'. Once the box is dismissed, you can carry on as normal, but I find it turns up with annoying regularity, even when I'm just trying to move a note to a new pitch. And what's more irritating is that there's no button for me to click that says 'No It Doesn't!'. However, one other major irritation of this page that's now been fixed relates to the way





that the Matrix page, if set to Link mode, used to change into some kind of Arrange page once the selected sequence was de-selected in the main Arrange window. Now the display remains as it was and only changes when a new sequence is selected. Thanks guys — I was getting to hate that one.

And while we're still on the Matrix editor page, you can now access a drop-down menu of all the more common Transform functions — such as Double and Half Speed, Humanize, Quantise Note Length, and so on — as well as a new Pitch Bend Scaling function. This will be very familiar to *Creator/Notator* users. A new quantise mode has also been added to the Quantise menu, called Far Quantise. This lets you define a region around each section on the quantising grid, inside which events are left as they are and outside which they are quantised. In other words, tight playing is left as it is, but anything really ropey is hauled into line. I can see I'm going to get a lot of use out of this feature.

## ARRANGE OPTIONS

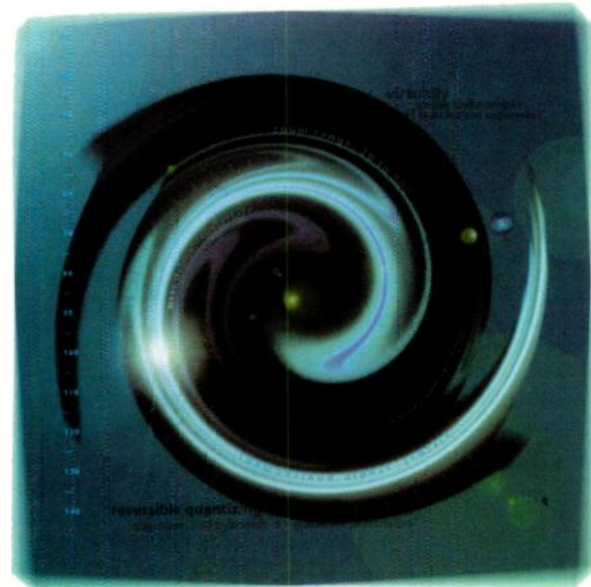
*Logic's* Arrange window has always been pretty good, though I still think that a lot of credit is owed to Steinberg — *Cubase* was the first sequencer to use this type of graphic building-block approach and Steinberg also pioneered the use of the on-screen tool palette for musical use.

To the left of the main Arrange area are the Track Instrument names. It's always been possible to mute whole tracks by clicking to the left of the Track Instrument, at which point a dot appears to signify the track is muted, but it was all too easy to accidentally mute tracks when you were simply trying to access or change an Instrument. So now the arrow tool turns into a Mute icon when it moves over the appropriate part of the screen, so you know exactly what is happening. If the arrow tool is positioned over the Track Instrument itself and the mouse button is held down, the arrow changes to a hand, enabling you to drag the track to a new location.

Talking of dragging, it is now (finally!) possible to open two different songs at once and simply drag sequences or Environment objects from one song to another. This is a lot faster than copying and pasting all the time, and I for one welcome it wholeheartedly. However, I still find that when copying and pasting Environment objects such as multi-instruments, they usually arrive with all the parts turned off and the default keyboard icon showing for all 16 parts. It isn't the end of the world having to turn them back on, but it would be nice if they copied across with all settings intact.

Setting a cycle region is now far easier, as the cycle start and end points default to the nearest whole bar and a new Tie option has been introduced, allowing objects to be joined end to end by changing their positions, rather than by changing their lengths. The Alias system has also been expanded and improved, allowing you to select all the aliases of an object via a menu command. You can now identify and remove aliases for which the original object has been deleted (Orphan Aliases), and if you mix a sequence object with another, any aliases relating to this object are also modified in the same way.

One area that could be improved further is the editing of folders: if you cut up a folder that contains



loops, the loops stop at the cut point. A dialogue box offering to turn the loops into hard data would be helpful here. How's about it, Emagic?

People working on musical scores for film and video have kept up a relentless insistence for text markers to be added to the program, so now they have their wish. Using this new feature, you can position text messages throughout a recording and also use them as locator points. By inserting a 'Go To Marker', 'Meta' event in the Event List, *Logic* can be forced to jump directly to the specified marker position. Those users who have nagged for a timed notepad have also been rewarded. Equally, there are a couple of handy additions to the Event List, including the ability to edit 14-bit Pitch Bend values rather than just MIDI bytes 1 and 2, and you can now also opt to view SysEx data in hexadecimal code.

## TRANSPORTS OF DELIGHT

One of the distinctive features of *Logic* is its Transport window, which includes all the usual transport buttons, looping icons, punch in/out, sync and metronome buttons as well as display of time, tempo, locators, MIDI activity, timecode and so on. This is incredibly useful, but if you're working on a small monitor, things could easily become rather cluttered, even if you make intelligent use of the Screensets feature. So now it's possible, via a menu, to select only those bits of the transport window that you want to use. There's also a new Relative SMPTE time option, which shows elapsed SMPTE relative to bar position 1111 of the current song.

These new transport features are to be welcomed but I think the transport controls on the main Arrange page should also be floating, so that you can use them regardless of what page you're currently working in and without the Arrange window becoming the active (and hence becoming the topmost) window. The same applies to the Tool palette and Zoom icons on the Arrange window. Many's the time I've been working in the Matrix window and tried to grab a tool from the Arrange window's palette by mistake, only to find the Matrix window being pushed behind the Arrange window. Indeed, as you can only use the Tool palette in the currently active window, why not have just one palette visible at a time

*"It is now (finally!) possible to open two different songs at once and simply drag sequences or Environment objects from one song to another."*

## EMAGIC LOGIC 2.5 £399

### PROS

- Practical new operating facilities rather than gratuitous tricks.
- Excellent (though long-awaited) new manual.
- Hyper Draw incredibly useful.
- Very stable.

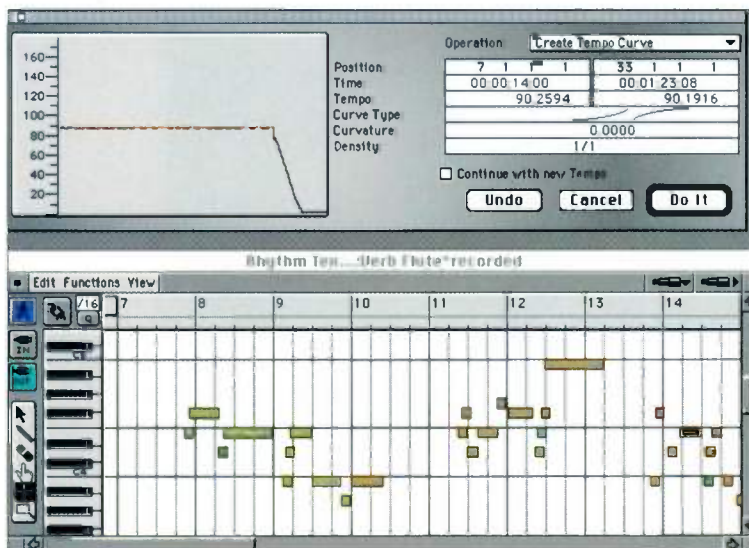
### CONS

- Song file size is starting to get out of hand!
- Still not enough use of colour.

### SUMMARY

This program just keeps getting better! (But don't let Emagic grow complacent — keep writing to them about the things that bug you.)





- and be done with it? The floating palette that materialises when you hold down the Escape button helps, but it isn't the complete answer.

## CLEANING UP THE ENVIRONMENT

The Environment has now been updated to make it easier to cable objects which reside on different layers. For example, if you're making up a MIDI level mixer using faders, these have to be cabled to objects which are normally located on a different layer, just to keep things tidy. Now you can call up a full list of Instruments on the left-hand side of the page, scroll through it and hook your virtual cable onto whichever one you like. Perhaps more importantly, it has now been made much easier to copy an Environment from one song to another and to update existing Environments; though, as mentioned earlier, you may find that Multi-Instruments arrive with some or all of their 16 parts switched off, leaving you the tedious task of reactivating them.

Other notable features include the facility to make custom Bank Change messages, which can include tracts of SysEx data if you need it. With so much MIDI equipment around requiring different Bank Change commands, perhaps this is the only solution? SysEx fader creation has also been enhanced and now there's the option to create a

screen fader for real-time tempo control. Morning Star's *MacWavemaker* is now supported directly from within *Logic's* Environment and there are more new features for users of Opcode's OMS system. For example, a complete MIDI Reset message is now only sent if the Stop button is pressed twice in quick succession; important for OMS users as the timing of MIDI Reset messages can cause them problems.

With so much of *Logic* being mouse-controllable, it's easy to forget that direct keyboard commands are often faster. The problem is remembering all the different commands. *Logic* helps you here as, in addition to being able to define your own key command shortcuts, you can now export your key command list into a word processor where you can turn it into a crib sheet (tip: try sticking it under a transparent mouse mat as a permanent reminder).

Again, most of what's been described so far is just tidying up what already exists, but one area that's had its face lifted further than most is Tempo Operations. A new graphic display shows how the tempo changes with time; new tempo changes can be made using predefined smooth tempo change curves, and you can also randomise the tempo within preset limits to create a more human feel. It's also possible to take over control of a song's tempo while it is playing back, simply by holding down the Option key.

## TOUCH TRACKS

One brand new feature that will impress those working on dance music is the ability to assign sequences (or folders of multiple sequences), to individual keys for live performance. What's more, when you come to play back these 'Touch Tracks', the performance itself can be recorded, stashed in a folder if need be, and then played back again from just a single key.

There's more to using Touch Tracks than you might first imagine, because you need to consider what happens when one sequence takes over from another or when two are playing at once. To make this easier, you can create Groups of sequences where only one can play at a time, so if you switch to a new sequence half-way through a bar, the old sequence will stop as the new one starts.

Naturally, you can mix sequences together if you want to and you can also use key velocity to determine how loud a sequence should play. You can select trigger modes (just as you would with a sampler) so that sequences stop and start again from the beginning when the key is released and then re-pressed. You can also choose one-shot or gate triggering, and you can specify whether or not a sequence loops when it reaches the end. To help keep the timing tight, you can decide whether to quantise the start time of sequences or not, and you can even programme in a delay just as you can with conventional sequences.

## AND THERE'S MORE...

Not every change you make to a song is an improvement, but if you haven't consciously saved

## MOVING PLATFORMS?

For anyone contemplating a change of computer platform, the good news is that *Logic* can now read old *Creator/Notator* files more effectively. It can also now read *Cubase* files saved in Song or Arrangement formats.

Those moving between Atari/PCs and Macs will need a *PC Exchange* or *Access PC* type of utility program in order to read the disks, but the operation is otherwise pretty painless. *Notator/Creator* users will also need to create a tempo map before exporting their files, if their song contains any tempo changes.

## HYPER DRAW

The changes to the Matrix window are really improvements to what already existed, but one brand new feature is Hyper Draw. This allows you to create and edit Controller data on the main Arrange screen simply by dragging points on a line, rather as you might do with a software synth editor when adjusting the envelopes. It's also very similar to the way level and pan data can be 'drawn' into programs like Digidesign's *Sound Tools*. A drop-down menu lets you decide what type of data to create for any selected sequence, then you simply use the Zoom functions to make the Sequence box deep enough to work in. The lower part of the sequence window turns into a blue screen with a straight line in it, and clicking the line at any point adds a line

point which can then be dragged with the mouse.

Deleting a point is achieved by clicking it, and unwanted data can be evicted by using Select Similar Events in the Edit List window and then hitting backspace, or by redrawing a flat line in Hyper Draw. A reset button allowing you to do this directly from the Hyper Draw workscreen would be slightly more convenient, but the feature itself is great and lets you draw in things like fades and pans much more effectively than you can in the Hyper Edit window. The use of colour is supported, so that different colours can be assigned to different Controller types, and additional key commands are available for those who feel secure enough to let go of their mouse occasionally!



your earlier versions, you may have no way of going back. To get around this, *Logic* now has the option to create automatic backups of earlier versions, and depending on how much disk space you have free, you can choose from one backup to 100. Having the last 100 saved versions of your song might seem excessive, but if you're working on a major project, I can see where it might come in handy. Most users will probably opt for around three backups versions.

## SCORING

*Logic 2.5's* new manual provides a good introduction to the concept of using computers to produce musical scores, and it also tells how musical scores are, in effect, quantised representations of how the music was really played — real players seldom play exactly on the beat or play notes that are exact multiples of one sixteenth of a bar in length. In *Logic 2.5*, the score isn't just a representation of what you've played but a fully interactive part of the editing system — if you play in via MIDI, you see the score, but by the same token, if you edit the score then the MIDI data is changed too. Like other leading sequencers, *Logic's* music notation system has become very sophisticated and is capable of producing very respectable printed scores from a laser or inkjet printer. However, because a computer may occasionally translate what you played rather too literally, some musical skill is required to tidy up the finished scores so that they say exactly what you want them to say. In addition to multi-part scores, you can now also add guitar chords, lyrics, and cryptic Latin comments — for that really professional touch.

Each version sees a couple of new features added plus a little fine-tuning of the existing features, and in version 2.5, it's now possible to disable automatic key signature transposition so that when you transpose, the key signature does not change. The space below a single staff or the bottom staff of a score can now be edited by simply dragging a line, while a new Functions sub-menu provides instant access to commands such as Note Overlap Correction and Force Legato. New commands enable the top and bottom musical lines of a polyphonic part to be mapped to new MIDI channels. Text, Chord boxes and Tempo Events can be moved directly using the layout tool and, apparently, those who have been asking for an Undo function after inserting objects from the Score partbox have now had their prayers answered.

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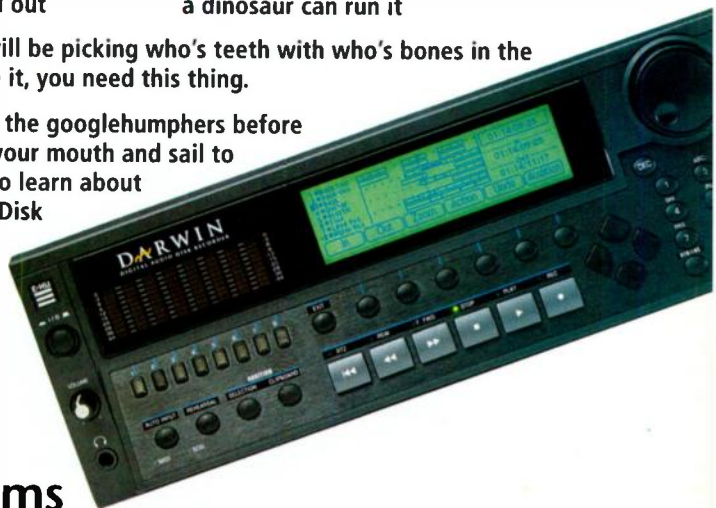
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## V2.5 SUMMARY

Logic 2.5 is largely good news, with most of the new stuff being in the form of operating refinements rather than flashy new effects or MIDI pyrotechnics. The ability to specify your choice of edit page when double-clicking a sequence is the one thing that will make my sequencing life a lot easier, as is the better behaved operation of the Matrix page when hopping from one sequence to another. Hyper Draw is also quite wonderful. Of course there are things I would *still* like to see, and because I know the guys back at Emagic will read this, I'm going to take this opportunity of listing them.

### I WISH...

First off, to be environmentally-friendly, we are told we have to consume less, so why is it that Logic's Environment page takes up about the same memory as a respectable computer came loaded with just a decade ago? My Environment would be hard-pushed to fit into a Commodore 64's entire memory, and every time you save a song, you save a copy of the Environment with it. With the new auto-backup facility, this has serious implications for disk space. As most people use the same Environment for many different songs, how about including an 'Alias Environment'

*"The ability to specify your choice of edit page when double-clicking a sequence is the one thing that will make my sequencing life a lot easier."*

option so that you can use a single Alias Environment (or maybe more than one, if need be) for all your work? There'd obviously then need to be an option to make the Alias Environment real, if you ever needed to transfer the file to a different system.

I don't know what can be done to help MIDI guitarists, but there are a few of us still struggling on, and I'm sure there are some things that could be done in software to make the operation simpler and more reliable. For example, guitar synths like a Pitch Bend range of 12 whereas keyboard players tend to use 2 or 3 most of the time. So how about a MIDI Guitar Instrument that automatically sets up the parameters on the receiving synths when you select it, and then returns them to normal when you quit the program?

Other 'nice things to have' would be some way of locking the song start position, so that it doesn't accidentally get moved when you draw in your loop points. And maybe some nice custom buttons on the Environment page to let you hop from layer to layer, without having to use the menu. Talking of customising... why no colour on the Instrument icons on the Arrange page? It would also be fun to be able to import freebie folder icons from magazine cover disks to use as Instrument icons. At the very least, can we please have some means of removing Instrument icons we know we'll never use from the list, so that we don't have to scroll through zillions of them every time we want to define a new Instrument?

Then again, I guess if Logic had all these things, there'd be nothing to look forward to in the next update! Talking of which, I can't wait to give Logic 2.5 Audio a spin — it's due out 'soon'.

SOS

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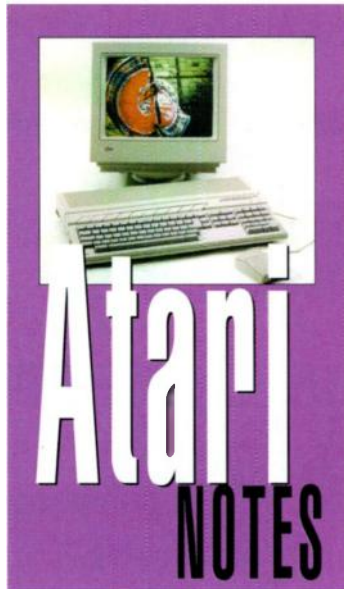
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**OFIR GAL jumps into Vic Lennard's shoes to discuss the state of the Atari today...**

**B**ack in the good old days, when I started reading *Sound On Sound*, there was only one computer system the MIDI musician needed to know about — the Atari 1040ST. Since then, a lot has changed in the world of computing. The incredible success of Windows has meant that software development for the Atari has declined, and many users are thinking about migrating to the Mac or PC in the hope of a better system.

Is the Atari truly dead? I don't pretend to know the answer, but what I can do is offer an analysis of the situation as I see it, and let you draw your own conclusions.

### A BRIEF HISTORY LESSON

When the ST was launched, it was a breakthrough in home computing, offering a graphical interface, a mouse, and a windows-based operating system at a fraction of the cost of an Apple system. Back then, PCs were strictly DOS-based systems, with green text over a black background display, and no sign of a mouse. OK, so Atari's user interface design wasn't 100% original — it was largely inspired by the Apple operating system, which in turn was based on a graphical user interface system developed by Xerox. The ST was designed in a short period of time, and the graphics front end, the Graphical Environment Manager (GEM), was bolted onto a DOS-like operating system in a rush. Atari's success was so impressive that it is now studied as part of the Open University business management courses.

What really made the ST a musician's tool was the inclusion of the MIDI ports, but why they were there is anybody's guess. Perhaps MIDI was just the buzzword of the time, rather like CD-ROMs or the Internet today. Never mind the fact that the MIDI ports were incorrectly wired, and that the controller chip was not up to the job of collecting the MIDI data fast enough; at least the ports were there. No other computer could offer even that.

Programs like *Pro 24* and *Creator* were

followed by *Cubase* and *Notator*, alongside a large number of synth editors and librarians, hardware add-ons, and various music composition tools. For a few good years, the words MIDI and Atari went hand in hand, and although music software was available for the PC, Mac and other systems, they remained no more than curiosity items.

German developers, in particular, have contributed greatly to the Atari software range, and are still very active, with some applications putting PC and Mac equivalents to shame. The German market has expanded beyond DTP into general word processing, disk backup, communications, faxing, and general utilities. Games consoles have since taken over the games market, removing Commodore's Amiga from the scene. Home DTP users have been gradually moving over to the Mac and PC, but MIDI remains the natural Atari market.



*C-Lab have taken over manufacturing and further development of the Falcon. The Falcon Mk II is arguably the best computer system for combining MIDI and direct-to-disk audio.*

### THE ATARI COMPUTER RANGE

During the '80s, Atari benefitted from the comparatively slow pace at which competing platforms developed. The last few years were different, with Apple making progress both in hardware and falling prices.

Following the STe blunder (see 'E By Gum' box), various Atari models were released during the late '80s and early '90s. The MegaST was basically an ST in a flat case with a separate keyboard, and also included the Blitter chip — a graphics accelerator which is present in all non-ST models.

All Atari models up to and including the MegaST were based around the Motorola 68000 chip, which clocked at 8MHz, and was showing its age. The MegaSTe was just an STe in an improved case with some extra ports, although running at 16MHz, it was almost twice as fast as the rest of the bunch. The TT was to be the ultimate Atari system. Aimed at programmers and high-end users, it was based around the much superior 68030 CPU running at 32MHz. Unfortunately, like many other Atari products, it was late and too expensive.

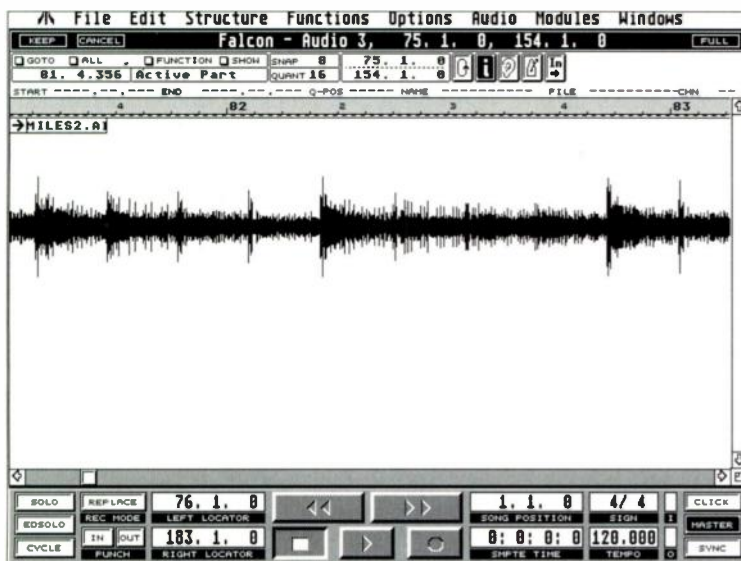
In the summer of 1992, Atari revealed

### 'E' BY GUM...

The ST was followed with the STe. This model was a result of a typical blunder at Atari headquarters, with a number of cover-up stories to choose from. This is my favourite....

Following the launch and success of the ST, one of the top engineers at Atari was working on a product called the SuperST, which was supposed to be the best thing since sliced bread. However, the engineer then left Atari, and, surprise, surprise, nobody else could understand his diagrams and notes. So, instead of the promised SuperST, Atari released the STe, which was basically an ST with a few minor enhancements, mostly aimed at the games market!





**Cubase Audio for the Falcon has had its share of problems. Many machines had to be modified before they would run the program reliably. Steinberg's helpline personnel are now happy to say that bug reports are rare.**

the new Falcon to a select group of developers in London. Although it appeared to have significant advantages over other systems with the incorporation of a sound system and DSP, Atari's past failure to release products on time, meant that developers were cautious to say the least.

MultiTOS, a multi-tasking operating system, also looked promising. Based on UNIX, it was potentially better in concept than MacOS or Windows put together — but in practice, it turned out to be virtually unusable.

After two silent years, Atari released a preposterous statement claiming that they didn't have any intention of staying in the computer business, and that they made this decision long before releasing the Falcon. Going by this, launching a computer and an operating system is apparently a sure way of getting out of the computer business. I'll leave you to work this one out...

## REALITY CHECK

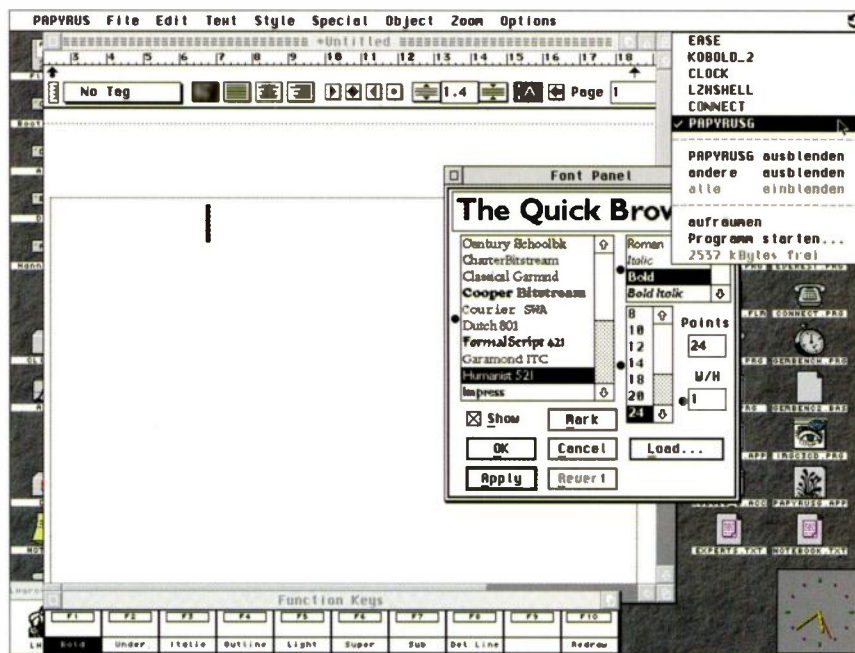
After reading this, I'm sure you want to throw your Atari out of the window, but first, let's look at the situation as it is in 1995. Atari is no longer making computers. Instead, there are several European companies making Atari-compatible machines, albeit on a small scale. C-Lab, the company behind the successful sequencers *Creator* and *Notator*, is now manufacturing the Falcon Mk II, which is aimed squarely at the music market. The Eagle is made by GE-Soft, and is designed with the DTP market in mind — the next model will be based on a 68040 chip running at 33MHz. There is also the Medusa, featuring a 68040 chip and powerful graphics options. Unlike the PC market, these compatible solutions are generally more expensive than the original Atari models, but are so much better.

On the software front there are several exciting products. You will all be familiar with *Cubase Audio*, currently at version 2.03. Judging from users' reports, it is still the most reliable way of combining MIDI and audio, and is selling

surprisingly well according to Harman, the UK distributor. During a very recent Internet discussion, the programmers at Steinberg were also quick to point out that as far as MIDI timing goes, the most powerful PCs or Macs are still not as accurate as a 10-year-old ST. So why are people migrating to these other machines? In my opinion, it's all down to hype.

There are a number of high quality ST products that compete rather well with ones on the PC, most notably MagiC (a pre-

emptive, multi-tasking operating system) and *Papyrus*, a very capable document processor with many DTP-like features. My advice to users who



**MagiC gives Atari computers multi-tasking capabilities. Unfortunately, it does not get along with Cubase. What a shame...**

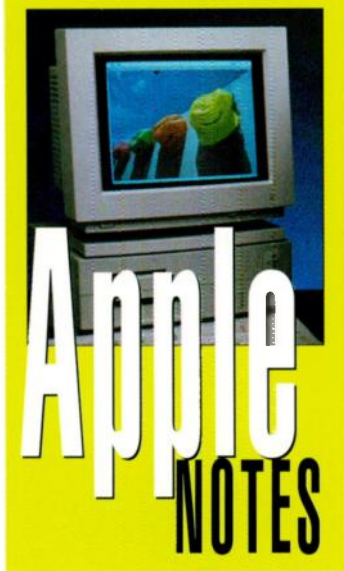
spend most of their computing time creating music is to stick with their trusted Atari, and get the best out of it by adding a hard disk. If you would like to expand your computer use a little, there's still a lot more to your ST than MIDI. There are two UK-based Atari magazines, *ST Format* and *Atari World*, that can keep you up to date with the latest products, and you are in for a pleasant surprise with the quality of programs around. If you really need office-oriented software, and find your Atari too limited, then by all means, get a PC or a Mac, but think hard about keeping your Atari for music-making — it is still, in my humble opinion, the best there is.

505

## ABOUT THE AUTHOR

Ofir Gal is currently Technical Editor of *Atari World* magazine, as well as being a regular contributor to *Mac Format* and *Mac Action*. He is the co-founder of Club Cubase UK with Vic Lennard, and the author of several MIDI utilities for the ST. Ofir has also just had an album of music released in Holland as a band member and co-producer of 'Miles Away' by Kry.





**MARTIN RUSS explains  
how he discovered the  
curious truth behind  
Apple hardware supply,  
and explains the  
meaning of  
'spamming'...**

It always happens the same way. You need something in a hurry, and everything conspires to make it impossible. Well, this month I had an urgent need for a piece of Apple equipment, and so I contacted my usual supplier, who was unable to meet my admittedly tight timescales — mainly because *his* supplier promised and then reneged at almost the last minute. This left me with a near-panic situation: I could get one in a couple of weeks if I could wait — but I needed it now! So then, I started ringing around the other Apple suppliers that I have bought the odd piece of hardware or software from in the past. Still no luck — in fact, the very helpful person at Computer Warehouse said that no-one would have any of the desired item in stock. I even considered trying to hire one: about £200 per week, and an extra week's rental if you exceed a week even by one day! Not an overly attractive rate for something costing only a few times that amount if you could buy one, and too much like throwing money away. With major gloom and despondency lurking on the horizon, I threw caution to the winds and did something which I have never ever done before...

I rang my local Apple dealer. You know, the people who Apple send you to if you ever make any enquiries: "Do you know who your nearest dealer is, sir?". So, with my heart in my mouth, a very embarrassed Apple Notes writer rang his local supplier and asked them about the 'impossible to obtain Apple goodie'. The extremely helpful man said that he would need to ring me back and confirm, but he did believe that they had just received a large shipment. With cynicism still to the fore, I didn't expect him to ring back a mere two minutes later — but he did, with confirmation that they had what I was after, and would prepare it for collection the following day.

Okay, so you're expecting a serious price hike over the mail order specialists, aren't you? Nope, the price he quoted was a mere 212 pence over the standard price I had been offered by most of the mail order people, who vaguely promised

delivery in a couple of weeks, and for a delivery charge of up to a tenner (with the sole exception of my usual suppliers, whose price was the best I was offered anywhere, who had the best selection of cables, *and* who knew what they were talking about!). There was no delivery charge either, since I was able to collect, so I may have even saved some money.

The moral of this lengthy tale is that you may well be tempted to save money by buying mail order, but don't always dismiss your local Apple dealer. He may well be able to get you out of a very deep and nasty hole.

Although they couldn't help me this time, you might like to try my usual preferred supplier, ExMicro (tel: 0115 945 5121). They are excellent for cables, second-hand Macs, advice, modems and so on.

### HOW IT WORKS: APPLE HARDWARE SUPPLY

All that ringing around has taught me a valuable lesson: No-one seems to stock any quantity of Apple hardware. One mail order dealer put it like this: "Apple have a habit of changing prices suddenly — usually downwards. So if you have any stock, it is instantly worth less. Almost everyone keeps only very limited stocks, and orders everything in to re-ship to the end customer. Also, new models tend to be announced several months in advance, and so any existing models are devalued, because most customers want the latest, even if it won't be available for some time."

Based on this, it seems that it will be difficult to get *any* Apple hardware quickly, since there is at least a day's delay whilst the wholesaler sends it to the dealer, who then sends it on to the customer. Conversely, it also shows the way to get a bargain. Wait until a product is looking old and tired (about six months after launch these days!), and wait for the announcement of its replacement. Then quickly ring to secure one of the last units from the wholesaler — it should be available at a bargain price, because it is just about to become virtually

## APPLE NEWS IN BRIEF

### MPEG CARD SOON (PROMISE...)

• Apple's MPEG Media card is due out about now, according to latest reports. It should suit LC-type PDS slots (mind you, an MPEG card has been 'due soon' since before Christmas 1994).

### APPLE GET THE BRONZE

• Apple sold just over one million Macs in the second quarter of 1995, according to market analysts Dataquest. This confirms their position as the third largest seller of computers in the world (after Compaq and IBM). Apple's 20% growth in sales (compared to the same quarter last year) sounds good, but other PC sellers are growing faster. The third and fourth quarter of 1995 should start to reflect the effect of Windows 95 — will Microsoft and Intel finally take over the world?

### EXPO '95

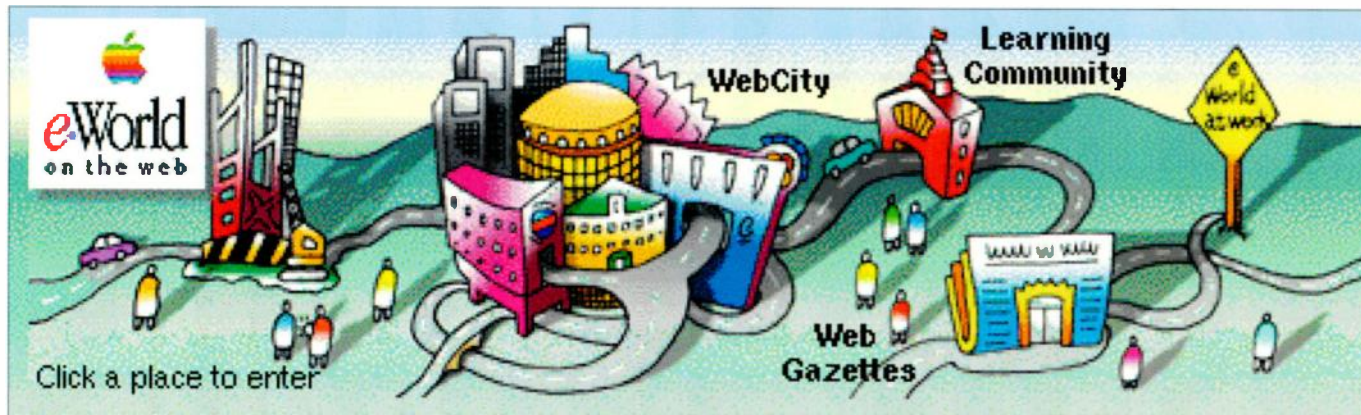
• The 1995 Apple Expo is being held from the 8th to the 11th of November 1995, at Olympia, London. It's a good chance to see lots of new hardware and software, surf the Net for free, explore multimedia, ask questions, attend free seminars, pay lots of money for drinks and food, and

collect lots of plastic bags and information sheets. You might even see a glimpse of a Mac clone or two... You can also play the usual 'find a stand with a music or MIDI bias' game: last year I found two. Children under 16 will only be admitted (a maximum of two per accompanying adult) on Saturday the 11th, but they apparently get in free. You need to pre-register before October the 16th to avoid a £10 on-the-door charge: phone (0181) 984 7711.

### PCI VS NUBUS LATEST

• With Apple's apparently inexorable movement towards PCI and away from NuBus, it is interesting to note that the Power Computer Power Mac clones will have NuBus slots, and that future models are likely to have a mix of PCI and NuBus. Given that the prices of some Power Computer models are significantly lower in the States than Apple equivalents, you might be disappointed to learn that they will probably be rebadged for European sales, and a badge-adder may well add in their own profit, which could raise the prices. Could this be the start of a new 'grey import' boom, where US machines somehow find their way into the UK?







**Welcome to eWorld on the Web!**

We've been waiting for you. The World Wide Web presents a universe of information & ideas. Let us show you a few of the places that we think you'll find interesting and useful. [The Learning Community](#) presents resources for both school and home-based learning. [WebCity](#) takes you on a tour of information that you can use for work or play. Take a look around & let us know what you think!

<b>Apple</b>	<b>Find</b>	<b>Feedback</b>
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**Macintosh  
Performa**



**Hey, thanks for your interest in eWorld!**

If you don't know already, eWorld is Apple's on-line service. It's the **ONLY** place in the whole realm of cyberspace where you can get direct, on-line computing support from Apple. It's the easiest and most convenient onramp to the Internet. And it's a friendly on-line neighborhood often recognized for its respectful community and its openness to everyone - including kids.

You know how we are at Apple: we like to make computing stuff easy to use and understand. We use a Town Square metaphor - or a group of specific buildings - to lead people around to information that we've carefully selected to be meaningful to Apple's key customers: People working from their homes, in education, small business, publishing & design, and the entertainment industry.

message which offered girlfriends in Russia. This time, the message contained detailed instructions on how to spam the largest number of people for the least effort, and even offered a service to do this for you!

The first spam prompted many lists to go 'subscriber-only', which means that you had to register with the list owners in order to post messages to it. The second spam gave all sorts of pointers to ways around the restrictions which the mailing lists were using to try and stop the spammer. This was rapidly followed by some interesting follow-up email which described some ways to get back at the spammer: clogging up his telephone line so that he could not use his modem; informing his service provider so that he would be denied access (most Internet service providers do not like spammers, because they give the service a bad reputation); and a few other more nefarious ones as well.

I suspect that as the Internet attracts even more people and becomes more commercial, spamming may prove to be just the start of something much worse — advertising mail-shots. For example, all it needs is a large record company to set up an Internet site, and then splatter email which advertises their new releases to everyone who ever looks at a mailing list.

The Internet is an exciting and often lawless place. I'm afraid to say that I get the same buzz from it that I used to get as a teenager, rushing down to the front of the stage at concerts and going ever so slightly wild. Anyone remember Camel, Tangerine Dream, Alex Harvey, Colosseum II, Renaissance...?

**SOS**

#### APPLE ON-LINE

eWorld is Apple's own on-line service that provides e-mail and information resources. It's a sort of Internet microcosm just for Apple users — but it offers access to the full Internet too. For a look at eWorld, try:

<http://www.eworld.com/>

unsaleable. Replacement models frequently only have minor incremental improvements in performance or specifications, and in fact one dealer let slip that the Apple hardware I was trying to locate was about to be replaced by another model featuring a built-in device which would be of no use to me! In these circumstances, you can get a bargain with no loss in performance.

#### ON THE NET

Although not specifically Apple-oriented, there seems to be a big 'spamming' war looming. One particular person has been seriously upsetting a large number of people by sending long email messages to all the mailing lists he can find. This technique is called 'spamming', and it usually involves an email message which has nothing to do with the topic of the mailing list. This particular individual has annoyed people before, with a



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**Q5** Maximum controls; minimum space. Each channel strip has 4 AUX sends (2 available at any time) with 15dB more gain to the right of Unity, 3-band EQ (12kHz Hi, 2.5kHz Mid, 80Hz Lo), Balance control, ALT 3-4/Mute switch, in-place stereo Solo button and Master gain control.

**Q8** Built-in power supply. No unreliable wall wart or line lump.

**Q9** Stereo Inserts on Channels 1 thru 4.

**Q10** Another Mackie exclusive: Expandability. The LM-3204 is the only line mixer that can grow with your customers' needs. Add extra channels in groups of 16 with our LM-3204E Expander. It connects via ribbon cable. Each 5-rack-space LM-3204E has 16 complete stereo channel strips, plus its own ribbon cable outputs and inputs, so you can daisy-chain several units.

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Call for information on the new LM-3204. To receive a complete and regularly updated Mackie Designs Contractor and Architects binder (including information on our other compact mixers and larger 8-Bus consoles), call or fax Key Audio Systems.

**Q2** Line mixer PLUS: The LM-3204 also has two phantom-powered mic preamps! The same low-noise, high-headroom design (-129dBm E.I.N.) found in our CR-1604 and 8-Bus Series, each mono preamp is assignable to any of the 16 channels on the mixer's rear panel via 1/4" TS patchcords.

**Q3** Signal present LEDs on every channel. -20dB "blinkies" on every channel tell the user at a glance whether the channel is in use and (due to the ultra-sensitive circuit design) even what kind of signal is on it. Overload LEDs are also included... but with the LM-3204's headroom and UnityPlus gain structure, they'll probably never light up.

**Q4** Unique master section features: Source Alt 3/4 switch disconnects stereo AUX Return 3 and routes the ALT 3/4 bus into AUX Return 3 instead. This allows you to use ALT 3/4 as a pair of submix buses and then remix them back into the main Left and Right buses. No other line mixer has this handy function. AUX 4 Return to Control Room switch disconnects AUX Return 4 from the main L/R busses and reconnects it to the control room monitor and headphone circuits. Users can monitor voice or music cues without having them go to master outputs or tape.

**Q6** Control Room & Headphone monitoring with separate level controls source

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**Q12** 1) Main L/R buses; 2) tape output or other sources (when Tape Monitor button is pushed); 3) stereo Solo bus whenever any Solo button is pushed. Control Room outputs are provided for connection to a power amp.

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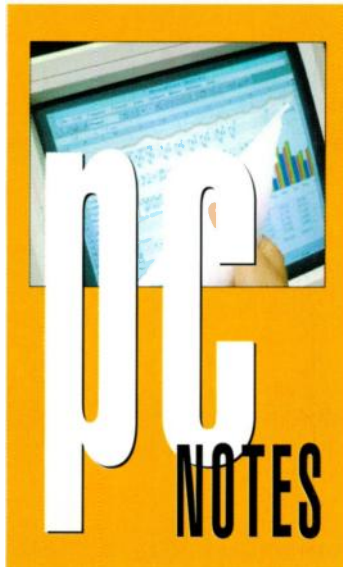
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**BRIAN HEYWOOD**  
*hails the arrival of  
 Windows 95, and  
 passes on some hints  
 for getting digital  
 sound out of your  
 AWE32 soundcard.*

**S**o, Windows 95 has finally arrived. The world's worst-kept secret, and probably most publicly-tested Beta software to date. With all the hype that has accompanied the launch, it seems likely that a lot of people will be disappointed with the new operating system. This is not because there is anything inherently wrong with the new version of Windows (quite the reverse, from what I've seen of it — it's more stable, faster and has a lot of the features built in that you had to buy as extras for Windows 3.1), it's just that there is not a lot to get excited about in an operating system upgrade. Sure, it looks prettier, but since most people will continue to use their existing applications, the novelty will wear off in about a day.

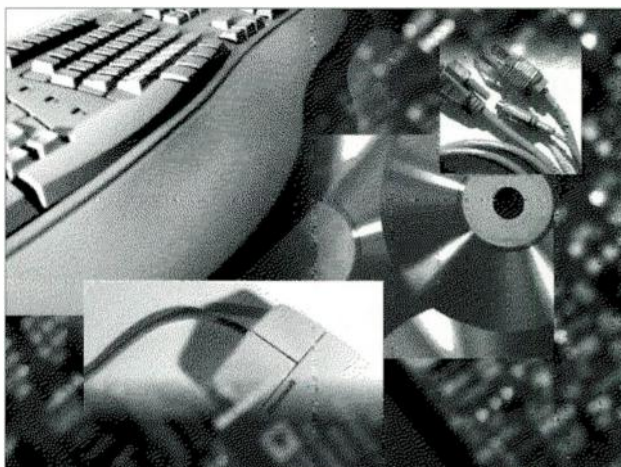
This will be especially true for musical users of the PC, since it will probably be a little while before current applications, drivers, and so on are converted to take full advantage of the new features buried in Windows 95. I have yet to come across any application that refuses to work with Windows 95, though I have not done any comprehensive testing. I would suggest to anyone who is interested in upgrading to Windows 95 that it would be prudent to wait until it is certain that all your main applications work.

### INSTALLATION BLUES

While we are on the subject of installing new software, one of my ongoing bugbears is the way that many Windows applications litter the system directories with new files and silently modify the various initialisation and configuration files. While most users won't be particularly bothered by this, I am constantly installing new programs for evaluation, and it can be a real pain 'cleaning up' the hard disk when I've finished with the software. One useful utility I've come across is a piece of 'freeware' called *Inst-All* which allows you to keep track of any changes to the Windows control

files and directories.

Operation is quite simple; the application runs the setup program that installs the new software on your PC, and then produces a report listing any files that have been added to or updated in the Windows and Windows/System directory. The report also lists any alterations to the system configuration files, which means you can reverse



**Windows 95: here at last! This is the setup page.**

the installation process should anything go wrong. The program only works when installing Windows-based applications, and occasionally fails to run installation programs that have been created by Microsoft's *Visual Basic*, but you can get around this last problem by running *Inst-All* before and after the installation.

*Inst-All* is freeware, and is available to download from CIX, and I would guess a number of other bulletin boards. Alternatively, you could email the *Inst-All* author (jason\_o@cix.compulink.co.uk) and ask him about how to get your hands on a copy.

### HELPFUL HINT: USING THE AWE32 DIGITAL OUTPUT

One topic I keep banging on about is the advantage of having digital outputs (like S/PDIF — and if you're wondering just what S/PDIF is, check out the sidebox explaining all about it) on your PC sound system, allowing you to transfer your digital audio to a DAT machine entirely in the digital domain. Observant owners of the Creative Labs AWE32 card may have noticed that the manual states that the card does have an S/PDIF output, which makes it look like a very cost-effective way to add this facility to your PC, as all you have to do is make a simple lead.

Unfortunately, it isn't as useful as it first appears. In fact, only the signal from the onboard Emu 8000 synth chip is connected to this output, so you will only get the output of the AWE's synth section (ie. the MIDI sounds) from this connector — no wave files or CD audio. To look at it in a more positive light, you do get a very high-quality sample playback system, which is easily on a par with many semi-professional quality musical instruments, as it is not 'filtered' by the AWE's consumer quality audio electronics.

Creative Labs have produced an application note that tells you how to connect up the

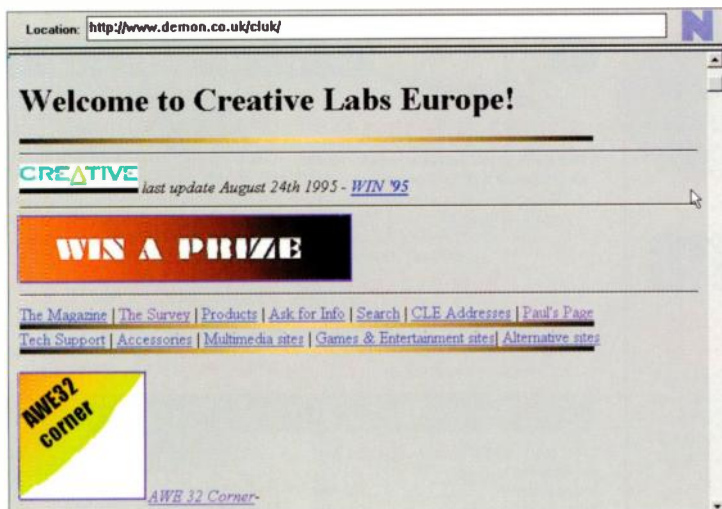
### WHAT IS S/PDIF ?

S/PDIF (or SP-DIF or SPDIF) stands for Sony/Philips Digital InterFace, and is an internationally-recognised standard for interconnecting consumer electronics in the digital domain. Essentially, the interface provides a digital audio data stream that can be fed directly to digital audio devices such as DAT (Digital Audio Tape) and DCC (Digital Compact Cassette) recorders, or even into a digital signal ready amplifier — allowing you to keep the audio signal entirely digital until the last possible moment in the audio chain. This means that you can achieve much higher signal-to-noise ratios, as any additional processing stages or interconnections will not add any noise to the signal. The sound quality provided by this output

is of the highest level, and is limited only by the digital-to-analogue converters used — and the quality of the original recording, of course!

Incidentally, S/PDIF is 'bit'-compatible with the professional (AES/EBU) digital standard to the point that you can plug an S/PDIF signal into an AES/EBU input. The major difference between the two standards is that the latter uses XLR connectors and has different signal levels. I've found that using XLR-to-phono adapters (such as part number 575-530 and 575-540 from Studiospares) you can connect an S/PDIF signal straight into professional equipment without any problems. Look for the Studiospares advert on page 45 of this month's issue to find out how to get a free copy of their catalogue.





The Creative Labs web pages allow SoundBlaster users to check out the latest information from the European branch of the Singapore-based company.

S/PDIF signal. This is available on the web from: <http://www.demon.co.uk/cluk/digital.html> For anyone who doesn't have access to the Internet, here's a quick resumé of the process. First remove the AWE from your PC and lay it on a flat surface, with the component side up and the metal mounting bracket on the left-hand side. The S/PDIF pins are located on the component

flying lead, and will prevent the cable from accidentally coming adrift from the AWE32. When using the S/PDIF output, the AWE's analogue outputs and mixer will continue to operate as normal. However, changing either the MIDI or the master volume levels with the mixer will not have any effect on the level of the digital output.

Creative Labs say that with a reasonable quality audio amplifier and speakers, you will hear an enhanced sharpness and clarity of the music, together with an almost total lack of noise and hiss. The dynamic range of the system will also increase significantly.

Here is a 10-stage checklist for the whole procedure:

1. Assemble the backplane to AWE32 S/PDIF cable assembly (if working from kit).
2. Open the system unit of your PC (see manufacturers instructions).
3. Locate AWE32 and remove.
4. Locate the S/PDIF connector pins.
5. Attach adapter cable to pins (red side to 0).
6. Re-fit AWE32 to system, taking care to ensure that all cables are securely connected.
7. Fit adapter to backplane slot adjacent to AWE32.
8. Close system unit.
9. Connect adapter to DAT, DCC or amplifier.
10. Test the digital output by playing a MIDI file using the AWE32's synthesizer.

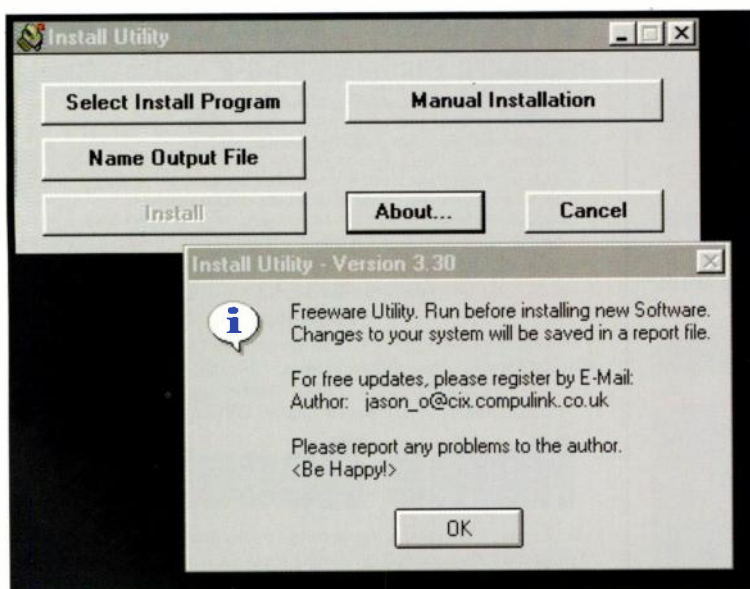
Creative Labs point out that you should always use moderate listening levels to ensure that your amplifier and loudspeakers are not damaged.

**SOS**

## CYBERSPACE CORNER

Creative Labs have quite a comprehensive set of web pages covering various aspects of the company's product line. For example, the information about how to use the AWE32's digital output mentioned elsewhere in this month's column is available in the AWE32 section. To find out more, point your web browser at:

<http://www.demon.co.uk/cluk/>



Inst-All provides a solution to your installation blues, and it's free!

side of the AWE, about a third of the way along the PCB from the left-hand end — ie. away from the metal mounting bracket. The connector is labelled J10 and S/PDIF. The two pins of J10 are labelled 0 and 1; 0 is the signal and 1 is the ground. The easiest (and safest) way to connect a digital device to the card is to mount an RCA (phono) socket on a blank back plate and make a cable with a 0.1-inch header connector to attach the RCA socket to the AWE32's S/PDIF pins. Maplin part number HB59P looks like it might be suitable for attaching to the connector on the PCB. Creative Labs do apparently sell a kit with the





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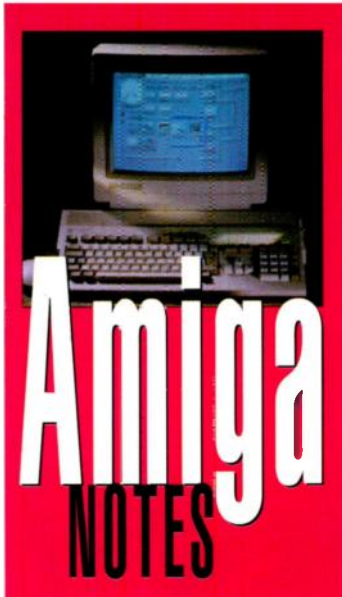
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**PAUL OVERAA brings you the latest Amiga news, discovers how to improve his built-in speaker sound quality, and discovers the meaning of giftware...**

## AMIGA NEWS IN BRIEF

### • SIRENS SOUNDING

Siren Software are currently offering discounts on their Speedcom Modem range. The Speedcom+B (14,400 V32 bis) is now down to £109.99, the Speedcom+ET (19,200 V32 Turbo) comes in at £139.99, and the Speedcom+BF (28,800 V34 &VFC) drops by £25 to £174.99. All modems come with an RS232 cable, UK power supply, telephone cable, and NComm3 software. You also get an 'Amiga guide to Comms' thrown in as well. For details, contact Siren Software on 0161 796 3208.

### • AMOS AGA

Interest in AMOS seems to have declined of late, and one reason may be that it does not support AGA graphics. Fortunately an AGA AMOS extension has now been designed by a group of Amiga enthusiasts, and it's now available from the Amiganuts PD library at a cost of just £10. For details, contact Amiganuts on 01703 348943.

**A**miga Technologies GmbH (UK), the company formed by the German firm Escom, have certainly not been letting the grass grow under their feet since they took control of the future of the Amiga. The company have already opened a UK office in Maidenhead (just down the road from the old Commodore headquarters), and have held press, dealer, and developer conferences to both announce and discuss their plans for the relaunch of the Amiga range. Ex-Commodore UK Production Manager Jonathan Anderson will be running the show, and he won't be alone — other ex-Commodore staff include National Account Manager Bob Burridge, technical whizz-kid Sajjad Majid, Sales Manager John Smith, and Claire Rudd.

With the physical side of the organisation already comfortably in place, there's every chance that new A1200s, and perhaps even the high-end A4000 tower systems, will be on sale by the time you read this. Around 60,000 A1200s have been ear-marked for the UK this year, and the price has been provisionally set at £399. Whilst this makes the A1200 £50 more expensive than before the Commodore fiasco, this unavoidable increase can be attributed to a number of factors, including the raised costs of rushed manufacture, and the current prices of DRAM chips.

Despite the higher price, the improved A1200 is certain to do well — particularly since a fair amount of software is being bundled with the machine as part of the relaunch package. This is always the sort of thing that both retailers and users alike get excited about, especially since Amiga Technologies have already indicated that one of their longer-term goals is to capitalise on the Amiga's now acknowledged potential as a multimedia machine. They've already announced that they're working closely with Scala, and there's even a rumour going around that Scala software may be bundled with new Amigas at some stage.

## WHAT A LITTLE GEM

Most people would agree that in terms of sound quality, the majority of Amiga monitors leaves much to be desired. A couple of multimedia-style speakers (the sort that come with a built-in amp), undoubtedly help matters, although many of the current offerings still have rather limited EQ control. This, coupled with the average speakers that are normally provided (and I'm being kind here), usually means that even once you've added a separate multimedia speaker system, there is still plenty of room for improvement.

This is where the Little Gem, a new unit from Gillett Multimedia, is likely to come in handy. It's

a small (7.5cm x14cm x3cm) 2-channel In/2-channel Out audio mixer that provides independent gain, +/- 12dB high and low frequency boost and cut, and left/right stereo panning adjustment. The two input and output connectors are phono type (ie. the same as the Amiga uses), so connection is just a matter of linking the Amiga's sound terminals to the Little Gem via a stereo phono lead, and connecting the unit's output terminals to your existing multimedia sound system. The unit is powered by a 9V PP3 battery, but mains operation is also possible via most everyday regulated power supplies (the Little Gem will operate satisfactorily anywhere between 9 and 18 Volts DC, and accepts any polarity).

In the general world of mixers, the Little Gem is obviously not going to cause any great interest.

It's a pretty simple unit, but having said that, it has been designed with the Amiga in mind, and does appear to do quite a good job. Needless to say, being able to control the signal level being fed into a multimedia-type speaker system can make a significant difference to the final audio output, and if nothing else, boosting the bass and treble end of your audio signals alone will often be enough to make up for any speaker deficiencies, and provide that extra punch to bring your music to life.



The Little Gem mixer.

Most current Amiga sound samplers have little, or no signal EQ control, and unless the sound source itself provides these, or you're using a separate mixing desk, you're stuck with sampling whatever signal arrives at the sampler. If, however, you put the Little Gem between the audio source and the sampler, then you get the option of adding some EQ control to a sound before it is sampled.

The Little Gem Micro Mixer certainly works well, has relatively low noise, and the internal construction is fairly good. Its only disadvantage is that at £69.95 (including UK p&p) the Little Gem is relatively expensive compared to the prices of many of the Amiga multimedia sound systems around. Nevertheless, for those users looking for a convenient way of enhancing their existing Amiga internal sounds, this box of tricks could be just the job. For more details, contact Gillett Multimedia on 01353 669203.

## A LOW COST MIDI FILE PLAYER

An excellent 'giftware' Amiga program for playing



type 0 and type 1 MIDI files has recently come to my attention. It's called *MIDIPlay* and has been written by Janne Syväniemi. In short, it's probably the most sophisticated MIDI file player available for the Amiga at the present time! The main features include a tape deck-style graphical user interface, playlist facilities, GM support, program change and drum mapping, variable tempo control, and muting, soloing, and transposition of MIDI channel data. Program change, pitch bend, and SysEx messages can be filtered, and the program can use both external (ie. MIDI Clock-based) sync'ing, or an internal clock for its timing signals. It also provides ARexx support, recognising around 80 different ARexx commands.

One very useful facility of *MIDIPlay* is its ability to print to the console window. This feature is not just limited to lyrics, but many other file events as well, such as copyright notices, sequence and track names, instrument names, and so on. *MIDIPlay* also allows you to designate a drum channel, ie. a MIDI channel that is protected from transposition. In the program's documentation, the author mentions that he uses Dr T's KCS for his Amiga sequencing, so there are no prizes for guessing where the idea of having a protected drum channel originally came from!

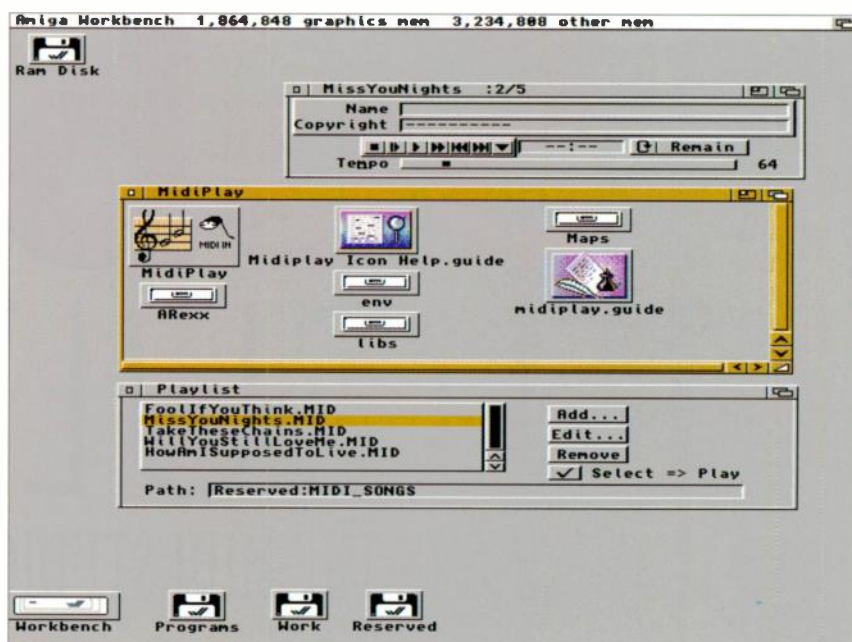
There are so many options available with this program that I did wonder whether Janne had overdone things a bit. It's all very well being flexible, but there comes a point where the sheer volume of possible options becomes daunting to the average user (especially out on live gigs). Luckily, most of the program's default settings are such that you only really need worry about the options you *do* want to use!

*MIDIPlay* requires at least OS 2.04 to run, and the techies among you may like to know that the program uses Bill Barton's (Pregnant Badger Music) respected MIDI library for the underlying MIDI message handling operations. Needless to say, this library is also provided on the *MIDIPlay* disk (more information about Bill Barton's MIDI library can be found on Fred Fish disk 227).

Another point of interest is that by default, the *MIDIPlay* program uses the fairly high-level timer device for producing its MIDI file event timing. Although this is a very efficient way of handling time delays in a multi-tasking environment, there is an increased software overhead with this approach, and this can produce slightly slow playback timing. Much depends on your Amiga model, the types of MIDI files being played, the other tasks being run, and so on, but if you do try to multi-task *MIDIPlay* with other programs, you may find you occasionally get erratic timing. The *MIDIPlay* program does, however, provide an option for taking over a couple of the Amiga's CIA chip hardware timers directly. Since this eliminates the need for the program to make those high-level timer device calls, the result is that playback timing will be noticeably improved, particularly on slower machines.

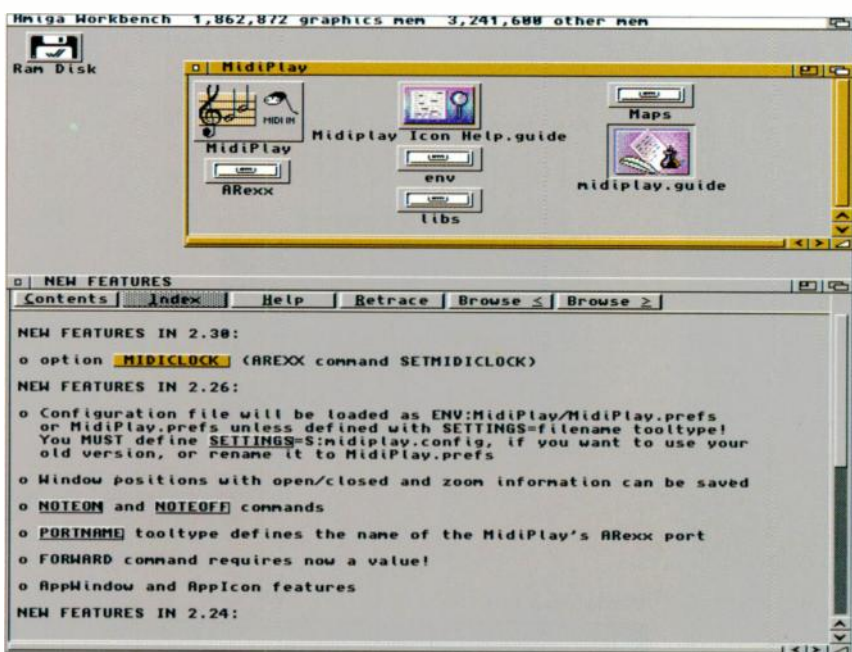
## GIFTWARE?

We've had freeware, shareware, charityware, and



*MIDIPlay — a cheap, yet sophisticated, MIDI file player!*

even vapourware (ie. software that gets all the usual pre-release promotion, and then fails to actually see the light of day) — but giftware? That was a new one on me. It turns out that it's a variation on the shareware software theme — the idea being that people who use *MIDIPlay* regularly, should consider rewarding the author with some



*MIDIPlay provides comprehensive on-line Amiga guide help facilities.*

music-related gift — a CD for instance, or a disk of your own tracker music modules (if you've created any). If you choose to become a registered user in this way, you will be sent some additional *MIDIPlay* Toolkit software.

The bottom line? *MIDIPlay* is likely to prove useful to all MIDI-based Amiga musicians, and as such is well worth trying. The program should be available from most of the larger Amiga PD libraries by now.





# Sub

PAUL WHITE examines the role of the keyboard submixer in the MIDI/tape recording studio.

# CULTURE

## SUBMIXING IN THE MIDI STUDIO

**T**he way in which most musicians make music has been completely revolutionised by MIDI, yet aside from the introduction of the in-line mixing console, basic mixer design has changed very little in the past two decades. It is true that prices have fallen dramatically and that automated mixing has become an affordable reality, but aside from some budget mixers popping up that incorporate a few token stereo channels, most are still designed for getting signals on and off tape.

If you have an in-line console, then the monitor signal path can be used to handle MIDI instruments

that are run in sync with the multitrack tape at mixdown, but you may still run out of channels due to the number of synths and samplers with multiple outputs. Furthermore, in-line consoles invariably represent a compromise, as both the EQ and aux facilities are shared between the main and monitor signal paths. The reality is that to get enough channels to handle anything other than the smallest MIDI system means paying for a mixer that's bigger

than you really need for multitracking alone.

With MIDI sequencing, it's no longer necessary to record your MIDI instruments on the multitrack tape, though there are still some occasions where it's useful to do so. And if you don't need to record your MIDI gear to tape, then you don't need mixer channels with full routing capabilities. From my own point of view, I don't think you need such a flexible EQ system with electronic instruments, because most sound pretty good straight out of the box. You may also find that you can make do with fewer aux sends, because most modern synths have effects already built in.

It amazes me that nobody has ever sat down and designed a mixer for the way we record and work today, because it seems patently obvious that while the traditional approach to mixer channel design works well enough for tracking, we need an entirely different channel design for the MIDI gear. The main criteria of such a design being plenty of stereo channels, a well designed input stage to prevent ground loops from multiple sources, and an EQ section specifically tailored to keyboard use. For example, I'd like to see a variable low-pass filter in every channel, which would be useful both for warming up digital synths and for skimming off high frequency noise.

In the absence of any single mixer meeting all the needs of the tape/MIDI studio, the next best route is to use a submixer. In my own case, I've recently installed a Mackie 3204 purely because it offers the right basic facilities, it's clean and has lots of inputs. It also has four busses, which leaves some routing possibilities open. However, the concepts described in this article are applicable to any make of conventional submixer.

### MAKING CONNECTIONS

Most of you will be aware that a submixer can be used simply by patching it into a couple of spare inputs on your main mixer and then panning these hard left and right, as shown in Figure 1. In theory you can plug into any line-level mixer input, be it a channel, aux return or whatever, but to retain routing flexibility you should ideally choose inputs that can be routed to the main mixer busses. This way you'll be able to record the outputs of your submixer onto any tape track, should the need arise.

If your submixer has balanced outputs and your main mixer has balanced inputs, then I

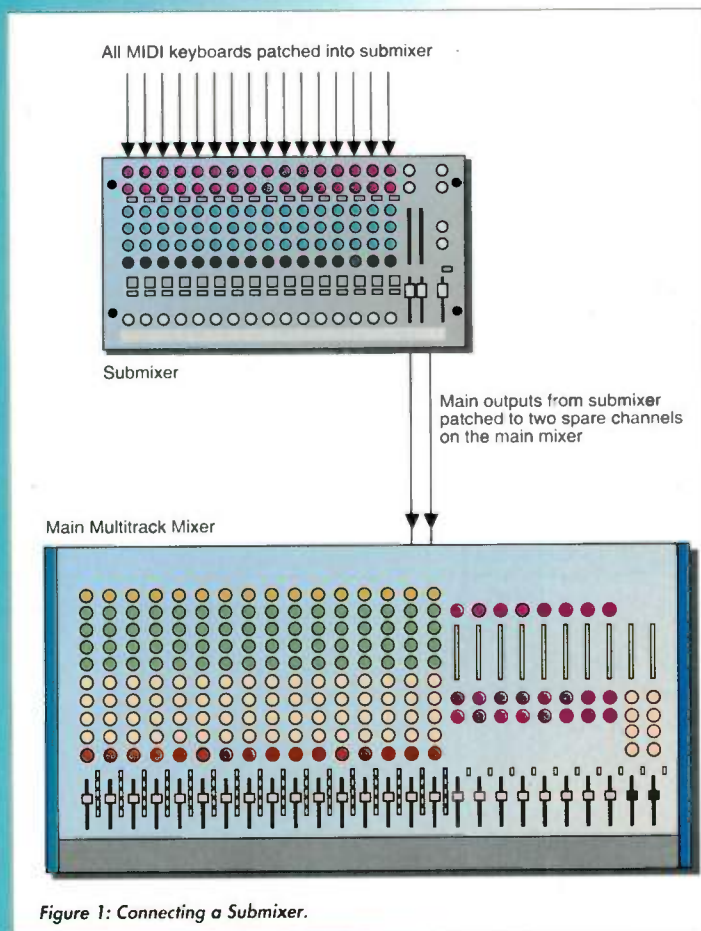


Figure 1: Connecting a Submixer.



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# SUBMIXING IN THE MIDI STUDIO

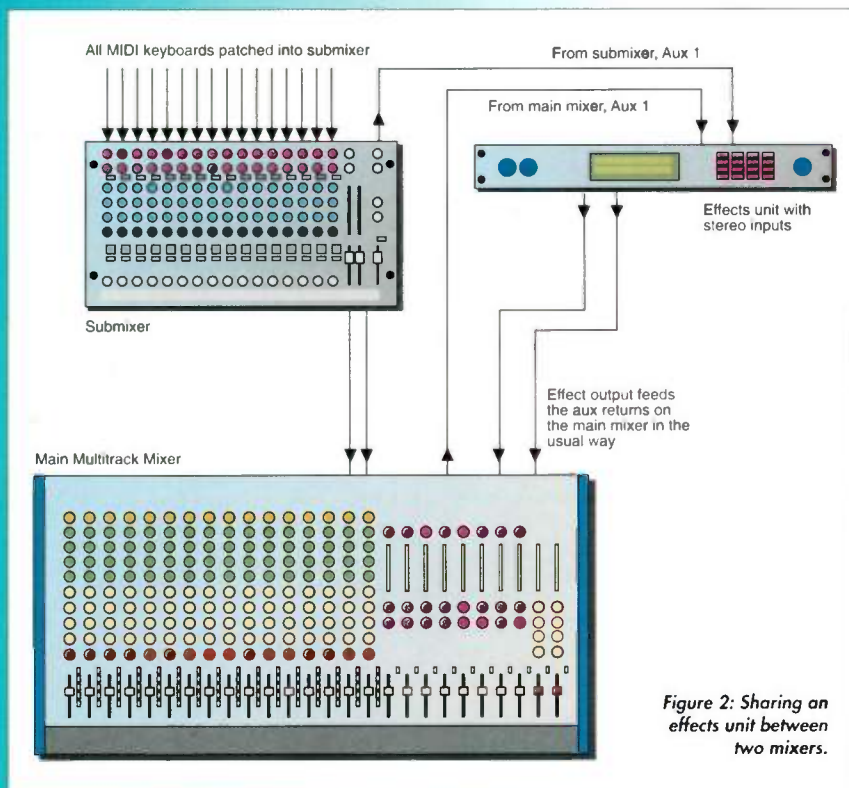


Figure 2: Sharing an effects unit between two mixers.

► strongly recommend you use balanced cables as this will reduce the risk of interference and hum. You should also ensure that both mixers are earthed and that both are plugged into adjacent mains sockets. If hum does show up, you may find that disconnecting one end of the cable screens in the two connecting leads cures it, but you can only do this if you're working balanced.

This arrangement works well enough insofar as it goes, but it doesn't do anything to integrate the aux send systems of the two mixers, so you could end up using one set of effects units on your main mixer and another on your submixer. This is fine if your studio is over-populated with FX units, but less helpful if you only have one or two outboard units to play with.

There are ways available for linking the aux send systems of two mixers, which I shall explain shortly, but if you have one of the more modern effects processors with a stereo input, there's a much simpler solution. Simply connect the Aux 1 send from your main mixer into the left FX input, the Aux 1 send from your submixer to the right FX input, and set the FX output to all effect/no dry signal. Most effects combine the left and

right inputs to mono before processing anyway, so as long as you're aware of any specific effects patches that provide different effects on the left and right channels, you can work as though both mixers were part of one large mixer. The FX unit outputs are patched into the aux returns on the main mixer in the usual way, as shown in Figure 2.

Unfortunately, this method of effects patching doesn't work if you have an effects unit with a mono input, or if you want to bring your aux sends out to a patchbay to retain full flexibility over which effect is patched where. In this instance, the only simple way to link the aux busses is to feed each aux send output from the submixer into its own channel on the main mixer. To make this work, you have to ensure the main channel is switched on but not routed to the left/right mix or to any of the groups (in other words, all routing buttons are up). Next, turn up the Aux 1 send control on the channel receiving Aux 1 from the submixer, Aux 2 on the channel receiving Aux 2 from the submixer, and so on. Figure 3 should make it clear how this works.

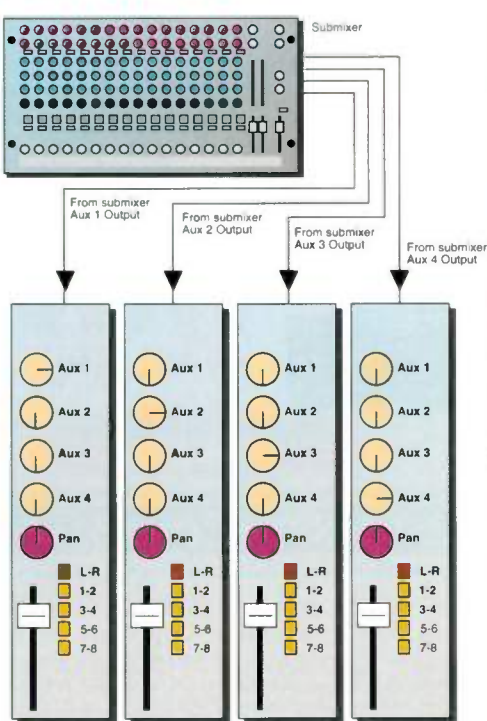
You should set the aux send controls on the main mixer channels to around three-quarters up, then adjust the Aux Send masters on the submixer so that you obtain roughly the same amount of added effect for the same control settings on both the main and submixer. Note that *under no circumstances should you try to combine the aux sends from two different mixers by simply using a Y lead*. This is unkind to the output stages and invariably leads to a loss of signal quality, and occasionally to damage.

## USING PATCHBAYS

Most of the time, you'll be able to leave your submixer setup exactly as it is, but occasionally you may want to introduce a signal processor (such as a compressor, equaliser, or gate) between one of your MIDI instruments and the submixer input. Many line mixers have no insert points, which means you have the option of either unplugging your synth from the back of the mixer or installing a patchbay. A patchbay is obviously the most convenient option, as it saves disrupting your system every time you want to make a minor change. It also makes it easy to patch a particular instrument into your main mixer should you want to record it to tape, as many people do with their samplers to extend its polyphony.

Since most keyboard instruments have unbalanced outputs, an unbalanced, semi-normalised patchbay is the best option here, because it will automatically route your instruments to your submixer unless a patch lead is plugged in. Plugging into the bottom row of the patchbay will disconnect the original source and allow you to feed a different instrument into that channel of the submixer; plugging into the top socket only will allow you to take a feed directly from a MIDI instrument without actually disconnecting the instrument from the submixer. Plugging into both the upper and lower sockets

Figure 3: Combining aux sends.



Spare channels on the main mixer. Note that all the routing buttons must be up (unrouted) and the channel faders should be at their nominal 0dB position. All aux sends are turned down except the one corresponding to the input from the submixer, and this should be set at around three quarters up. Any effects units are connected directly to the main mixer in the usual way.



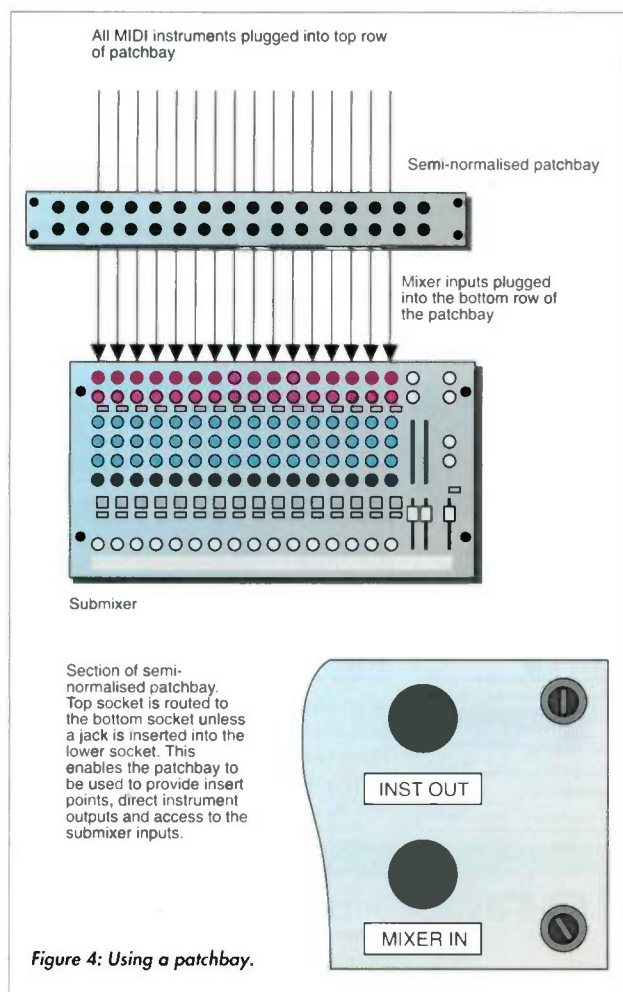


Figure 4: Using a patchbay.

allows you to take the signal from the instrument, route it through an external processor and then return it to the mixer, just like a conventional insert point. Figure 4 shows how such a patchbay would be wired.

## SUMMARY

By using a submixer for your MIDI instruments, it is possible to get by with a smaller main mixing console yet still have a greater total number of inputs. The result is a saving in both space and cost, but without compromising your sound quality. Working this way may even allow you to budget for a main mixer with automation, and when it comes to your MIDI instruments, it's usually possible to automate their level and pan settings via MIDI from your sequencer, so it doesn't matter so much that your submixer has no automation facilities.

In an ideal world, all mixers would have accessible external inputs to their aux busses, enabling you to link recording mixers and submixers without the need to sacrifice channels. Though some manufacturers do indeed include such facilities, most do not. Similarly, some sort of standard connection that allowed you to link the Solo functions on both mixers would be useful, but as it is, they will work quite independently. To solo a channel on the submixer, you need to solo both the relevant submixer channel and the two main mixer inputs into which the submixer is routed.

One day we might get mixers that offer the best of both approaches, or at least an integrated linking system that allows submixers and mixers to be combined so that they can function as one large console. Until then, I can see a big future in submixers, especially as so many MIDI instruments have multiple outputs.

SO5



## SAMPLERS

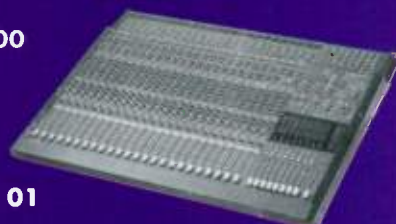


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If anyone epitomises the home recording DIY ethic, it's Bill Nelson. With over 40 albums to his credit, many of which emanated from his modest home studio, Bill continues to experiment. NIGEL HUMBERSTONE explores his latest creations.

Many years have elapsed since my last meeting with Bill Nelson (see SOS March 1991), but despite the tribulations of mismanagement and the ensuing personal and financial side-effects, Bill has remained as determined and sensitive as ever. It is a wonder he has produced any music, let alone the creatively varied solo, collaborative, and commissioned pieces now available.

In documenting the 'lost years' I thought it only best to begin where we left off: Bill Nelson's 1991 collaboration with Harold Budd.

# Bill Nelson

## GUITARBOY IN WONDERLAND

Bill: "Out of all the people I've worked with, Harold, despite our differences in political opinions, possesses a genius. His piano works are exquisite and pretty, but he's got another part of him that has yet to surface.

"When I worked on *By The Dawn's Early Light* it was like the dark side of *Pavilion Of Dreams*. Some of the musical imagery and spoken word on there [*Dawn's Early Light*] was really personal and autobiographical about his own childhood.

"There was one incident where he'd seen a horse lying in a field and he thought it was alive, because it appeared to be moving and breathing. But as he got closer to it, it was a carcass just covered in flies, and the flies were giving the impression of movement. As a young boy he was obviously moved and shocked by this — so we did a piece actually called 'Dead Horse Alive With Flies', which is a musical portrayal of the sinister but beautiful 'otherworld'."

The project was carried out in New Orleans at Daniel Lanois' studio, which represented a memorable environment for Bill.

"It was a very quick album (around 10 days for the recording), but the whole experience was really special. Daniel's studio is amazing — though it's not a studio; it's a house with recording equipment, and we just sat around in a circle in this wonderful room that had chandeliers, plants, and Indian blankets. And the whole lighting was from

hundreds of candles throughout the house. It's an old plantation mansion and there's this very Gothic/voodoo kind of atmosphere. It was a perfect place for us to do that project.

"We had two classical musicians (viola and harpist), BJ Cole on pedal steel, Harold on keyboards, and me on guitar. Harold had actually composed the album beforehand, so everybody had a score to work from — except me, because being musically illiterate I couldn't read it anyway! Harold knew that, so basically he gave me complete freedom to play anything I wanted, which was nice for me but a little bit frustrating for the other musicians, who had to stick to the score."

I, like many others it appeared, had assumed that Bill could read and write music.

"A lot of people do. In fact, there was a review of *Practically Wired* [the new album] where it was reviewed alongside Phil Manzanera's retrospective, and it was the old joke of 'how do you make a guitarist shut up? Put sheet music in front of him.' I just found it hilarious that they got this impression that I was some kind of academic.

"I know the basic chord names, but it can be

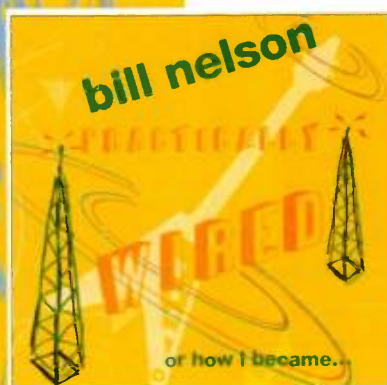
embarrassing at times although never a hindrance. Like the time when I first went to work in Japan and everyone was reading music, even the tea-boy! When I told them I couldn't read music, you could see the panic in their faces. So they rolled the tape and I was just jamming along trying to figure out what key it's in and trying out a few ideas. At the end they decided not to run it again, but just to keep what they loved as a spontaneous performance."

### PRACTICALLY WIRED

When I met up with Bill he had recently returned from a promotional visit to America, where his latest solo album *Practically Wired* has attracted positive reaction. Not having been in New York since 1983, I wondered how Americans now related to Bill; was it through the legacy of Be Bop Deluxe or his solo work?

"It varies. I met a lot of people and what was encouraging was the cross-section. Obviously there are people who have been listening right from the beginning and stayed with it. Others got confused when I started playing keyboards, thinking I'd let the side down or something — and they don't know anything past, say, 1979. Then there are those that have come in later and don't know the early Be Bop stuff at all."

*Practically Wired*, aptly subtitled 'Or How I Became Guitarboy', is a guitar orientated exorcism recorded within a self-imposed time limit of 14 days at Bill's favoured Fairview studio in Hull,





England, at a cost of only £2,500. Was there really no pre-production involved?

"I had the concept, as it were, and a list of titles. And I'd made some rough notes alongside these titles, like 'this should incorporate Duanne Eddy and Jimi Hendrix' or 'this should have surf snare drum' or whatever. So I had a kind of map but no music worked out at all.

"I usually start by programming the drums, then playing the keyboards live on top, then guitars and I add elements of live percussion as well, just to keep it a little bit looser and not so hi-tech."

I notice that there are also a number of little piano pieces on the album.

"Yes, Fairview had an upright piano, and because I have never had a piano at home it was a good opportunity for me to play a little bit of piano.

"Fairview studio is very good for what it is. It's small, so can be claustrophobic if you're working with a band for any number of days, but for just one person it's perfect. I also like the engineer, John Spence, who I've worked with on a number of things, and who's got this intuitive approach — so we can do things very quickly and to a reasonable standard, without incurring huge budget costs.

"They have a fully computerised mix system, which is unique, because although they're using a standard Soundcraft desk, you can get graphic EQ up on the screen along with balance and mutes. John Spence knows that system inside out. I've always been one of those people who never trusts the engineer, but with John it's trust all the way and he knows what I want.

"I really need to update my own studio — I mean I have exactly the same gear as the last time you interviewed me, only less of it. I sold a lot in order to survive, particularly my guitars."

In what ways would you like to change and expand your home studio setup?

"Well I'd get a new mixing desk for one thing, and I would like to get more involved with automated mixing if possible, especially when you're working alone at home — just to give me that extra pair of hands, even if it's just a computer. I've never had a computer — everything's been analogue and manual."

But you do use computers in other studios and on other projects?

"Oh yes. I used one on a project with Ashley Jackson, where they did everything on computer. But at the same time I played this bass part completely off-the-cuff, through a little touch-sensitive wah-wah pedal. It was just a first take, which was needed because everything else was sequenced, and I remember them reacting in some amazement that that could be done — but for me, that's where you start from. I'm not purist about it — it's rather been a matter of necessity with my home studio. Circumstances dictate the choice of equipment and I just haven't had the money to invest in computers and software. So it's stayed very low-tech and that produces a certain style, a



certain sound which I've been lumbered with.

"There's such a temptation now for people in my position, with a small home setup, to go for the ADAT — which would be nice. But I still would like to keep some reel-to-reel happening, and I like the idea of still being able to get your hands on the tape occasionally and take a razor blade to it, which is now such a dated technique. I still find that my Fostex 16-track has got a lot going for it, just in the way that it processes the sound.

"I still like playing in real time. I don't actually sequence very much. Most of the percussion is sequenced, but the rest is played in real time, whether it's from the drum pads or the keyboards, so that there's always this feeling of there being a performance.

"Technology is interesting as a social phenomenon, in that we can produce a music with all the appearance of signification of music, but which fulfills none of the roles that music would normally fulfill."

*"...a lot of music I hear being made is like that of first-year art students. They launch right in without the ground being prepared and what you get is a kind of 'pastiche'..."*



# Bill Nelson

## GUITAR TRICKS

Aside from the different guitar styles on *Practically Wired*, there are also a multitude of reversed guitar effects. How were these achieved?

"There's three types of reverse effect on the album — one is just reversed echo, where the guitar is actually going forward but the echo is going backward. Then there's proper reversed guitar, where I just played guitar with the whole tape going backward. And another one is achieved using a compressor with this very heavy suppression of the attack, so that there's no attack when the pick hits the strings — and then the compressor opens up and lets the sound come out. So you get a long,

and have all those decisions to make later on. Again, time was a factor but also, in that situation, if you're working with the sounds in a more complete way at each stage, there's something more to get hold of — an added extra inspiration. You can see the picture growing, rather than some reference work which you then make sense of later.

"It was also an approach I took because I had nothing prepared. So basically, the idea was to make a song start to appear as soon as possible in the improvisational process. In fact, you could say there are elements which I improvised and elements which are more spontaneous composition, because they have structure and melodies, rather than the doodling in improvisation."

## MAKING MUSIC

In attempting to analyse his work, Bill admits that techniques he has acquired over the years have now become second nature.

"I don't know what it is, it's almost something intangible and hard to quantify in getting sounds to 'work' together — it's partly instinctive and it's partly a matter of experience from trial and error. I've always wanted to get to the stage where I didn't have to actually make a big fuss about going into a studio and making records, or playing the guitar, keyboards or anything. And I really do believe in this idea of putting a lot of work in at the very early stages of a musical life, and then completely unlearning it and forgetting it — letting it sink into the unconscious. So that when you come to the process of making music, it's no more difficult than having a casual conversation with a friend. Rather than thinking 'I am a musician and I have to be artistic about this'."

This 'studio philosophy' comes from Nelson's occasional production role (for The Skids, A Flock Of Seagulls, et al), although he is reluctant to class himself as a producer.

"There's always angst and tension, but in a sense that should happen outside of the actual process of making music itself. Music should flow, like a floodgate opening. And I've found, especially working with younger bands, that when they get in the studio there's always pressure to come up with something — and their sights are set on targets, which are not necessarily musical targets. Sometimes the smallest problem can become an insurmountable mountain, which they can't see round at all."

## CRIMSWORTH

Crimsworth is an area of land which provided inspiration for both an art installation, created by Rob Ward, and the accompanying music supplied by Bill Nelson. Full of atmosphere, the piece is an ever-changing ambient backdrop that transfers equally well to CD. Bill describes the commission.

"I visited Rob at his studio and he explained the whole thing to me, and then basically I just got on with it, working to a visual brief, rather than a musical brief. But the whole thing hung around an area of land close to where he lives. It's a very natural area with streams, grass, trees, plants and flowers, and his idea was to cover the walls of a



### BILL NELSON'S HOME STUDIO

- AHB System 8 mixing desk.
- Fostex B16 multitrack.
- Akai MPC60 sampling drum machine/sequencer.
- Emu Emax sampler.

#### GUITARS

- Patrick Eggle Berlin Custom.
- Washburn acoustic.
- Guild X500.
- Viellelette Citron Custom.
- Yamaha SG 2000S.
- Eros Bass.



### BILL ON JAPAN

Following the Channel Light Vessel project, Bill Nelson once again returned to Tokyo. Despite not having any personal recording equipment with him, he undertook a number of session and studio roles with, amongst others, Johnny Fingers (ex-Boomtown Rats), now a Tokyo resident.

"It was very fascinating when I first went there — the whole difference in culture. I'd been to Japan previously, when I worked with the Yellow Magic Orchestra, and had this idealistic view of what Japanese musical life was like. But it had changed in the ensuing 12 years. Also, when you're there for any length of time, you do see the harder side of things."

slow attack on each note, which also gives the impression of it being played backwards.

"None of the guitar was amped up, it was all direct through the desk. I have a Zoom 9050S half-rack unit. I bought it after having one of the smaller 9002 units, but I wanted something that I could control with pedals for live work. I spent a few days before going into the studio, basically just programming up some sounds and storing them to use on the record.

"The majority of the album is electric guitar except for the track called 'The Presence In Flowers', which is a foggy, drifting thing with a nylon strung acoustic on top. And that was the only time I put a mic on a guitar."

In addition to the self-enforced time limitation for the recording session, Bill adopted particular working methods on *Practically Wired*.

"We recorded a track and then mixed it. The approach I took was to try and work with effects as we recorded, rather than just do everything dry



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# Bill Nelson

► room with a special ceramic paper, which is highly reflective, and then to paint whilst it was hanging. His style is fairly abstract with washes of colour that change as you progress around the room. It was lit in a low-level way with only one door into this octagonal room. The floor was flooded with water and a gangplank built out into the centre of the room. So to actually view the work, you have to enter by this single entrance, one at a time, and walk out to the middle of the room.

"I based the music on the descriptions he gave to me of this natural area of land. On first impressions people have said that it sounds as if not very much happens in the piece, which is an illusion because actually quite a lot occurs, but it takes a while for it to happen. There are all different intensities throughout the piece and, depending on at what particular point in the music you entered the room, you'd gain a different impression. There are moments of subtlety and times when it's very ecstatic — what I tried to achieve with the music was something that sounded like it was actually organic and alive, and growing but with a different timescale to normal music.

"The water sounds were from a collection of samples I already had for the Emax, and I also used a DX7 and acoustic piano. It was all recorded at different speeds, using a lot of tape manipulation."

## CABALISM

"For the construction of the music I used things like the proportions of the room to determine the timescale. Particular measurements — like the length, breadth and height of the room — were broken down, and multiplications of that were used to make a 'map' of the timescale in which certain musical events happen. So everything in the music is related to the physical proportions of the space. That wasn't to be clever, it was just simply to give me some kind of structure to hang the thing on, because I wanted it to feel formless and yet still have some identity to the place."

The structure is in fact based on Bill's understanding of Cabalistic writings; a multi-level Hebrew system based on the emanations from God to the physical world.

"Whilst the actual time system was based on proportions of the room, the vertical system I based on elements — so I used 'air', 'fire', 'water' and 'earth' as the invisible celestial realm at the top, then the next level was 'apparitions' and lower down was the 'demonic' realm. And I had events happen in each realm vertically — so that there is some kind of structure to it."

Did you have any expectations that the recording would be commercially released?

"Not at the time. It was only originally planned for two exhibitions. But I've had some contact with Voiceprint Records and it seemed like an ideal 'test' for them. It's a fairly difficult piece of music to market, but it's amazing to see how well it's been received."

## 'MY SECRET STUDIO'

Bolstered by the success of *Crimsworth*, Bill plans to release further titles through Voiceprint.

"I've got such a great deal of things recorded at home that I've never released, particularly from 1988 to 1992 — both instrumental and vocal pieces. I also plan to do a limited edition box set; something for the 'anoraks' out there, which I started to compile and couldn't make it fit into a four album box set. So now we're working towards an eight album, two box set — Volumes 1 & 2. If all goes to schedule it will be called *My Secret Studio*, with a book of prose, drawings, and photography as well. I'm currently compiling the running orders, which is an endless task because I just can't decide."

Considering that these pieces were recorded many years ago and at your home studio, are you not tempted to rework or reinterpret them? Or are you content for them to exist as documents of that period?

"There's always the temptation. But for a start, I only have the FI [stereo digital] mixes — simply because of finances, I've always re-recorded over the top of any multitrack stuff. So there's now only the option of re-recording the tracks, but the material that I'm dealing with is such a product of its moment that to take it and remodel it would be wrong. At the time I thought of many of the pieces as simply demos that could be worked on later, but once 'later' comes around, I listen to it and have no desire to play that music anymore. It just seems to be like a diary entry or a snapshot of that moment.

"The pieces are very rough and full of technical flaws — they're not even fully realised as arrangements, or thought through, but what interests me about them is this real nakedness. It's very honest — it's got all the weaknesses and inconsistencies. There's moments of great profundity and naivety sitting side by side! And I guess, in a very selfish way, it's a self-analytical process being able to listen back to them. I'm now more able to make a judgment than I was then, but I really do feel that the tracks should stand alone and on their own merit."

And for Bill this was music created within the context of the financial and emotional battles that he was facing at the time.

"I had no other alternatives. If someone had put a budget in front of me to go and do a serious album, I would have probably made some entirely different music. But the limitations of the home studio, the time limitations and the personal conflicts that I was going through at the time, dictated what happened. And it's interesting because of that honesty — the music is a product of a real situation.

There can be no underestimation of the crushing effect that poor management has had on Bill's life. Financial irregularities and exploitation left him fighting for control of his back catalogue and subsequently the breakdown of his 18-year-old marriage. All this has inevitably influenced Bill's musical output.

## Bill Nelson ~ *Crimsworth* *Flowers, Stones, Fountains and Flames*

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*Automatic*  
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• Bill Nelson:  
*Crimsworth: Flowers, Stones,  
Fountains and Flames*  
Resurgence RES104CD  
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*Practically Wired*  
All Saints ASCD22

bill nelson

or how I became...

### SOUND ON SOUND

Not many people know this, but the title of your fave hi-tech music recording magazine was inspired by the Bill Nelson's Red Noise album of the same name.



"There is a part of it which is so severe and so disastrous, that I honestly sometimes wonder how I managed to stay sane. Blame can be traced in many directions but I'm still very angry with myself for being so naive about business aspects, even after previous experiences. I still had this desire to trust the person who was in a position of responsibility, looking after my business life. With that trust misplaced, there's bound to be some guilt come back on the person who placed the trust.

"My advice now to anyone in the same situation is that if you suspect the slightest thing, then you're probably right! I don't really want to make it a big issue — it can all come across as so negative. But I'm rebuilding my life from the ground up, in many ways. Not just the business side, but also my personal life. It's been a testing time for me in one way or another, and it's certainly brought into question a lot of values that I used to hold — and that spills over into your music, I guess."

### CHANNEL LIGHT VESSEL

Despite the negativity, there has emerged a positive side to it all. On returning to Tokyo, Bill was reunited with Emeko (who he had met through work with the Yellow Magic Orchestra), with whom he spent almost a year in Japan and finally married.

"What got me out to Japan was Roger Eno's tour, following the release of his album *The Familiar* (which Bill produced). The record company out there [Polydor] came to see us play and liked this idea of the band, because it was a very strange musical combination and also visually very strange. We looked bizarre — Roger with his fishing hat and the beard he had at the time, and Mayumi [Tachibana] and her Philharmonic frock, Kate St John [ex-Dream Academy] with her 'English rose' look, and then this black man [Laraaji] dressed in bright orange and playing zithers. So when I came back from Tokyo, the record company put us in the main studio at Real World to do the album *Automatic*."

Under the collective banner of Channel Light Vessel, the project was heavily performance-related with tracks being put together as a result of improvisation; to be later reworked with other elements. However, when the final mix was considered unsatisfactory, Bill was invited to apply his rendition to the recordings and noted that, essentially, it wasn't a problem with the mix.

Bill: "The problem was that we hadn't completely realised what we were doing, musically. So I said I would have a go at it, but with the proviso that I could have the freedom to change things musically where they needed to change — and that was given to me.

"So I took the master tapes into Fairview studio, stripped out everything that I didn't think was working and added percussive elements. I also got Kate [St John] to come up and we wrote the lyrics together — she wrote choruses and I wrote verses, without even consulting each other. We just sat there with notebooks, kept the tape running, and went and did it."

### PLUNDERPHONICS

For a future project, Bill still wishes to put together a band. He had initially planned it to be an organic venture, but has recently been reconsidering the options and incentives.

"I wondered what it would be like if the music was event-packed, from moment to moment in a horizontal sense, rather than 'stacked' vertically in terms of layers and textures. Almost like music that has an idea every two bars. Something that would do in real time what it is possible to do with sampling and sequencing, where you can stack up ideas and juxtapose things that are so alien to each other that there's a shock in hearing them together. I remember being entranced by the idea of 'Plunderphonics'; this sort of stealing and plundering of ideas and having no guilty conscience about the theft of sounds and ideas. To absolutely empty the sacredness out of the whole process and make this completely 'brutalist', spiteful music. I suppose it all stems from me being bored by a lot of what's meant to be exciting new music."

Surely there are some new artists that you like?

"It's a cliché — but things like Portishead and Tricky seem to have a little purpose, and have a little genie in there, burbling away, which is quite convincing. Although it can be a bit of a one-horse trick; an interesting idea that they've stated and that's it. But that's the kind of age we're now in, where things can exist in a fragmentary sense. Be there for one record and then gone forever, because there's no need to say it again.

"So the idea that I'm thinking of is 'maximalism', if you like; speeding that up to an intense degree and maximising the whole thing.

"Maybe I'm a bit of a reactionary in saying that you've got to be able to play an instrument without any 'props', as it were, but a lot of music I hear being made is like that of first-year art students. They launch right in without the ground being prepared and what you get is a kind of 'pastiche'; an artificial flower that isn't convincing or satisfying.

"In many ways I'm still beginning — after around 40 albums it's still warm-up time, because for me there's never a sense of satisfaction or achievement."

SO

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# Everything to GAIN

*Do your recordings sound like they've been made through a white noise generator? Well, don't just blame that vintage synth or battered effects unit — it could be your gain structure that's at fault. PAUL WHITE offers some tips on getting it right...*

**F**rom the dropping of a pin to the exploding of a tank shell, the nature of sound is such that it covers a vast dynamic range. Reproducing this range using an equivalent analogue electronic signal results in a signal level that might vary from just a few microvolts (millions of a volt), up to 10 volts or so. In a typical studio, the

## ALL ABOUT GAIN STRUCTURE

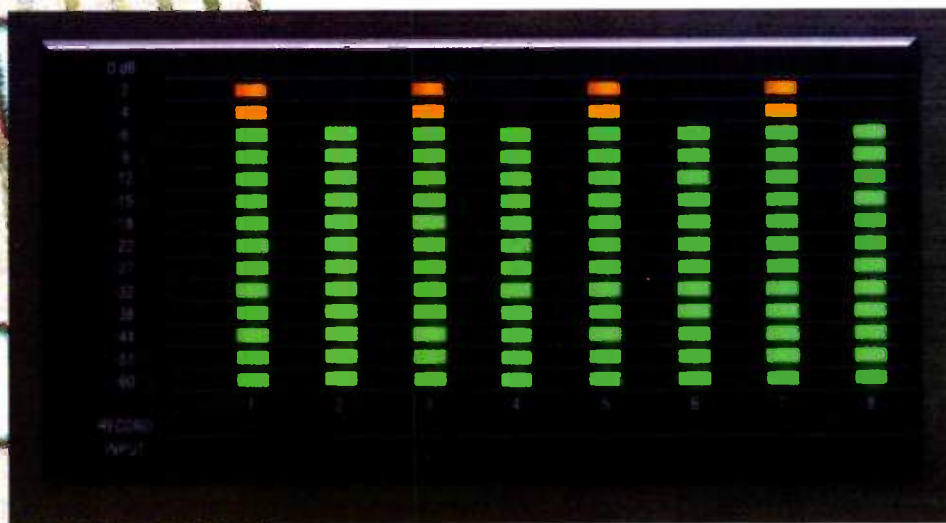
as noise-free circuitry. This noise is actually due to the random movement of electrons, and until we find some way around the limitations set by quantum mechanics, we're stuck with it.

Fortunately, a well-designed circuit adds only a tiny amount of noise, and this noise is largely constant. It is therefore pretty obvious that if you feed a very low level signal through the circuit, the ratio of the noise to the wanted signal is going to be worse than if you feed a strong signal. As I've pointed out on many occasions, the way to minimise the noise contamination is to make sure that you're passing as high a signal level as possible through the circuit, but there is a limit to how hot your signal can be — if it's too high in level, it will cause the circuitry to clip, and you'll hear distortion (see the 'Red Light District' box for more on this). Most analogue circuits don't suddenly clip when the level gets too high — instead, the amount of distortion rises gradually as the last few dBs of headroom are used up, then hard clipping occurs.

Digital circuits have very similar limitations to analogue ones. If the the maximum numerical value the system can handle is exceeded, the signal will still clip. However, there's

no safety margin, or area of progressive distortion, as there is with analogue — one moment the signal is perfect, but push it up another dB, and you're into clipping. For this reason, the nominal operating level for digital equipment is usually chosen around 12dB below the actual 0VU, or clipping point.

If too small a signal is fed into a digital system, it is represented by fewer bits, which, in practical terms, means that the signal suffers from quantisation distortion, and this sounds very much



signal from a microphone is amplified to bring it up to what we call line level (a vague term meaning closer to a volt than a millivolt), and is then passed through a whole chain of circuitry, where it is equalised, routed, mixed, and effected, before being recorded onto the final medium.

### NOISE ANNOYS

The main problem when processing analogue signals is that each and every piece of circuitry adds noise to the signal — there's no such thing





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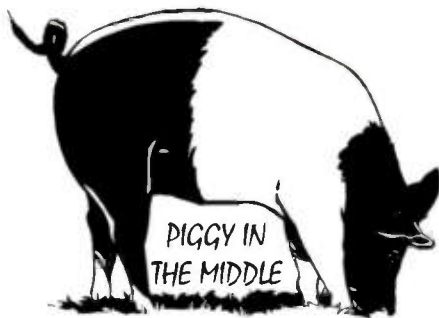
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*find out.*

# GIMME S'MORE

DIGITECH TSR24S DUAL CHANNEL MULTI-EFFECTS PROCESSOR

**DIGITECH TSR24S**  
**£799**

#### PROS

- Effectively two processors in one.
- Sophisticated and clean sound.
- Easy custom algorithm creation.
- Expandable with optional parallel processing card.
- Efficient chromatic tuner.

#### CONS

- Can't audition MIDI Controller links while making them.
- Unhelpful manual.
- Would be nice to see a better way of installing the PPC200 than taking the lid off the unit — which, by the way, is a bit of a maul.

#### SUMMARY

Recommended for more serious project studio owners looking for an effects unit with a decent shelf-life, which rewards programming effort. Its ability to be used as two separate processors makes it good value for money, and it could easily be the main or only processor in a small studio.

**W**hen affordable digital reverb first started to appear, the average musician was so elated at being able to chuck away his Great British Spring that he was perfectly happy to spend hundreds of pounds on units offering the luxury of 10 or so presets — which could be used any way at all, as long as it was one at a time. These days, though, manufacturers have a rather tougher time persuading us to part with our money: good quality reverb we take for granted; exotic guitar and vocal treatments we expect; ever-lengthening chains of digital effects no longer surprise us. Being less able to offer revolution, manufacturers now tempt us with *evolution* — units which provide more features and facilities for less money.

This brings us to the Digitech TSR24S Dual

parallel processor card 'readiness' — at £250, this card effectively doubles your DSP power, allowing twice as many effects to be used at once, adding new algorithms and programs, and doubling sample and delay times. While this is undoubtedly a great feature in itself, what's more exciting is the potential for future enhancements, since Digitech could theoretically make new developments available to TSR24S owners on new cards.

#### HOLD THE FRONT PANEL!

Physically, the TSR24S is solidly built, which bodes well for live work, and looks very similar to the original TSR24, the only real front panel difference between old and new being that the majority of the S's buttons are green rather than blue. The TSR24S's large number of buttons, divided into six



Channel Digital Processor, an upgraded version of the 1993-vintage TSR24. The original machine justified its £899 price tag with true stereo operation, custom effects algorithm creation, 18-bit A/D and D/A converters, sampling, two sets of stereo outputs, comprehensive MIDI control, and the fact that it could be used as two discrete stereo processors. In the grand technological tradition of more-for-less, the 'S' version reviewed here retains all this power and adds even more, for £100 less than the original TSR24: balanced audio connections, a handful of new mega-reverbs, chromatic tuner, so-called 'Whammy' pitch-bending, stereo gated reverb, mono and stereo modulated delays, 4-way auto-panner, single and dual phaser, notch and band-pass filters, graphic module linking, enhanced mixer modules, and lastly (and perhaps most significantly) PPC200

sections, make for a busy front panel, but in practice allow you to move around the operating system more easily. The six sections are as follows:

- **Global:** utility functions such as LCD contrast, MIDI maps, chromatic tuner and footswitch setups; this section also includes a bypass button. Though not labelled 'Global' on the unit, the TSR's manual refers to this group as such.
- **Edit:** six buttons used in the creation of custom algorithms.
- **FX Modules:** when editing, these buttons take you immediately to the parameters of the effect you've selected. With so many effects available, this is an invaluable facility for speedy editing.
- **Parameter:** a cross-shaped selection of four buttons that scroll through the editable parameters in a program and allow you to change their values.



• **Program:** another 4-button cross used to select programs, store new programs, and compare between edited and original versions.

• **Access:** essentially programmable function keys, and you define what they do; for example, you could use them to jump to the parameters you most frequently tweak in a particular program.

All that remains is the data entry knob, the dual input and output level controls, liquid crystal display, LED patch number display, and a variety of status LEDs which indicate MIDI activity, bypass, overload and so on.

### INSIDE STORY

The highest level of the TSR24S's operating system is the Program — despite what the manual says, the TSR24S has 128 editable and 112 preset Programs (the manual claims 256 of each), organised in one bank of 240 Programs. You can freely overwrite Programs 1-128; 129-240 are preset. Note that Programs 113-128 are bypassed unless you have the optional PPC200 installed; these show off the capabilities of a double processor-equipped TSR24S. If you have the standard unit only, you can't use them, but you can overwrite them.

At the heart of each Program is an Algorithm, a configuration of effects. You can select from 24

use a lot of processing while needing little RAM (the EQ and mixer modules fall into this group), while others require lots of RAM (sampling, reverb and delays, for example), so keep these points in mind while planning an algorithm. A total of 228

*"Digitech's S-DISC based processors  
produce some of the cleanest, most complex  
reverbs available in affordable packages."*

CPU blocks and 256 RAM blocks are available, and a chart in the manual lists values for every module. As an example, GigaVerb+ (the most powerful reverb module) uses 228 RAM blocks and 220 CPU blocks, which barely leaves room for a bit of EQ or noise reduction and a mixer module. Don't worry, though — there is an efficient reverb module (MFX Reverb) that uses just 30 RAM blocks and 69 CPU blocks. You'll seldom find yourself able to use more than four or five



factory algorithms, or create up to 32 custom algorithms — sound quality aside, this is the single most attractive and powerful feature of the TSR24S. When creating an algorithm from scratch, you have a choice of 78 effects modules, linkable in any order, and 25 mixer modules: mixer modules (which offer up to 16 inputs and a choice of mono, stereo, and 3-output operation) are needed to patch the effects together. The list of possible effects modules is comprehensive: 10 reverbs, 17 delays, 10 EQs, three samplers, eight choruses and flangers, 10 pitch-shifters, noise reduction, phasers, tremolos, wah-wahs and duckers; there's even a phase inverter and tuning reference.

There are restrictions, however. Effect and mixer modules each use up a certain number of CPU and RAM blocks (in Digitech parlance) and you will eventually run out of both. Some effects

modules in an algorithm, but the total flexibility in patching them together makes up for this apparent failing.

### SURFING THE SYSTEM

Programming the TSR24S is, in spite of the manual, relatively simple. The FX module buttons allow you to fly around the system without getting too confused; choose your effect, scroll to a parameter, tweak it, have a listen, and save the result. Simple.

As for algorithm creation, Digitech make this easy as well. Firstly, it pays to offline a little work to pen and paper — plan your algorithm, add up the CPU and RAM blocks you'll need, and then go to the TSR24S. Select any algorithm, and press the Add button. This gives you the option to modify a factory algorithm or create one from



# DIGITECH TSR24S

► scratch. Scroll through the modules and press Enter when you reach one you wish to use. When you've made your selections (or run out of Blocks), you patch the effects together. An auto-link function 'plugs' the modules together in the most logical manner, but manually linking modules,

with the aid of the excellent new graphic module linking feature, is simply a matter of scrolling through options and confirming your choice. It works like a small-screen version of Apple's MIDI Manager for Macintosh computers.

One of the most attractive selling points of the TSR24S is its ability to be used as two discrete processors. The biggest compromise is that your total of four or five effects modules per algorithm is now split in two. There are three factory 2-channel algorithms, but you can also programme your own; it's possible to create some excellent everyday effects for both channels, but off-the-wall processing is best left to single chains — or to a PPC200-equipped TSR24S, which effectively means two TSR24Ss in one box. Hmm, that card option is beginning to look attractive...

One other easily overlooked feature that saves money is the built-in chromatic tuner, accessible under the Utility button. This is blissfully easy to

G-flat, so if you want to tune to a lower, renaissance reference point, this is the machine for you.

Sadly, the TSR24S's manual is not very intuitive, and contains several confusing inaccuracies. For example, the algorithm list gives details of all 32 factory algorithms, which includes several algorithms (27-32, says the manual) not available unless you've got the PPC200 installed. However, the number of algorithms on the unexpanded review model is just 24. So where are algorithms 25 and 26?

## FX (ALMOST) UNLIMITED

It's been said before, but Digitech's S-DISC based (Static/Dynamic Instruction Set Computer) processors produce some of the cleanest, most complex reverbs available in affordable packages. The TSR24S is no exception: its reverbs offer programmability unavailable at this price elsewhere — as an example, the completely OTT ExaVerb preset has an astonishing 28 editable parameters intended to allow you to convincingly recreate acoustic spaces. The reverbs tend to be bright, but not in the metallic way of some Japanese processors, offering clarity and realism instead. The rest of the effects are equally excellent: delays and samples (up to 5 seconds mono; 2.5 seconds stereo) provide subjectively perfect replications of the input signal; choruses and flangers are rich and exciting (perfect for



use, not to mention accurate. You simply alter an instrument's tuning until the strobing vertical bars at the bottom of the LCD stop moving — the tuner automatically detects which note you're trying to tune. The overall tuning reference can be altered between A = 427 and 453, or set to A-flat, G or

guitar processing); and the EQ modules add a good deal of creative potential.

Noise performance is good, and the NR modules help where the nature of the effect adds unwanted noise. We thought the pitch-shifting modules not quite up to the quality offered by the rest of the

## REAL-TIME MIDI CONTROL

As befits a hi-tech product released in 1995, the TSR24S offers comprehensive real-time MIDI control. Any Continuous Controller can be linked to any TSR24S parameter; up to 10 local and 20 Global Controller links are possible. Local links are specific to a particular Program, while Global links are always active — if you assign mod wheel to flanger depth, for instance, that link will work in any program that uses the flanger.

To make the link between Controller and parameter, select a parameter, press the MIDI button, and the link is made. Now choose which Controller will do the

controlling, its operating range, and that's it.

There are one or two anomalies to watch out for. First of all, you can't hear a particular Controller working unless you exit from the MIDI Utility page — awkward. This situation is exacerbated by the lack of a list of Controllers in the manual. If you want to assign mod wheel or foot controller, for example, you'll need to know that they're actually Controller numbers 2 and 4 respectively — and you'll have to look it up elsewhere! Also, while Local CCs are numbered on the TSR24's display (1 to 10), Global CCs are not, so while you're assigning them, you can lose count of how

many you have left.

Apart from some expected parameters exhibiting the 'zipper' effect if altered too quickly (reverb room size, for example), the links work perfectly and add enormously to the creative potential of the unit. Want to gradually lengthen a reverb decay on a fade, or change chorus depth during a track? It's easy with control change linking.

Other MIDI tricks include a Program Change map, SysEx dumping of memory contents, and a MIDI Merge facility that merges data appearing at the MIDI In port with TSR24S data to the MIDI Out.



## TSR24S SPECIFICATION

A/D converter:	18-bit, 128x oversampling delta sigma.
D/A converter:	18-bit PCM.
Sampling frequency:	48kHz.
Digital signal path:	24-bit.
Internal data path:	48-bit.
Input:	4 quarter-inch balanced jacks.
Output:	4 quarter-inch balanced jacks.
Frequency response:	20Hz-20kHz.
Signal-to-noise ratio:	90dB.
Factory memories:	24 algorithms, 112 programs.
User memories:	32 algorithms, 128 programs.
FX groups:	Reverb, Delay, Chorus, Pitch, Sample, EQ, Flange, Mod, More (noise gates, silencers, duckers, wahs, phase inverter), Mix.

effects, which is surprising given Digitech's success with their Vocalist range of harmony processors. Even the Whammy-based effects — derived from the famed digital dive-bomb control found on certain Digitech guitar products — are a little lumpy. However, while we wouldn't use the modules as serious harmony or pitch correction tools — the delays involved and metallic quality are far too obvious — they can be used effectively for guitar processing or sound effects.

### ON REFLECTION...

As a creative tool for the adventurous, the TSR24S scores high. But its complexity and flexibility isn't achieved at the expense of clarity and logic in the operating system, which should be usable



even by relative novices. Creating your own algorithms is an incredibly useful facility, is great fun, and can produce some exciting results; it's a shame that the presets don't fully show how exciting a machine this can be in the hands of a reasonably competent programmer (though Presets 4 'Fantasia Guitar', 5 'Icy Cavern', and 86 'Chorus-8v Med' are notable exceptions). Sound quality is of a high standard, and the character of the TSR's effects is appealing, with enough parameter tweakability to satisfy almost anyone. Expandability via the PPC200 should also help to ensure that the TSR24S stays current and exciting — £250 effectively gives you the processing power of another TSR24S. In short, there's not much wrong with this unit, and the enhancements over the original, coupled with the new lower selling price, mean that it's now an even better buy as an all-round studio workhorse.

505

## FURTHER INFORMATION

- E** TSR24S £799; PPC200 £249.95 (user-installable card). Prices inc VAT.
- A** Arbiter Pro MIDI, Wilberforce Road, London NW9 6AX.
- T** 0181 202 1199.
- F** 0181 202 7076.

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Korg XSDR	£669	£499
MMA Electronics Crossover s/h		£60
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Roland SRV 330 reverb	£149	£350
Roland A220 Midi Separator	£150	£60
Roland RE800 Digital Reverb	£265	£199
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**PAUL WHITE bolts  
Roland's new range of  
synth expander modules  
into his rack, seats  
himself in the comfy  
chair, then switches on.**

**N**ew synth modules are rather like buses — nothing happens for ages, then five come along at once. That's certainly the case with Roland's new Sound Expansion Series, which draws heavily on the JV1080 expansion card sound library to bring us five new rackmount synth modules, each specialising in a different category of musical sound. Four of the five modules appear to be based on the same hardware, and offer similar features, the exception being the M-GS64 GM/GS module, which offers 32 parts, with 64-note polyphony. The four non-GM modules are 8-part multitimbral, 28-note polyphonic, with one of the parts being dedicated

All the models have external stereo jack inputs, allowing sounds from another module to be mixed in — handy if you're running out of mixer channels.

Sounds can be edited via SysEx, but as far as front panel operation is concerned (again with the exception of the M-GS64), you're limited to setting the effects level, pan, and tuning/transposition for each part. This might seem very limiting, if it weren't for the fact that most of the sounds provided are exceptionally good, and eminently usable. Furthermore, you get two banks of sounds with up to 256 presets per module. Even so, had Roland fitted just three knobs for attack, release, and filter brightness (as I've been nagging them to

# INSTANT GRATIFICATION?

## ROLAND SOUND EXPANSION SERIES

to drum, or rhythm sounds. Performance mode (giving you 8 parts with their effects), is available for use with sequencers, or you can select Patch mode, where individual patches are selected as required for live performance. When used with a sequencer, the patches for each part are called up using Program and Bank change messages to access the two sets of 128 patches, and the type of bank change message can be changed if need be. Program changes are used to call up any alternative rhythm

do for the past five years), the end result would have been damned near irresistible!

Physically, I have to say that the units are about as uninspiring as it gets, with drab white legend on a plain black front panel — only the perspex panel around the numeric LED readout lends any sort of colour to the scene. There are just 11 buttons, one volume knob, a headphone jack, and a handful of LEDs to guide you on your way, but then you could argue that as there isn't much editing to do, and you're going to spend more time listening to the modules than looking at them. The same LEDs also serve as MIDI activity



*Roland M-GS64*

### ROLAND SOUND EXPANSION SERIES £499

#### PROS

- Generally excellent sounds.
- Easy operation.
- Good drum and percussion sounds included in each module.

#### CONS

- Lacklustre styling.
- Very limited editing facilities.
- Stereo outputs only.

#### SUMMARY

Exceptionally fine-sounding units, best suited to those who do little or no sound editing. The Vintage and Dance modules are particularly impressive.

or drum sounds in the Drum part, which is initially set to Channel 10, as dictated by convention. There's also a sound remapping option, which (quoting from the manual), "Offers a selection of sound mappings, so that music data for the General MIDI System/GS Format can be conveniently enjoyed".

So much for the basic theory, but what are the different models and how do they fit into the 'General Scheme of Things'? In no particular order (other than the one in which the modules happen to be stacked in my studio), the cast of thousands comprises the M-GS64 GM/GS module, the M-SE1 String Ensemble, the M-OC1 Orchestra, the M-VS1 Vintage Synth, and the M-DC1 Dance modules.

monitors and sound level meters, and you'll also be happy to know that power comes from a mains lead, not from an unsightly lump of plastic.

On the sound front, I'm pleased to report a satisfactorily low level of background noise, and an overall high technical level of sound quality, although the joins in some of the multisampled sounds show up if you listen for them, especially on the Orchestral module.

### M-GS64

The M-GS64 is the odd unit out, because of its 32-part operation, and this obviously requires two MIDI Ins to enable all the parts to be accessed



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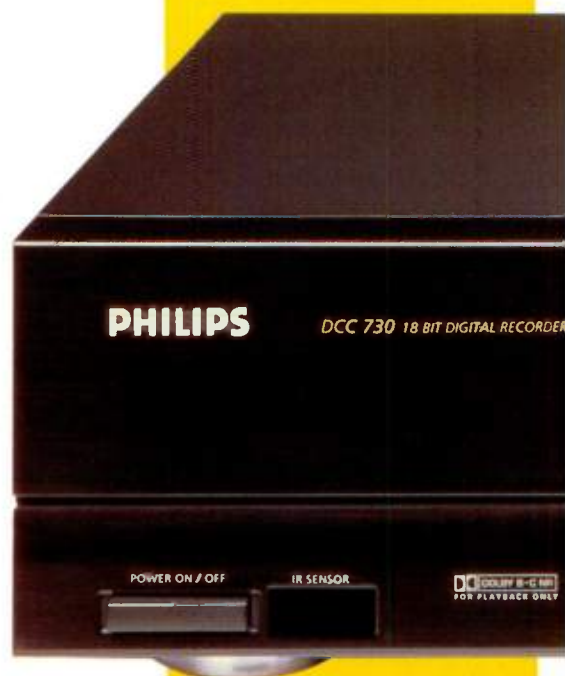
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## ROLAND SOUND EXPANSION SERIES

► simultaneously. To accomplish this without designing new hardware, the three MIDI sockets are simply redesignated MIDI In A and B, with Out and Thru being combined in one socket — all the other modules have conventional In, Out, and Thru arrangements. Of the 32 parts, each can be set for Normal, or Drum operation, and because this is a GM/GS instrument, there are several banks of sounds, bank 000 being the so-called Capital GM sounds. Pressing both arrow buttons flips you to one of the Variation banks, where the GS sounds reside, and although these are all similar to the GM sounds, they are, as the name implies, variations. However, any parts set to Drum will not change, as these have no variations, but there are three complete keyboards of drum sounds from which to choose. Some instrument sounds have more variations than others, and from my interpretation of the patch map in the back

of effect can be used at the same time, such that you could have one type of reverb for your first 16 MIDI channels, and a different one for the remaining 16. In Single mode, all 32 parts pass through the same effects combination, although you can, of course, set different amounts of each effect. In addition to GM and GS operation, you can also switch the module to CM mode for the playback of music recorded using the Roland CM-64 module, and all parameters may be sent as a SysEx bulk dump. This feature is common to all the units in the series, as is the facility to mute unused parts.

Soundwise, the M-GS64 is comparable to the Roland Sound Canvas series of instruments, which I've always thought to be amongst the most competent GM modules around. I have to admit that I can't get too excited about GM sounds, but because this instrument includes resonant filters, some impressive variations can be

Roland M-SE1.



of the manual, the greatest number of variations I could find for a sound was 14 — although there may be more if you look hard enough.

All the modules have a simple editing system, where a 4 x 4 matrix of LEDs and parameter names is navigated using the Select and F1-4 buttons, and whichever parameter is in the sights may then be changed by using the arrow buttons. On the M-GS64, there are five sets of edit matrices which may be stepped through, but as the front panel legend only refers to the first set of parameters, a piece of paper with the other four sets on is pretty much essential if you're not to spend the whole time with the manual in your lap. This makes a total of 80 editable parameters, including envelope, modulation and filter settings, so you can get into very serious editing if you feel the need.

There are two main modes of operation: Single Module Mode, and Double Module Mode. In Double Module Mode, two types

programmed. In purely practical terms, if you run any sort of commercial facility, you need at least one GM instrument to satisfy client requirements, and in this context, the M-GS64 is particularly good, especially if you only need to edit occasionally.

### M-SE1 STRING ENSEMBLE

As the name implies, the M-SE1 is in the business of producing string sounds, most of which are emulations of the real thing, but there are also some synth strings, as well as a few horn sounds and general pads. The Rhythm part includes quite a lot of orchestral percussion, including timpani, triangles, tambourines and so on, but the notes from F sharp 3 up are all harp samples, which could be useful. Many of the string patches include a special legato feature, denoted by a letter 'L' to the left of the display. If a new note is depressed before the original is released while in one of these patches, the attack portion of the note is not retriggered, making the string patches sound more





Roland M-OC1.

realistic. To make the sound more exciting, a dozen or more of the patches are treated with Roland's RSS 3D enhancement system, which gives them a very wide stereo spread.

All the orchestral string members are well represented, both in solo and ensemble form where applicable, and there's enough variation of attack and release characteristics that you can nearly always find a sound that's exactly right. As stated earlier, you can modify the patches via SysEx, but until a suitable piece of software appears to do the job for you, it's a pretty heavy-duty task.

The string sounds on offer are exceptionally usable, ranging from accurate orchestral simulations to silky analogue string pads, and ethereal patches that barely qualify as strings at all. If you use a lot of strings in your compositions, and you just want to be able to grab off-the-shelf sounds without having to edit, then you might find this the ideal module, although I feel the Orchestral module is perhaps a little more flexible, albeit at the expense of quite such a wide choice of string sounds.

### M-OC1 ORCHESTRA

No RSS or legato modes this time, but you do get the full gamut of orchestral instruments, and a good orchestral percussion section, including timps, orchestral snares, wood blocks, triangles, tubular bells, and castanets to name but a few.

Most of the orchestral sounds are very usable, although I found that both the flutes and tubular bells were rather 'fluffy' sounding — the flute, in particular, sounded rather synthetic. In this respect, the Proteus 2 module makes a far better job of realism as far as my ears go. The string and brass sounds fare much better, and when it comes to orchestral hits and stabs, there's a choice of six in major, minor and diminished variations. Several percussion effects are included in the standard patch list, including snare and bass drum rolls, a gong, and even sleigh bells and church bells. On the whole, this module is mainly good news, with just a few weak examples

letting it down, but as you'd expect from Roland, the string and brass sounds are excellent.

### M-VS1 VINTAGE SYNTH

I have to admit that this is my favourite module in the series, and even though I own an Oberheim Matrix 1000, I find the M-VS1 far more to my liking. What's more, the M-VS1 is multitimbral and seriously polyphonic, whereas the Matrix 1000 is only 6-voice. On top of that you get the drum section, which provides a choice of six different kits, with a good mix of standard drum machine voices, plus popular classics such as 808, 909, and other electronic sounds.

The synth sounds are drawn from the back catalogue of Roland synths, including the Jupiter 8, D50 and SH101, but there are also sounds from ARP, Oberheim and Moog, as well as classic Hammond-type organs, Mellotrons, vocoder choirs, and one or two digital instruments. You also get TB303 bass sounds, JX3Ps, and pads made up from layers of different instruments. The individual sounds can be categorised as synth strings, general pads, bass sounds, and resonant 'thwicks' with plenty of filter movement. Again, add attack, release and filter brightness knobs, and this would be a synth to gnaw your own back leg off for, but even as it stands, it sounds simply *stunning* — it is

### ROLAND VERSUS EMU?

You could easily jump to the conclusion that this series is Roland's response to Emu's very successful Proteus series, and in some ways it is, but there are some very big differences. Although Roland's modules are somewhat less expensive than the Proteus modules, they are effectively based on preset sounds, the internal effects are limited to basic chorus and reverb, and all the sounds are mixed to a stereo output. The only exception is the M-GS64, which offers rather more editing control, and has delay and EQ effects, as well as reverb and chorus.



Roland M-VS1.



# ROLAND SOUND EXPANSION SERIES

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The drum section offers 10 different kits, which include quite a lot of electronic sounds drawn from the TR808, 909, and Roland Compurhythm sets. Even now I can feel my credit card doing its best to levitate out of my back pocket!

### M-DC1

Finally comes the M-DC1 Dance module, which, I must admit, was rather more impressive than I'd anticipated. In addition to the obvious armoury of dance synth sounds and scratches, you get around 50 stereo drum loops (complete with bpm), vocal

other than on the M-GS64 GM/GS synth. The retail price of £499 would have been easier to swallow if some rudimentary edit knobs had been included on the front panel, even if they only let you tweak the envelope and brightness, and I also feel the displays are rather inadequate — we have come to expect patch names on an illuminated LCD, leaving these numeric LEDs feeling rather second class.

Even so, I feel that the Dance and Vintage modules offer great value, but the Orchestral and Strings modules are less competitive when you compare them to something like a Proteus 2, which, to my ears, sounds rather more accurate. Perhaps Roland would have done better to combine the two units, and add a World Sounds module to the range instead? The M-GS64 is obviously good value, with its massive polyphony and good range of GM/GS sounds, but even though you can edit pretty much everything, the actual editing system is rather clunky. Some users may also find that having just a stereo output is limiting.

On the benefits side, I think the drum and percussion sections are excellent, especially on the Dance module, where you get instant access to all those classic beatbox sounds, as well as to more drum loops, and conventional acoustic drum sounds. The Vintage synth drum section is pretty good too, and one thing that did surprise me is the sheer number of drum voices available — they almost go so far as to rival stand-alone drum machines.

So, the final verdict? If you are one of those people who avoids editing at all costs, then these units do offer a wide range of immensely useful sounds in an easy access, success-on-a-plate format. There are very few duff sounds in any of the modules, and as intimated earlier, the Vintage module is quite superb, and worth every penny, simply because it delivers the best of analogue and vintage digital sounds with multitimbrality and plenty of polyphony. Similarly, the Dance module is, to the best of my knowledge, unique within its price range, and the sounds provided are spot on. The loops in particular are well chosen and well sampled.

If you're a habitual patch tweaker, and living in preset land isn't your idea of heaven, or if you're in the market for more than one or two of these modules, then you might consider buying a JV1080 instead, and adding the appropriate expander cards.

**SOS**

Roland M-DC1.



snatches, and numerous hits and stabs. Most of the loops provide instant inspiration to get you writing, and even if you don't wear a baseball cap pointing in the direction from which you've just come, the rhythms are very compulsive. The sound quality of the loops is deliberately varied, from grungy and crunchy, to tight and bright, with at least one example being adorned with vinyl scratchiness. There are plenty of ambient-sounding synth textures, as well as the inevitable house pianos, filter swept 'thrips' and 'zwees', and cheesy organ pads, so there's plenty of scope here for composing other styles of music too.

As you might expect, the drum side of things features a lot of 909 sounds, as well as latin percussion, vocal oohs and ahs, breath noises, and things not unlike neutron bombs being let off inside garages with metal up-and-over doors. For those who want to make dance or rap music, but don't have access to a sampler, or who simply want to get their ideas out fast, this is a great module with lots of creative potential. As far as I'm aware, there's nothing quite like it at the price, so whatever else it does, it makes the composition of dance music much more affordable.

### CONCLUSION

Although I love the sounds, I don't feel entirely comfortable with all these modules, mainly because of the lack of any serious editing facilities

*"I think the drum and percussion sections are excellent, especially on the Dance module, where you get instant access to all those classic beatbox sounds"*

### FURTHER INFORMATION

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- Sound Control, Unit 5, The Red Rose Centre, Regent Rd, SALFORD, M5 3GR, Tel: 0161-877 6262;
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**X-Static 1 - REMIXOLOGY** The XXXX-Largest CD ever?? 4000 samples from the now deleted X-STATIC GOLDMINE 1 and XL-1. If you don't own these two classics then this new CD is essential! All of the 600+ loops are now tempo-mapped for ease of use. Choose any of 4 formats at the same price!!! - Audio CD, or Akai S1000/ Roland/PC 'WAV' CD-ROM. At £59.95 it's got to be the best value dance CD-ROM ever!! **Audio CD: £59.95, CD-ROM: only £59.95!** Also coming soon: "The X-Files of Jungle" - call for details!

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**Zero-0 JUNGLE WARFARE** NEW from ZERO-G, hardcore guerrilla dancefloor ammo for speed freaks. The world's first jungle sample CD. Massive collection of ultra-fast grooves, construction kits & samples - a lethal dance production weapon in the right hands. If you need Jungle this has to be on your unmissable list. Features: • Special jungle loops (ready transformed & cut up, 4-38 bars, 155-164 bpm) • Raw loops (all 4 bars, 160 bpm) • Massive drum rolls & mega fills • Jungle Percussion Loops and Kits of samples • Intense Pads & Chords • In-ner-face-Bass Notes • Manic Jungle FX • Nasty Vocals. **Audio CD: £59.95**

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**VIRTUAL ZONE**. New from Germany. The new generation of synth sounds: features CLAVIA NORDLEAD, YAMAHA VL-1, KORG WAVEDRUM, ROLAND VG-8. More than 1000 stereo samples, including drums & percussion, leads, bass sequencer & hookline sounds, pads & synth FX. **Audio CD: £59.95**



**FUNKY A88 LOOPS** Brand new from East-West, & produced by the New Power Generation (they do all the drums & programming for Prince). "Seriously HOT!! 5 stars for content, 5 for value and 5 for sound quality" (Keyboard, USA). This super-funky disc from the USA will prove to be the "inspiration for many hits. All grooves played live - but not just with traditional drums - you won't believe the sounds used, and you get all the separate component samples as well. Out now on **audio CD: £59.95 or CD-ROM: £149**

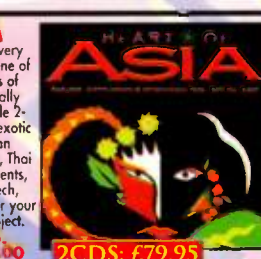


**TECHNO TOOLBOX** This techno CD stands out from the crowd by going direct to the source: it features the sample libraries of Germany's most respected Techno producers including Eye Q, Harthouse/ Rolf Hildenbeutel, Jam El Mar (Jam&Spoon, Dance2Trance), Cel Merlin (Spacetrax, Energised), Genlog, and more. This product literally gives you the coveted key sounds of many of the world's top techno producers: custom drum, synth, bass, loop samples. "Within the first 3 minutes of this CD I had goosebumps" (Frontpage Mag, Germany); "in (magazine, UK). **Audio CD: £59.95**

**YOU ALSO GET** the Time+Space 200 Mb Showcase CD-ROM (Akai S1000) FREE with your 1st CD-ROM order!!\* (excluding with "NOW! CD-ROM" or any PC 'WAV' format CD-ROMs) - it's got over 200MB of samples from existing products. \*(Offers limited to one CD per order, and one of each title per household, while stocks last).



**HEART OF ASIA** The only product to get 5 stars in every magazine in UK, US & Germany!! One of the most comprehensive collections of Asian instruments & phrases. Digitally recorded in the field, this remarkable 2-disc set includes over 1 gigabyte of exotic Chinese, Malay, Nepalese, Tibetan Javanese, Hindi, Sanskrit, Mandarin, Thai & Indian samples, including instruments, phrases, opera divas, chants, speech, gamelan orchestra, monks. Perfect for your next film score, album or remix project. **Audio 1CD set: £79.95, CD-ROM 2CD set: £299.00**



**MIND CONTROL** "MIND CONTROL" is a new 3-CD package from Californian developer DIGITAL KITCHEN (who brought you 'Definitive Grooves' & 'Funky Rhythms You Can't Live Without'). Features over 3 hours of mind-blowing industrial loops & samples - all original & seriously off-the-wall yet usable material - for only £59.95 inclusive. **3-CD PACK: £59.95**



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**SUPREME BEATS VOLUME 5, 4 CD-ROMs** The most comprehensive library of percussion grooves & instruments ever developed, featuring percussionists from all over the world. This highly acclaimed library is now available on 2 CD-ROMs: 1: AFRICAN/ CONTEMPORARY & 2: WORLD/ DANCE. "A feast of human feel, energy & emotion... a knockout... Supreme Beats is a winner, 20 stars out of 20." (Keyboard, USA). **Audio Vols 1-4: 4-CD boxes set: £199. Audio Vols 5 NEW! £59.95. CD-ROM Vol 1: £149, Vol 2: £149 CD-ROM versions include all the sounds from Vols 1-5 onto 2 CDs.**



**WEST COAST FUNKY STEV** NEW! A 2-CD set from Big Fish Audio in the USA. Featuring L.A.'s top Funk session players, and produced by a top US rap engineer. Over 1000 Drum, Bass, Guitar, Horn, Keyboard and Vocal loops & samples with a deeply funky flavour. **Audio 2-CD Set: £59.95**



**CLASSICAL WILD TAKES** In the same vein as "Orchestral Colours" but perhaps more FX orientated, this is another superb selection of orchestral stings, phrases and orchestral effects samples for use in film, broadcast and any music requiring that big, expensive and professional orchestral sound. From a different German developer, but, like "Orchestral Colours" this CD is also superbly recorded and presented. **Audio CD: £59.95**

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**X-STATIC GOLDMINE 3.** Massive selection of Hip-hop, Ragga, Techno/hardcore, etc. This disc is PURE Dance in the tradition of the original X-Static Goldmine. Usability and credibility of this disc is well up to usual standards. An essential studio item for dance producers. • Audio CD: £59.95. Akai CD-ROM: £149.00 (includes audio CD).

**XX-LARGE THE KILLER.** Over 100 minutes (different samples on L & R tracks). 750 synths, chords, organs, voices, pads, Techno/Trance hooks, 250 Bases, 750 Drumloops (80% stereo, tuned and grouped into BPMs from 130-200 BPM), Analog Drum Machines (adjusted to every possible variation). "Really good value". • Audio CD: £59.95. Akai CD-ROM: £149.00.

**PHAT & PHUNKY.** Another dynamite 2-CD set from East-West in the USA: Over 2000 samples on 2 CDs: Includes 165 grooves, each with all its component samples provided separately (not just drums but all instruments used, together with the sequence data for each loop on a separate MIDI-file floppy disc (PLEASE STATE ATARI/IBM or MAC version when ordering). This arrangement gives you complete flexibility to customize all loops to any tempo or content you like. 2-CD audio set: £59.95.

**NEW WORLD BEATS.** January 91. Fantastic Collection of Ethnic & Percussion loops, Tribal Rhythms, Kizomba, Talking Drums, Daf & Dumbek loops, Calypso, Reggae, Haitian Vodou, Afro-Cuban, Congas & Bongos, Latin Funk, Tabla loops, Indian Ensemble, Taiko and other Rhythms from Japan, Bodhran & Bones from Ireland, Street Beats & Shuffles from Texas & New Orleans. Amazing!! All original recordings. • Audio CD: £59.95. Akai CD-ROM: £149.00.

**FUNK GUITAR** by VLAD NASLAS. The Definitive Sample CD for Classic Dance Guitar. Rhythms FX collection. • Audio CD: £59.95. Akai CD-ROM: £149.00.

**DANCE / INDUSTRIAL 1.** Double CD! Loops, plus all the component percussion elements used to make them, plus their programming on an accompanying MIDI-file floppy disk. A very professional approach from East-West (USA). • Audio CD: £59.95. Akai CD-ROM: £149.00.

**STEVE STEVENS GUITAR SAMPLES (EAST-WEST, USA):** Renowned for his guitar work with Billy Idol, Steve has delivered all the trademark sounds that made him famous, plus awesome guitar FX. The sound quality is immaculate. Majority of the CD is multi-sampled and has been thoroughly tested for playability on a keyboard. Out now: • Audio CD: £59.95. Akai CD-ROM: £149.00.

**SYNCLAYER LIBRARY.** Highly coveted collection previously only available to Synclayer owners. A series of 5 CD-ROMs in Akai, Roland or SampleCell formats and possibly Kurzweil by the time you read this: Vol.1: Strings. Vol.2: Essential Percussion. Vol.3: World & Orchestral Percussion. Vol.4: Keys & Guitars. Vol.5: Brass & Winds. We rate these discs very highly. Impeccable reviews in press! Definitely recommended!

**WORLD COLOURS.** 2-CD pack from Best Service. Unique and exotic! Gipsy & Folk grooves etc, authentic in rhythm & feeling, featuring Banjo, Mandolin, Hackbrett, Guitars, Accordion, Zimbalon, incl. multisamples, grooves, riffs, hits & Flamenco Steps & Claps. Grooves, vocals & chants. Also Indian star grooves, & Bolivian voices & rituals. • Audio CD: £59.95. Akai CD-ROM: £149.00.

**GIGAPACK 1 & 2.** 2 DOUBLE CD-ROM PACKAGES: Mantrous! Over a gig of mind-blowing sounds on each 2-CD-ROM collection, all laid out on the keys for Roland 700-series samplers. Gigapack 1 includes "Classical Chords" library, and Gigapack 2 includes the new "Hallelujah" library! Also now available: Best of Gigapack Vols. 1 & 2 for Kurzweil £2900! (£2279).

**PAUL SINDOLAK'S ORCHESTRAL COLOURS.** Sindolac's name means pure class. Rich & evocative orchestral samples to bring colour & inspiration to your music: • Hits & Finales • Moods & Timbres • Orchestral layers, chords, arpeggios, tremolos & Glissandos • Runs & Sequences. A film composers dream. "Quality is impeccable. You have never been able to create such subtle orchestral textures in cheaply before." • Audio CD: £59.95. Akai CD-ROM: £149.00.

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**FUNKY RHYTHMS YOU CAN'T LIVE WITHOUT** From USA, a huge slice of hot sampleable FUNK! - a great weapon for hip-hop, house, hardcore & drum production. All new, original, license-free stereo DRUM loops plus 100's of original Funky BASS loops - over 900 bars in total. Most loops are 2 bars (standard feel plus variation for breakdown). • Audio CD: £59.95.

**ANALOG TO DIGITAL VOL. 2: "A2D2".** Raved about by Dance producers for its usability and versatility for everything from Ambient/Trance to the hardest of Hardcore Techno. • Atmospheres • Loops and Tunes • Drums and Percussion • Keyboards and Synths • Pads and Moods • Special Effects • Waveforms • 708 Samples • 79 minutes. • Audio CD: £59.95. PC WAV CD-ROM: £29.95 each (Akai coming soon).

**AMHENT VOL. 2.** THE SEQUEL by IAN BODDY, which achieved a ★★★★★ five-star review in both Sound on Sound (UK) & Keyboard (USA). Comes very highly recommended. A wealth of synth FX, atmospheres & textures from one of the UK's leading synthists. • Audio CD: £59.95. PC WAV CD-ROM: £29.95 each. AND NOW ALSO ON AKAI CD-ROM VOLUMES 1 & 2, BOTH ON ONE CD-ROM - SAVING FOR ONLY £149.

**GOTA YASHIKI'S "GROOVE ACTIVATOR".** Brand new Drum & Percussion grooves, chops & fills. Gota's work with the likes of Soul II Soul, Bomb The Bass, & Simply Red is already part of pop folklore. His ability to make machines groove is legendary. This CD is very different, and a guaranteed source of inspiration. Quality, originality and creativity of the first order. • Audio CD: £59.95.

**PHANTOM HORNS.** ★★★★★ Five Star! 1995. The world's best & classiest horn sample library featuring the dynamic sounds of the UK's most in-demand horn section, John Thirkell & Gary Barnard, whose album credits read like a who's who of megastars. Packed with riffs, hits, swells and all the other horn elements you'll need to add real brass impact to your tracks. The best horn CD! • Audio CD: £59.95.

**HANS ZIMMER GUITARS.** From internationally acclaimed film composer Hans Zimmer, powerful guitar textures (incredibly detailed and expressive!) Ranges from pristine acoustics to £90000 electric. Also massive rock guitar grooves each presented in every key and at various tempos. This library contributed to the sonic success of many films incl. The Lion King, Cool Runnings, True Romance, etc. A must-have for any serious sample collector. • Audio CD: £59.95. Akai CD-ROM: £149.00.

**DRUM TOOLS.** LIVE Rock & Pop Loops. Very flexible. Tempo Sets, Inspiration Grooves & Individual Hits to allow flow and natural feel. 4/4 Straight, 4/4 Shuffled, 6/8, Blues, Brushy Big Section of Inspiration Grooves. Full Loops (8D, SD & Hat/Ride), Fills, Separate Hat & Ride Loops, Perc Loops & Flams. By people from the Roxette team. • Audio CD: £59.95. NEW: Now also on Akai CD-ROM: £149.00.

**PETER SEDLACEK'S CLASSICAL CHORDS.** From Czechoslovakia comes an incredibly haunting-inspiring set of vocal sounds. Awesome vocal power. An absolute masterpiece. (Sound on Sound). • Audio CD: £59.95. Akai CD-ROM: £149.00.

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**REXIEE JACK SWING FROM BLACKBERRY.** "Inspired collection of fantastically original & powerful swingbeat, rap & reggae grooves & loops... sheer quality & musicianship of programming... a CD of remarkable subtlety: 5 stars" (S.O.S., July '95). Features: 23 Split Loops (8 & 5 versions of each), 29 Composite Loops (a minute each, building from basic loop), Vocal Bites. 53 tracks. • Audio CD: £59.95.

**ZERO-G ETHNIC 1 "Tribes".** ★★★★★ 1995. Another exotic set of samples by the Paradise Organisation who roamed Africa, India and the far east for 2 years in pursuit of material for this new disc. All samples are recorded "in the field" and it's dynamite. An enormous collection of ethnic vocals, rhythms and instrument riffs. • Audio CD (includes 1 & 2): £59.95 each. NEW: Akai CD-ROM (includes both volumes 1 & 2): £149.

**TECHNO/INDUSTRIAL.** From the producers of the 5-star Rated sample CD Technophobia! 5 stars for content, value & sound quality! (Keyboard, USA). Loops, kicks, snares, sound effects, industrial percussion noises, vocoder, basses and synths. Out now £59.95 (CD-ROM versions coming soon).

**New York City DRUMWORKS.** 2-CD pack featuring 6 of NY's finest session drummers: 1252 samples, 735 loops, 517 hits, 100% copyright - cleared for your use. 146 minutes of awesome rhythm played by guys whose credits include stacks of megastars. Funk, rock, house, hip-hop, latin, cajon, R&B, Brazilian, rock-a-billy, African, Reggae, swing, gospel, country. 32-page book has precise index & timing info. • Audio CD: £59.95.

**BROTHERHOOD.** New from Big Fish Audio in the USA. Ruthlessly authentic Hip Hop grooves direct from the streets and studios where the future sound of LA. Hip Hop is being created every day. According to Big Fish Audio, "Brotherhood" is the disc that strikes fear in the hearts of the majority who settle for less than authenticity - so don't get jacked by Whack-Ass imitations". • Audio CD: £59.95.

**FUNKY ELEMENTS CD-ROM.** Both audio CD volumes have now been combined to make one CD-ROM (Over 5000 / Over 1500 samples) - all mapped out on the keys and programmed into killer patches ready to play. Fat with feel, this disc is guaranteed to serve up all that funk sound. Essential for all retro-funksters. ★★★★★ Five Star review. Loops, drums, horns, guitars, all you need. A best selling library. Akai, Roland or SampleCell CD-ROMs OUT NOW! £149.00.

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There are 2 Circle Elements CD-ROMs available in the UK. Each includes the software, plus Circle Vol. 1: "Inter Galactic" includes over 1000 discs and electronic samples, and Circle Vol. 2: "Planet Earth" includes over 1000 natural sound effects and musical instrument sounds. • Only £29.95 each including VAT.

Get BOTH titles for only £49.95 including VAT (see £110.00). To use Circle Elements you need either a PC 386 computer or better & Akai 8RAM or better & Windows 3.1 & Soundcard & 16 bit & CD-ROM drive or a Mac computer with 68020 Processor or better & 4MB RAM or better & CD-ROM drive.

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## THOMAS KUNZE

**Recording Venue:** Home.

**Recording Equipment:** Yamaha MT2X 4-track, Yamaha AM602 submixer, MIDIman smart sync, Yamaha FX500 effects, Boss RRV10 effects, Hollis Research GX7 guitar amp simulator, Maplin noise gates, Yamaha QX5 sequencer, Audio Technica microphones, Rotel amp, Mission speakers, Casio DA7 DAT recorder.

Mr Kunze proves once again that excellent mixes can be achieved using minimal multitrack equipment, and running much of the sounds live through a (relatively) simple mixing setup. It seems that the vocals and guitars (acoustic and electric)

Punctuating this upper mid to high frequency space are progressive changes in sound, and sometimes long delay effects — for example, an in-tempo, pre-delayed backwards reverb is used to good effect on a short percussive synth sound (a cross between flute and marimba). The addition of a very mellow slide guitar is a masterly stroke, and fortunately Thomas has resisted the temptation to add treble for clarity, as the organic texture of guitar and keyboard already work well together.

The second feather in Mr Kunze's cap is his sheer musicality. He brings dynamics into his writing, so that his compositions are full of light and shade. Witness the addition of the vocal as sound texture, treated with modulation

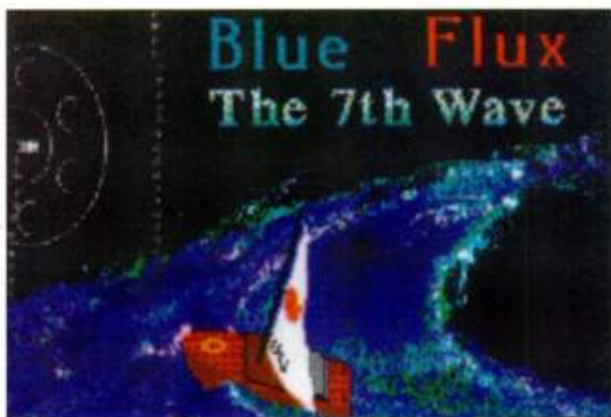
in a way that makes it flow into the ethereal pad at the climax of the piece, to be followed by a sharp snare hit.

With little success for his endeavours, one

## top tape

are the only sounds committed to tape, and their glassy timbres disprove the myth of the portastudio as a low bandwidth recorder.

Two things set the instrumental endeavours of this demo apart from the many others we receive. The standard of mixing, which is consistently excellent and undoubtedly a result of the choice of sounds, and the way they fit together on the musical canvas. A fine example of this can be found on the second composition, entitled 'The 7th Wave'. Here, a melodic synthesized cello arrangement occupies the lower mid and upper bass frequencies, and a sympathetic, warm reverb helps fill out this area of the sound space. The lack of top end on the cello reverb means there is more space for the counter-melodies in the upper mids and treble, and, when necessary, a thinned-out ethereal pad occupies the space between.



wonders whether Thomas Kunze is hitting the right record companies with his material — perhaps this review can help redress the balance a little. □

## THE HIPPY CORPORATION

**Recording Venue:** Home.

**Recording Equipment:** 386SX PC with Cadenza (DOS) software, Roland SCC1 soundcard, Casio FZ1 sampler, Alesis effects.

Not without irony, the name of this band alludes to the age of the composers, who claim to have started off in a rock n'roll band 20 years ago — I won't let it jaundice my review, though!

The opening track of THC's demo *Virtual Jazz* is not so much jazz, as good fun music with some township influence in the brass and phrasing of the synthesized, or sampled, accordion. A soft sound sets the production apart from the solo sounds, which are hard and digital. I consider this a bit of a mistake, as

the solo synthesizer seems divorced from the backing, which consists of soft, rolling analogue bass, mellow piano, and pad synth.

On the second track, it's nice to

hear some structured soloing over a nice groove again, and I like the way that the guys change the instrumental emphasis. The sampled female vocal (which I found rather

muddy, although treated with a tasteful repeat echo), works best in question and answer phrasing with the Hawaiian guitar at the end of the track.

After that little bit of fun, it seems time to get serious for the frenetic 'Virtual Jazz', where some jazz rock guitar, dexterous keyboard soloing, and brass stabs sit above a repetitive bass and drum groove. Here, the drum programming really makes it, as the bass is merely a single bar loop for most of the piece. Some sub-bass accenting would have been nice — something with the weight that the band have achieved on the fourth track ('San FranDisco'), would do very nicely. □





## TRIP TO ATLANTIS

**Recording Venue:** Home?

**Recording Equipment:** 486 PC running PassportMaster Tracks Pro and Wave for Windows, Alesis Microverb effects, Spirit Folio mixer, Boss SE50 multi-effects.

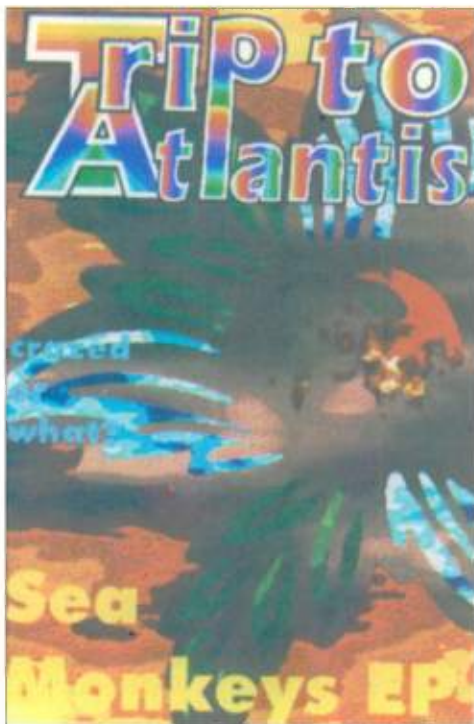
Despite the dubious name, this album is rather well arranged and mixed, and obviously the mellow night-work of a group who hate mornings has borne musical fruit.

The band describe their first track as 'Highly danceable with excellent tribal wails and shouts thrown in', and this is a pretty apt description. I would have liked to have heard more of these 'tribal wails', and been given some idea of their source. The fast repetitive beat is hypnotic, and although the swirling, modulated pad is fairly standard fare, the sampled (or programmed) melodeon part really made it for me.

The second track uses samples drawn from the space shuttle astronauts' description of the Hubble mission, although why it is entitled 'Sweeping Statements on Grumpfish', I can't work out — perhaps it's better left to the imagination. As with the first track, the mix is somewhat bass-light, although the instrumental balance is generally good. Played on a system with sub-bass, I wonder if there would be anything to boost, but then I don't have one, so I can't test that theory!

'Sky Mist is Better' is, for me, the best of three good mixes. The bass end is warm

and deep, and the top end more spiky and cold in places, but maybe this just a reflection of the title. A short gurgling water sample is used sparingly but effectively, and the fade-in of the drum track from EQ-squeezed radio size to normal was a nice touch. Trip to Atlantis are currently on the gig trail, possibly in collaboration with other bands — so look out for them. □



*Readers submitting demo tapes should note that SOS regards the inclusion of photos or artwork with demos as permission for the magazine to reproduce this material free of charge, as illustration, with any review of the accompanying tape.*

## DAVID EYRES

**Recording Venue:** Home.

**Recording Equipment:** Tascam MM200 mixer, Atari STE 1040 computer running Notator, Roland GR50 guitar synth.

The influence of world music on every style of demo we receive (with the exception of heavy rock) has been substantial over the past two to three years. David Eyres doesn't really bring anything new to this influence, but attempts to wrap it up for the so-called new age market.

It is surprising that the opening section of the composition is neither mellow nor meditative, but quite dour and unsettling, with a choice of heavy chiming sounds set against a background of interweaving synth marimba, and some dissonant chord voicings. I liked the way the marimba changed into a drum pattern, probably achieved via a MIDI channel change in Notator.

The production does suffer from a lack of effects, most notably in the reverb department, and this leads to a loss of flow in the string lines. I could be wrong, but I'm sure that in common with most Roland products, the GR50 has built-in effects. The use of the GR50 may account for some of the stilted playing, and I think that this should really have been ironed out with Notator. The places where the synth works best are, surprisingly, on the percussive sounds, like the banjo sound masquerading as an Eastern stringed instrument. David could have been much more adventurous with the tuning here, by going for some quarter tone runs, using the pitch-bend capabilities of the GR50. As it is, he has kept to Western scaling, but attempted to use some minor harmonic runs, resulting in a rather half-baked sound. □

## TOMSETT

**Recording Venue:** Home.

**Recording Equipment:** Tascam 388 8-track, Studiomaster mixer, Aiwa cassette deck, Yamaha SPX90 multi-effects, Alesis Microverb II effects, Yamaha 3030 compressor, Roland MC300 sequencer, Tandy PZM and Shure microphones.

Nigel Tomsett has played with various rock bands around London in search of a deal, and has finally ended up going it alone. While this situation is okay for songwriting, Nigel's style of well-crafted rock music will one day need to have a band behind it. I'm not surprised that record companies have shown an interest in Nigel's music, because it is good stuff, but in the current chart climate (second rate Kinks songs at Number 1, anyone?), his material will not stand a chance. My advice is to try abroad (particularly America).

The opening track is an opus of a production that is dense without losing the power. The vocals are strong, in tune and well expressed, without sounding transatlantic or overtly rock, and there are some nice harmonies on the chorus. I particularly liked the climbing guitar line towards the end, and what was a strong, but never clichéd, guitar solo, chordally structured, rather than soaringly indulgent.

A short vocal reverb, delay, and some sort of modulation gives the vocal on the second track a rather '80s feel, while a heavy keyboard chordal structure modulates from minor to major in sympathy (reminiscent in style of Howard Jones). Ending up in a vocal round, the song becomes somewhat ponderous with power chords, counter string melodies, heavy chords, and a multi-vocal fighting for space, yet this is the dense style of production which Nigel is obviously comfortable with. □



As an incentive to send in your best demos, 3M are kindly providing prizes for the best tape submitted each month. The lucky winner has a choice of: 20 Scotch XSII-S high-bias C60 cassettes, 10 3M DAT 90 digital cassettes, five reels of 3M 996 quarter-inch tape, three reels of 3M 996 half-inch tape or two reels of 3M 996 one-inch tape. Designed to accept very high recording levels without distortion, 3M 996 tape is packed on precision NAB reels and comes in tough, attractive library cases.



**THE DETAILS:** a rather disappointing rock n'roll mix from main Details man Dugald Summerville; there's no weight in the bass end for the opening track, entitled 'Texas'. Energy and fun go in its favour, and this can also be said for the rest of Dugald's own recordings (especially the second track, where he toys with avant-garde jazz). The clean guitar sound is good here, but the overdriven one lacks body. The third track is by far the best, in terms of both composition and mix, but then this was recorded in a pro studio in Manchester.

**FOUR ON THE FLOOR:** no prizes for guessing the musical style, but despite the rather overt name, the quality of the recording is excellent.

What a shame this is not a home demo; but then I expect most of the pre-production work on *Cubase* was carried out in the writer's domicile. The sounds sit well in the mix due to a good choice of pan, effect and timbre, and this band have certainly succeeded in their aim to produce danceable music.

**ORGANIC FLOOR CLEANER:** laid down in one

continuous mix, Organic's collaboration with Leicester's ambient clubsters, Section 47, shows a good grasp of knob twiddling, Roland W30 filtering, and editing of break bass lines. The short delay effects work well, and at one time I thought that I was listening to the Great British Spring reverb in action — it turns out to have been a short delay with lots of feedback.

Winners of one of the Leicester 'Live at the Y' competitions, **STRAWHEAD** throw in a few production tricks, such as cutting to distorted vocal for one line while muting everything else. This is not strictly necessary, as these Beatles/Levellers-style songs are of sufficient quality to stand up without the tricks. That aside,

the overall production sound of the tape is a bit hit-and-miss, with an over-treble acoustic guitar, and a dull drum sound on the first track. This improves on the second song, to match the fine garage band guitar sounds, complete

with tremolo, overdriven pickup switching (in the style of The Who), and clanging, clean chords. Good stuff!

**STEVE REES:** Steve gets a bit carried away with short reverb on the first track, probably a result of working on the club and pub scene, where it seems to be a requirement. The songs are thematically sound, dealing with drugs and emotional repression, but rather overcooked in production style. Strings and orchestral textures weigh the first track down, and also make an appearance on the second track's chorus. I'd suggest trying some different instrumentation — for example, the second track has a good, clean guitar part and rhythm — but perhaps the strings should be replaced by some marimba or piano.

**ANDY GOODING:** Andy bewails my lack of interest in ambient music, but still doesn't manage to twist my arm into getting him out of the Quickies column where he has appeared twice before. He is correct in the assumption that his music makes good late-night listening, but its dark nature will lead to bad dreams; hypnotically repetitive, warm synth textures are touched with dissonance from the introduction of higher notes. Still, it's both more lively and demanding than the other material he has submitted.

**SATELLITES OF LOVE:** plenty of vocals in the mix, and a good sound too — so what went wrong with the rest of the track, which is bass-light and fizzy in the top end?

Listening to the second track, I can hardly hear the bass at all, as sounds like shaker, hat and cymbals are much too heavily accentuated. Both the songs and the singer are pretty good, so I'd suggest that you go for a remix — but keep that high vocal level in the mix too.

**ALI BABA MD:** a nice tape, with some good vocal echo treatments, and what a refreshing change to hear someone singing a repetitive line rather than simply triggering a sample. The second composition is the best, with a startling and clever introduction into a fine rolling groove.

With the use of backwards tape effects against a VCF modulated vocal string patch, and impressive use of minimal equipment, Ali's demo is certainly one to watch out for!

**CALI:** the husky vocals and hip-swaying rhythm give this undemanding little ditty the feel of a lazy summer day, which could only have been improved by the harmonising of the

chorus vocals. The combination of melodeon and keyboards sometimes blurs the chords, so it would have been better to pan these instruments hard left and right. Cali's music features a new instrument, the Mandiple, which is a cross between a 12-string guitar and a mandolin. This was difficult to make out in the ensemble, other than as a full-bodied strum, but gave the music definite Latino overtones. How about a Mandiple solo for the next demo?

**JULIAN K. BATCHELOR:** with titles as exciting as 150bpm and 160bpm, Julian has really stripped things down to the bare essentials, yet his sleeve design by Paul 'Aubergine'

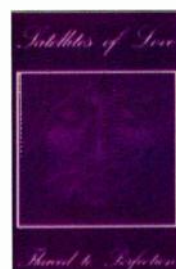
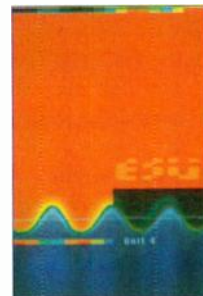
Dunn suggests a more complex personality. The first track has a dub-style bassline and frantic drum programming — sort of 75bpm meets 150 really, and I'm not sure if this sits easily together. The addition of a low marimba sound does indeed help thematically, and I notice that Julian has the knack of taking what could be a mundane dance beat, and embellishing it with ethnic instruments on some of the other compositions.

**CLOWNGUNS:** mixing 'Revolver'-period Beatles with sub-psychedelic grunge is a fair description of what Clownguns are all about, and perhaps they ought to get their tapes off to the companies fast, before this current pop musical fad is finished. The songs are good, but the sounds could be better — for example, there could be more weight in the guitar sound (a Marshall 4x12 miked up, would you believe!).

The bass, although well programmed, would be much more effective if played on a real instrument. To be fair, the second song manages to disguise the fact very well, but the lack of bass end in the guitar doesn't marry well with the coldness of a Korg bass guitar sample. On the positive side, all the playing, drum programming, singing and songs are just right, and an A&R person

shouldn't need anything more.

**MONOWORK:** good programming and use of harsh sounds over a pulsating military-style beat make up the opening track of Jason S's 'Superstate'. I liked the use of reverb, and the placement of the vocals low in the mix, which decreases the clarity of the occasional spoken line, giving it a 'big brother' feel. There is plenty to grab and hold the interest too, with changes in sound and feel. In the second composition, 'Re-source', an example of Jason's grasp of sound production is heard when a long reverb, used on the last hit of a shortened synth snare, leaves its decay tail in an appropriate gap in the music. Finally, the lack of synth presets, and genuine success of Jason's sound programming, makes for a much more original demo. Keep up the good work. □





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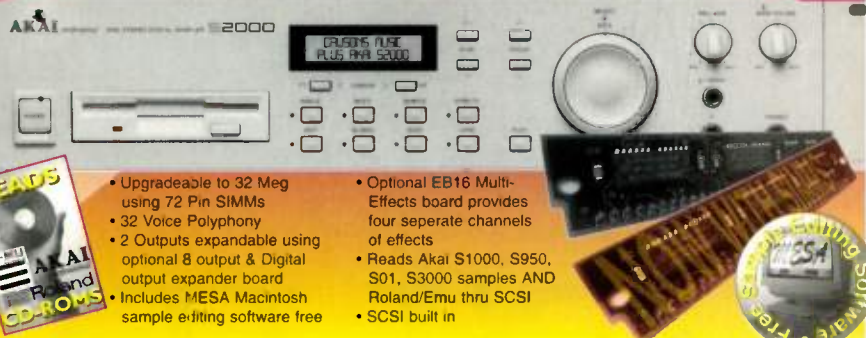
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# DAWSONS



In Part 1 we looked at *Cubase* from a global perspective and also explored the Arrange window. This issue, we'll be using some of the features and keystrokes explained last month first to record, and then to view and manipulate what you've recorded in minute detail in the Key, List and Drum Editors. If you get a bit lost with some of the keystrokes, I'd advise you check out Figure 4 in this article, as well as the 'Keyboard Shortcuts' table (see third page).

the drum or percussion unit in your system by double-clicking on the Track name, or hitting [Alternate] and 'N' together on the computer keyboard, and then entering an appropriate name into the pop-up box. You can also program a guide click from the computer speaker, or set up the *Cubase* metronome to output a MIDI click to an appropriate sound, such as a rimshot; this is done from the Metronome window of the Options menu. The count-in before recording commences is also adjustable. When back in the Arrange

# Getting to Grips with **CUBASE**

## PART 2: STARTING TO RECORD • THE KEY, DRUM & LIST EDITORS

*SIMON MILLWARD continues his fundamental guide to Steinberg's flagship MIDI recording software package.*

window, you turn the click on by ticking the 'click' box or simply pressing 'C' on the computer keyboard. You can then test the click and the selected tempo of *Cubase* by selecting the transport Play button with the mouse, or by using the Enter key on the numeric keypad. The tempo can be adjusted 'on the fly' if necessary, by clicking the left and right mouse buttons in the tempo box of the transport bar, or by clicking the '+' and '-' keys of the Numeric Keypad.

When you are ready to record, return to Bar 1.1.0 of the Arrange window, set the left and right locators by clicking with the left and right mouse buttons on the bar line above the arrangement area, and select 'Cycle' in the transport bar using the mouse or the '/' key.

Some readers may consider all this far too much trouble just to put what is essentially a machine into the correct configuration to record music. After all, recording onto a multitrack tape recorder is comparatively instantaneous. However, it's important to bear in mind that most of the steps described here are actually already sensibly set in the Definition files supplied with *Cubase*, so they are invariably set up only once, according to the preferences of each user. In addition, a sequencer as powerful as *Cubase* has a capacity to fine-tune and reprocess recorded data way beyond that of any multitrack tape recorder.

### MAKING A RECORDING

You start recording by clicking on the record button on the transport bar, or selecting '\*' on the numeric keypad. You should hear a precount (as set in the Metronome window), and then the Song Position pointer should start to move. Anything you play on your keyboard will now be recorded into *Cubase*. The pointer will cycle

### RECORDING SETUP

After all the theory in the first part of this series, it's time to actually record some music! Well, almost. Most readers will have *Cubase* connected to some kind of MIDI-equipped synthesizer or piano keyboard as well as a network of MIDI devices such as rackmount synth modules, drum machines or effects units. It is usually desirable for the MIDI data received at the MIDI In of the computer (from the synth/piano keyboard) to be echoed to the MIDI Out. So, open up the 'MIDI Setup' dialogue box of the Options menu and ensure that MIDI Thru is selected (ticked). Ensure also that System Exclusive (SysEx) and Aftertouch are filtered in the record section of the MIDI Filter feature, also found in the Options menu. This will avoid recording any unnecessary data in your first attempt. It is also desirable, if possible, to set your keyboard to Local Off. It should then be possible to play any of the devices in your MIDI network by changing the MIDI channel in the Channel column of the currently selected Track with the left and right mouse buttons. Begin (for the purposes of this example) by recording a simple drum part on Track 2.

You select the appropriate MIDI channel for

### WARNING!

The features described in this series are those found on the latest Atari version of *Cubase Score*, but most of what is mentioned is also available on the latest PC and Mac versions. However, please note that there will be superficial variations in the examples given in this series for users of the PC and Mac versions.



between the left and right locators, and you can add to the recording on each pass if the 'Cycle Record Mode' at the top right of the screen is set to 'MIX'. Stop the sequencer when you have finished recording, and a new Part will appear on the screen between the Locators. Note that we are recording the Part as a normal 'MIDI Track' (as indicated in the Track Class column) and not a 'Drum Track' (of which more later). Also note that a newly recorded Part will always appear in black, ready for further processing.

If you are a very good player, your drum part may not need any further attention, but a large number of users will want to quantise their work (see the box on quantisation elsewhere in this article). You can do this using Over or Iterative Quantise until it sounds musically correct. You can 'undo' the quantisation at any time using 'Undo Quantise' in the Functions menu, or by pressing 'U' on the Typewriter Keyboard. Remember, however, that it is not desirable to have all the notes in all parts occurring exactly on the beat; this can result in music which is robotic

will then appear on the Arrange display immediately after the original. Any changes you make to the contents of the second copy will be replicated in the ghost parts you've created from it. The original part you recorded, however, remains a separate entity.

When you've finished, you use the all-important 'Save' command (situated in the File menu) to store your work on disk. Song files are stored with a '.ALL' extension. The file can now, of course, be recalled back into *Cubase* at any time using the 'Open' command.

KEY EDIT

You can carry out a large number of editing functions on the parts you record from within the Arrange window, but to examine and edit the contents in fine detail, you really have to go into one of the main Editors. We'll start with a look at Key Edit. To go into the Editor from the Arrange window, simply select 'Key Edit' from the Edit menu, or select [Control] and 'E' on the keyboard. If you have one or more parts selected, these will

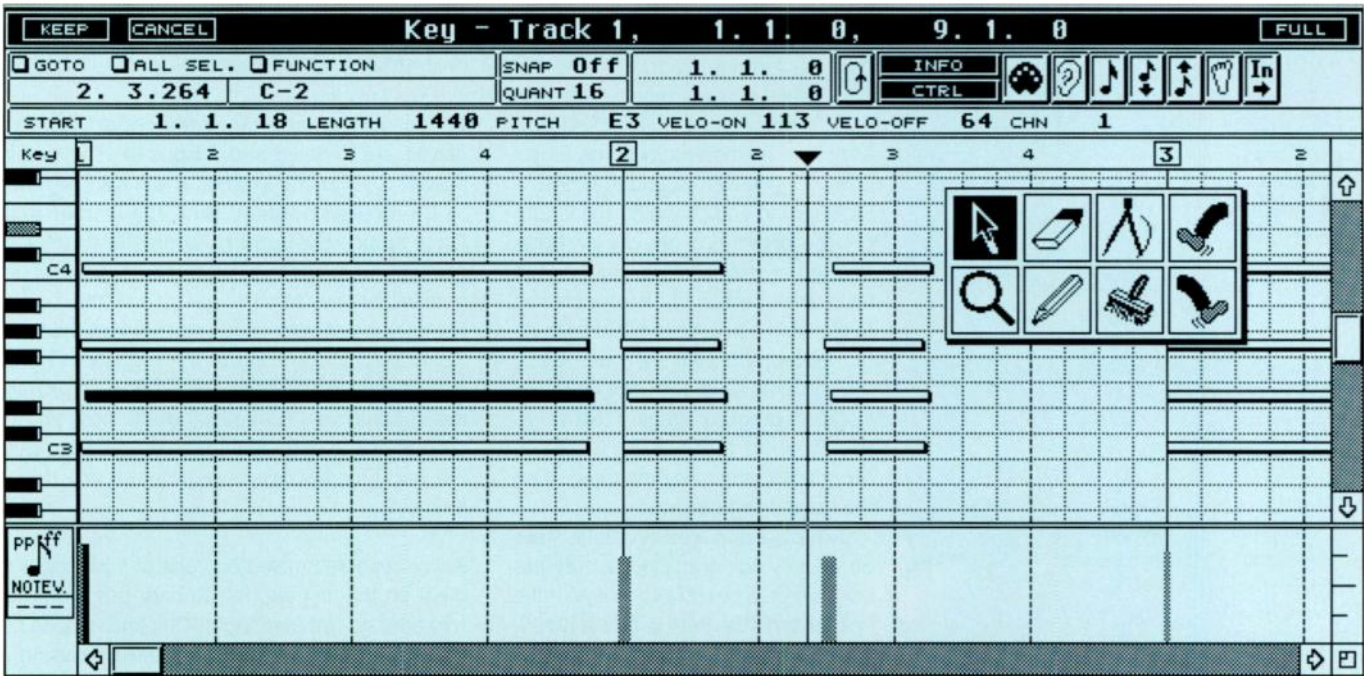


Figure 1: The Key Edit window.

and lifeless. Getting the right feel can make or break any piece of music.

RENAME AND COPY

You can rename the parts you record by holding down [Alternate] and clicking over them; you can then type names onto them. Parts are copied by clicking and also holding the left mouse button on the part while holding down [Alternate] on the keyboard. A small hand will appear, and you can drag the resulting outlined part along the same Track to let go of it next to the original. Using the same manoeuvre *without* holding down [Alternate] would have simply moved the part itself to the new position. This new copy can then be repeated as many times as you like with the 'Repeat' function in the Structure menu ([Control] and 'K' on the keyboard); you simply enter a count of (say) 2 and tick 'Ghost Copies'. Two ghost parts

automatically be available for editing, but if nothing is selected, all parts in the current track will be available. Parts from up to 31 different tracks can be edited, but most of the time, users will edit single parts. Before you leave the Arrange window, it is a good idea to hit [Alternate] and 'P'; this sets the left and right locators to the start and end points of any selected part. Then select 'Cycle' on the transport bar (or press '/' on the numeric keypad). *Cubase* will now cycle continuously on the selected part, and when you go into Key Edit, you'll be able to manage the song position more efficiently with the various numeric keypad cue points. For example, hitting '1' sends you to the left locator, and '2' sends you to the right locator. Keys '3' to '8' may be programmed at any time by pressing the relevant key while holding [Shift]; the current Song Position is then stored.



# GETTING TO GRIPS WITH CUBASE

The Key Edit window (see Figure 1) appears on the screen as a grid; the horizontal axis represents time and the vertical axis represents pitch (depicted as a piano keyboard). Directly above the grid, there is a position bar showing bars and beats, while below it is the controller display, where various non-note events such as pitch bend and modulation may be represented.

Key Edit has a toolbox (opened by clicking on the grid with the Right mouse button) similar to the one in the Arrange window, but featuring four additional tools for specific use in the Editor. The new tools include the Kickers (for jogging notes backwards or forwards according to the value set in the 'SNAP' box), the Compasses (for changing values, usually controller data, according to a straight line drawn on the controller display), and the Brush (for pasting notes onto the grid). As in the Arrange window, the Pointer is a general purpose tool for selecting and moving notes and editing anywhere in the window, the Eraser is for deleting events, and the Pencil is for inserting and changing the length of notes or events on the display. Notes inserted or moved will be shifted onto the nearest fraction of a beat according to the Snap box value, while the length of inserted notes will be governed by the 'QUANT' (Quantise) box value. For insertion purposes, regard 'SNAP' as the *Position* and 'QUANT' as the *Length*. Notes can be monitored using the magnifying glass tool.

Notes are displayed as graphic strips on the Key Edit grid. Once a note has been selected by clicking on it with the Pointer tool (the note will turn black), its characteristics can be seen on the Information Line. These include the start time, length, pitch, velocity on and off values, and the MIDI channel. This line can be hidden or shown using the 'Info' button on the top panel of the window. Similarly, the Controller display can be concealed or revealed by using the 'Control' button.

There are several other icons in the top panel governing the set up of loops, the reception of MIDI data and the recording of data in step time. In addition, there are three local menus: 'Goto', for moving the Song Position pointer to various positions in the track or part, an unnamed menu (usually referred to as the 'Select' menu) dictating which data will be targeted by any chosen functions, and a useful local 'Functions' menu containing items specific to Key Edit. A further display box above the menus shows the current position of the

mouse when it is moved into the grid area. Clicking in this box with the left mouse button changes the display to SMPTE time. Remember that the usual main *Cubase* menus are still available while in Key Edit, so any of the normal functions (like the different kinds of quantise, and repeat, cut, copy, paste etc) may be used on the chosen data.

But how do you put all these obviously powerful Key Edit features to good use? Here are some examples from a typical *Cubase* session.

1. You have just recorded a perfect bassline with a great feel, but some notes are too long and some overlap. Key Edit is the perfect facility to remedy the situation. Using the Pencil tool, the offending notes on the grid may have their lengths changed by clicking and holding on each, and dragging them to the desired duration. The current status can be clearly seen graphically on the screen. The new length will be set to the nearest Snap value (as set in the 'SNAP' box).

2. The note entry time of the chords you just played are jumbled and misplaced. The simple answer is to go into Key Edit and move the notes to the desired position using the Pointer tool. Once again, click and hold on the note. The pointer will change to a hand. This time, the whole note will be seen to move as you drag the mouse. For this kind of operation, you could set the Snap value to 'Off' to facilitate the placing of notes with maximum subtlety on the grid. If you are dealing with very subtle changes in position, try clicking on the notes with the Kicker tools to shift the start time backwards or forwards one tick at a time.

3. The repeated melody on one of your tracks is great on the first and fourth bars, but the other two bars are not quite right. One answer is to go into Key Edit and repair the 4-bar part using a 'stretch box and drag' process. Firstly, set Key Edit to an appropriate size to see all four bars. With the Pointer tool selected, click and drag the mouse in white space on the grid. A box will appear which can be sized around the appropriate group of notes. Begin by selecting the unwanted notes of the second and third bars. The notes within the box will turn black. Delete the notes using the [Delete] key on the keyboard or 'Delete Events' from the Edit menu. Next, select the appropriate replacement group of notes from the first bar. If you now select and hold any one of the blacked notes while pressing [Alternate] on the keyboard, a box will appear around the selected notes. You can then drag this, and a copy of all the blacked notes within it, to the appropriate position in the second bar. Remember that the notes will be dropped onto the nearest fraction of a beat according to the current Snap setting. The same procedure can be applied to copy the repeated melody into the third bar.

## CUBASE KEYBOARD SHORTCUTS

### NUMERIC KEYPAD

.	Record
[Enter]	Play / Continue
0 or [Spacebar]	1st time — Stop, 2nd time — Go to Left Locator, 3rd time — Go to bar 1.1.0
{	Rewind
}	Fast Forward
1	Go to Left Locator
2	Go to Right Locator
/	Cycle On/Off
+	Increase Tempo
-	Decrease Tempo

### TYPEWRITER KEYBOARD

[Control] and O	Open
[Control] and S	Save
[Control] and Q	Quit
[Control] and G	List Edit
[Control] and D	Drum Edit
[Control] and E	Key Edit or Open the Editor corresponding to the current Track type
[Control] and R	Score Edit
[Control] and F	MIDI Mixer
[Control] and L	Logical Edit
[Control] and B	Notebook
[Control] and H	Transpose/Velocity
[Control] and I	Open/Close the Inspector
[Control] and M	Open/Close the Master Track
[Control] and T	Create a new Track
[Control] and P	Create a new Part
[Control] and K	Repeat
[Control] and X	Cut
[Control] and C	Copy
[Control] and V	Paste
[Alternate] and P	Move Locators to start and end points of the selected Part
[Alternate] and N	Open name entry box of the currently selected Track
G	Horizontal Zoom In
H	Horizontal Zoom Out
[Shift] and G	Vertical Zoom In
[Shift] and H	Vertical Zoom Out
C	Click On/Off
M	Master Track On/Off
S	Solo On/Off
[Clr/Home]	Move Song Pos. Pointer to the Leftmost position of the current window
[Esc]	Cancel (or Leave a Dialogue Box)



# Professionals are made not born



Ashley Sheinwald, Alchemea student. 2 hours sleep between two recording sessions and digital editing session.

Total duration: 49 hours (not including the two hours sleep).

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# GETTING TO GRIPS WITH *CUBASE*

- 4. The synth sound you are using produces an unwanted percussive attack on certain notes which were played with a higher velocity. Select the part and go into Key Edit. Select Velocity in the controller display by clicking on the Controller

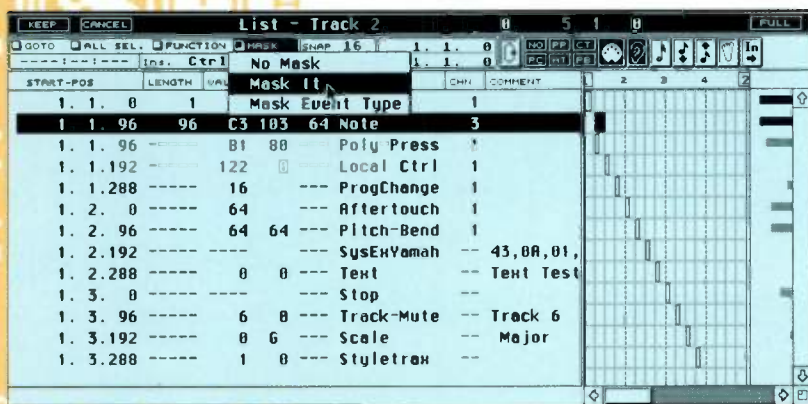


Figure 2: The List Edit window.

icon to the left of the display. The velocities of all notes should now be visible in the display as vertical strips. The offending velocities can be singled out and adjusted using the Pencil tool.

5. Following on from the last example, if you require any crescendos or diminuendos after the notes have been recorded, then the controller display of Key Edit is one of the best places to create them. Once again, select Velocity and then click and drag using the Compasses tool to draw in a line at the appropriate angle for the desired effect. This technique could be used for similar operations on other controller data.

That's a start in using some of the principal techniques of Key Edit. As a general guide to moving around the note data on the grid, the user may find the following useful; once one note has been selected, try using the left and right arrow keys to scroll through consecutive notes. This is often easier than using the mouse. It is also useful to actually hear each event as it is selected; this can be achieved by selecting the MIDI monitor loudspeaker icon in the top right icon panel. Also useful is the MIDI In icon, which along with the Note and the Velocity On and Off icons, allows the user to target data for updating via MIDI. For example, if the MIDI In and Velocity On buttons are selected, you can change the Velocity On value of the currently selected note simply by playing any note on the Master Keyboard. Another useful aspect to Key Edit is that you can view data while it is being quantised. This provides excellent visual feedback of how the notes are actually being shifted in time.

Remember that any changes made in Key Edit (or any other Editor) need not be retained; leaving Key Edit using the [Escape] key will return the part to its state before entering the Editor. Leaving Key Edit using [Return] will keep all changes. Note

also that many of the important editing commands outlined above are common to Key, List and Drum Edit.

## LIST EDIT

List Edit differs from the other Editors in that all kinds of MIDI data and special Cubase events may be accessed and updated, including SysEx data. Go into List Edit using the Edit Menu or select [Control] and 'G' on the keyboard. Similar to Key Edit, List Edit is shown as a grid (see Figure 2), but of far greater importance are the columns hidden behind the grid, which can be revealed by moving the split point to the right of the screen. The columns contain information about each MIDI event including its start position, length, status (MIDI event type) and MIDI channel. There are also the Value columns (VAL 1, VAL 2 and VAL 3), which will be active or not according to the event type. For example, ordinary Note events will feature their Pitch in the Value 1 column followed by their Velocity On and Off values in the Value 2 and Value 3 columns. However, a Controller event will be active in the Value 1 and Value 2 columns only. Most events will have no entry in the Comment column, but a System Exclusive comment will be the SysEx message itself.

Functions unique to List Edit include the Mask menu, an Insert Bar ('Ins') and the Display Filter. The Mask menu may be used to force a display of all data of the same event type as the currently selected event, or all data with the same event type and the same values as the currently selected event. All other events will then be hidden from view.

The Insert Bar contains a pop-up menu for the selection of event types. Any chosen type of data may be inserted into the list using the Pencil tool on the grid. The Display filters comprise six boxes containing letters representing different event types. 'NO' is for Note, 'PP' is for Polyphonic Pressure, 'CT' is for Controller, 'PC' is for Program Change, 'AT' is for Aftertouch and 'PB' is for Pitch Bend. When the letters are in upper case, the event type is displayed in the event list, but if you click on the box, the letters change to lower case, and the event type will no longer be displayed. In this way, users can target certain types of data they are interested in by hiding the rest.

The Display filters and the Mask functions are among the most useful features of List Edit, but they should not be confused. The Display filters hide the chosen data from view, but unlike Mask, they do not hide the data from editing. With the filters, any global editing operation, such as Quantise, will still affect all events regardless of what is currently displayed. Mask, however, completely hides the chosen data from the editing operation.

In List Edit, the events themselves may be edited by clicking and holding on any of the changeable values of the chosen event with the left or right mouse button. For example, it is a simple matter to change the velocity value of a



note by clicking and holding in the Value 2 column of the chosen event. The right mouse button will then increase the value and the left mouse button will decrease it. All values in the columns are changeable using the mouse buttons — except that you may not change one event type to another in the Status column. Note also the graphic display to the right of the grid. When the mouse pointer is moved into this area, it automatically changes into the pencil tool. The horizontal bars in the display represent the velocities of notes or the Value 2 settings of most other MIDI event types. Here, events may be changed in much the same way as in the Controller display of Key Edit. Also, List Edit's toolbox is the same as that found in Key Edit, and is used similarly to move, copy and manipulate data.

As you can see, there is one essential difference between List and Key Edit. Whereas Key Edit is optimised for graphic editing of note data on the grid and controller data in the Controller display, List Edit is designed to handle somewhat more detailed editing of any type of MIDI Event and its various values from the display list. As a general rule, List Edit is probably most useful for the editing of non-note events, and, with the addition of the SysEx Editor module in the latest Atari version of *Cubase Score*, it is an essential tool for viewing and changing SysEx data. And there are, of course, those types of data which cannot be viewed and edited anywhere else, such as Track Mute, Text and MIDI Mixer events. Let's look at some specific examples which may prove useful to a number of users:

1. To edit SysEx messages, simply select the SysEx event (which will appear in the list and on the grid as a single block), and click once in the Comment column. The message itself will then appear in a pop-up box on screen as hexadecimal code. If you do not have the SysEx Editor module loaded, only short messages will be accessible. With the Module loaded, a message of any length can be looked at and edited. However, a good knowledge of SysEx is required to make any meaningful changes.

2. At some time in their lives, most *Cubase* users will suffer from the problem of an unwanted or incorrect Program Change (or some other data, such as a volume controller) embedded somewhere among the rest of the data. This is not always easy to find for deletion or editing. With the filters, the task is easy. Simply click on the filter boxes of all those event types you do not wish to see, and you should be able to find the offending event more easily.

3. Most users will have their master keyboard set to Local Off for use with *Cubase*. One problem is

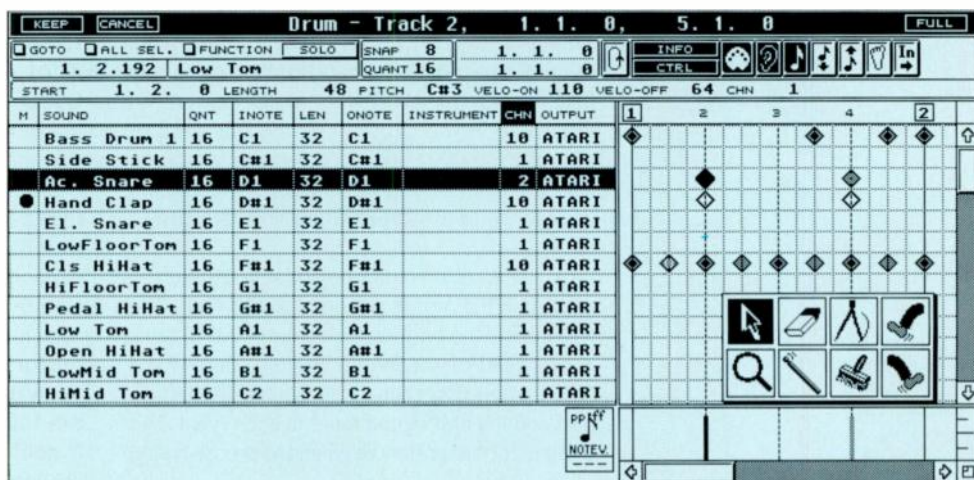


Figure 3: The Drum Edit window.

that some synths used as master keyboards power up with Local On. This means that the user must manually set the keyboard to Local Off at the start of each session. However, by using List Edit, a Local Off controller event may be inserted into a part. This could be included in the DEF file loaded into *Cubase* when the system is booted up. To insert the appropriate event, select 'Controller' in the 'Ins' box. Select the Pencil tool in the grid, and click with the left mouse button (at the

## ONOTE AND INOTE: A COMMONLY ASKED QUESTION

What's the point of having an 'INOTE' (Input) and an 'ONOTE' (Output) column in Drum Edit? The idea is to facilitate the user's quick selection of drum and percussion sources while maintaining the kit in a standard position on the keyboard. In other words, if you are used to having your bass drum on C1 (note 36) but the bass drum in the target unit is on C2 (note 48), then you could set your 'INOTE' column to C1 (36) and your 'ONOTE' column to D2 (48). It makes things clearer to view the 'INOTE' column as a representation of where you are playing the sounds on the keyboard, and the 'ONOTE' column as a representation of where the sounds are found in the target unit. The note positions in the 'ONOTE' column could be literally anywhere in the MIDI range, and by keeping the 'INOTE' column notes static, you can avoid some of the complex mapping and transposition

problems often associated with building a MIDI kit.

For example, imagine you have set up a map to play your Roland TR808 drum machine, but later decide that you want to replace the snare with a sampled sound on your Akai S1000. All you need to do is change the appropriate snare sound 'ONOTE' column to the position of the replacement sound, and the MIDI Channel column to that of the S1000. Any music you have already programmed will begin playing the new sound immediately, and no more awkward rearranging and transposition is necessary. The features are also excellent for quickly seeking and trying out alternative sounds for any drum or percussion setup. As time goes on, you will probably end up with a number of Drum Maps specifically tailored to the units in your system.

beginning of the part, for example). A new controller event with various default values will be inserted into the list. Click and hold in the Value 1 column to change the controller number to 122, the Local On/Off controller. The controller needs to be set to 0 in the Value 2 column, which is the Off setting (the On setting is 127). When the part is played, the target keyboard will be set to Local Off. This is, of course, assuming that the keyboard responds to this controller, although most modern synths do. This technique could be used for the input of similar controllers or any other event types.



# GETTING TO GRIPS WITH CUBASE

- 4. Sometimes it is appropriate to change all the settings in one column of List Edit to the same value. Simply hold [Alternate] while clicking and holding with the left or right mouse buttons on any value in the chosen column. Increase or decrease the value appropriately, and when you release the mouse button, all values in that column will change to the same setting simultaneously.

A further column may be added to List Edit by clicking in the mouse position indicator bar. This will change the position indicator to SMPTE time, and instead of the length column, the list will now feature two columns indicating the SMPTE start and the SMPTE end times of each event. This is useful for circumstances when the precise timing

(for defining the Note value controlling each sound), and the Output Note column (for defining the target note departing from the MIDI Out of Cubase). There is also the Length column (for defining a fixed length for each sound), the Channel column, (where you select the MIDI channel for each sound), the Output column (for the selection of the MIDI device output for each sound), and the Instrument column (for the naming of combinations of the Channel and Output columns). Finally, there are the four level columns, where four preset velocity levels may be set for each sound when events are inserted using the mouse on the grid, or in step time. If the track you're editing is a MIDI Track, the Output Note (ONOTE), Instrument and Output columns are omitted. For more on INOTE and ONOTE, see the separate box elsewhere in this article.

Use of the grid is pretty much as in the other Editors. However, knowing how to manage the columns is probably the most important requirement for using Drum Edit successfully. Before recording any drum data, it is a good idea to set up the Drum Map first. The Drum Map is simply a set of 64 drum sound names, each with their corresponding values in the columns. It is not possible to have more than one Drum Map in Cubase at the same time. Here, we'll consider the procedure for a 'Drum Track'. This shows Drum Edit in its most adaptable mode.

First, create an empty part on a track in the Arrange window, and change the track class to 'Drum Track'. A small drumstick symbol will appear in the Class column. Go into Drum Edit via the Edit menu, or by hitting [Control] and 'D' on the keyboard. You can update the 'INOTE' (Input) and 'ONOTE' (Output) columns to the desired settings via MIDI, and enter an appropriate name in the Sound column. To do this, ensure that the master keyboard (or whatever is used as the master instrument in the system) is playing the target drum or percussion sounds through Cubase. These could be, for example, the sounds of a drum machine. Select the MIDI In and Note icons from the Functions bar in the top right of the window. Go to the first sound in the sound list by clicking on it once with the left mouse button, and then select the 'INOTE' column. Play the first sound on the keyboard, and this note value will be automatically entered into the 'INOTE' column for the currently selected sound. Do exactly the same thing for the 'ONOTE' column so that the input and output notes match. Either hit [Alternate] and 'N', or double-click on the sound, and enter an appropriate name into the box that appears. Continue similarly for the other sounds until you have a complete set of drum or percussion instruments.

The Channel column can be changed if you are targeting sounds on more than one MIDI channel. However, for multi-channel operation,

Tool	Key Held	Mouse Action	Result
Pointer	-	Click on event	Selects event
Pointer	-	Click / Hold on event and Drag	Moves event
Pointer	[Alternate]	Click / Hold on event and Drag	Copies event
Pencil	-	Click / Hold on event and Drag	Changes length of event
Pencil	-	Click on grid	Inputs an event
Eraser	-	Click on event	Deletes event
Pointer	-	Click / Hold and Drag on grid	Opens stretchable grab box
Paintbrush	-	Click / Hold and Drag	Paints in events on one pitch
Paintbrush	[Alternate]	Click / Hold and Drag	Paints in events anywhere on grid
Magnifier	-	Click on note	Monitors selected note
Pencil	-	Click on events in Controller display	Changes values of events
Pencil	[Alternate]	Click and Drag in Controller display	Inserts new Controller events
Compasses	-	Click and Drag in Controller display	Changes values in straight line
Pointer	-	Click / Hold on value with Left mouse	Decreases value
Pointer	-	Click / Hold on value with Right mouse	Increases value
Pointer	[Shift]	Click / Hold on value with Left mouse	Decreases value in tens
Pointer	[Shift]	Click / Hold on value with Right mouse	Increases value in tens
Pointer	-	Double click on value	Opens pop - up input box
-	[Return]	-	Keeps Edits
-	[Esc]	-	Discards Edits

Figure 4: Some useful keyboard and mouse shortcuts.

of events is crucial. It's also worth remembering that quantise works on notes alone, so other kinds of events will remain at their original positions. And as in Key Edit, parts from up to 31 different tracks may be selected for editing.

## DRUM EDIT

As the name implies, Drum Edit is designed for the editing of drum or percussion data. Users should be aware, however, that they don't have to view these tracks in Drum Edit; this data can be viewed in any of the other editors. But if you convert a 'MIDI Track' into a 'Drum Track' the data will be adapted for specific uses in Drum Edit, as we shall see.

The Drum Edit window (Figure 3) is made up of a grid with time on the horizontal axis and the drum or percussion instruments on the vertical axis. Pulling the split point to the right reveals a number of columns, most of which are unique to Drum Edit. If the track to be edited is classed as a 'Drum Track', the columns will feature the following: the Mute column (used to mute individual drum instruments), the Sound column (for naming each drum sound), the Quantise column (where each sound may have an individual Quantise value), the Input Note column

DON'T PANIC!

If you're a newcomer to the world not only of Cubase, but also MIDI in general, and you find some of the terminology in this article a bit baffling, check out Paul White's series on MIDI Basics, which started in SOS August 1995 and continues on page 82 of this month's issue.



## TIGHTEN UP: QUANTISATION

Quantisation is a form of timing correction and exists in *Cubase* in various forms in the Functions Menu. Selecting 'Over Quantise' (or 'Q' on the Typewriter Keyboard) will hard-shift all notes to the nearest fraction of a beat, as set in the Quantise box above the Arrangement display. For example, if you selected 16 in the Quantise box, 'Over Quantise' will shift each note in the part onto the nearest 1/16 division of the bar. If you need a Quantise with more

feel, try 'Iterative Quantise' ('E' on the Typewriter Keyboard). This shifts notes towards the nearest chosen beat, according to a 'strength percentage', which can be set in 'Edit Quantise'. 'Iterative Quantise' essentially tightens up Parts that were loosely played, but retains the feel of the playing. You will notice that there are several other Quantise items in the Functions menu, but we'll be looking at these in a later part of the series.

'Any' must be selected on the track's Channel column in the Arrange window.

You may already have noticed that Drum Edit's toolbox differs slightly from the one in the other editors, in that the Pencil has been replaced by a Drumstick. The Drumstick cannot be held and dragged to adjust the length of a note as it is being inserted on the grid; instead, the length of each Drum Edit event is governed by the duration set in the Length column. However, if you click, hold and drag the drumstick horizontally along the grid, events will be written in at the resolution set by the 'Qnt' column for that sound. This could be useful for quickly writing in some closed hi-hats at sixteenth note intervals. In addition, if clicked over an already existing event, the drumstick will delete that event.

When inserting notes with the drumstick, velocity values can be managed using the Level columns 1 to 4. Each of the Level columns can be separately adjusted for each sound, and the choice of level is selected by holding various keys on the computer keyboard. Holding no key when inserting an event selects Level 1, holding [Shift] selects Level 2, holding [Control] selects Level 3 and holding [Control] and [Shift] selects Level 4.

As in Key Edit, Drum Edit features an Info Line where existing events can be updated in terms of their note, velocity and length values (amongst others). Drum Edit also has a controller display, but it differs from Key Edit in that it only shows the Controller data for the currently selected sound (the sound displayed in black). Also new is the 'Solo' button which, as expected, mutes all other sounds other than the currently selected one. Other mute configurations can be set up by clicking directly in the Mute column.

## OFF WITH YOUR EDIT!

That's it for Part 2. It's now up to you to experiment until the main editing moves become second nature. To help you out, Figure 4 shows some principal mouse and keyboard moves which are usable in all three Editors. Remember that as well as going from the Arrange Window to any Editor, you can also go directly from one Editor to another, which is often handy for detailed work. In addition, by holding [Alternate] while opening each Editor, several Editors may be opened at the same time and tiled onto the screen. Unfortunately, the other two main Editors of *Cubase*, Score and Logical Edit, are beyond the scope of this guide, but if you have the time, they are well worth exploring. See you next month!

[For some help on getting the best out of Logical Edit, take a look at Simon's previous series, The Logical Solution, which ran in SOS from March to May this year — Ed].

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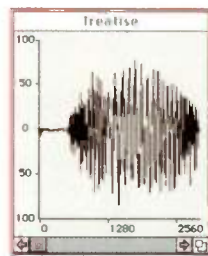
time compression, pitch shifting, stereo multi-tap digital delays, Digidesign and Sound Manager

3.0 support make **Alchemy** an indispensable tool. Loop Splice Mode provides high resolution display and editing of the critical loop splice point. Automatic zero crossing detectors simplify looping decisions. Powerful Analysis and Resynthesis adjust amplitudes for up to 16,000 bands of spectral information per selected waveform. Harmonic

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Software :	Alchemy 3.0
Author :	Passport Designs
Computer :	Apple Macintosh
R.R.P. :	£499.95 inc VAT



# HOT PRODUCTS FOR SUMMER 1995



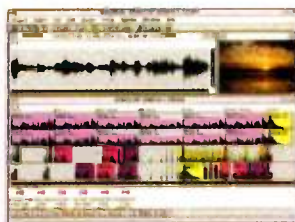
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Software :	Band-in-a-Box
Author :	PG Music
Computer :	PC, Mac or Atari ST
R.R.P. :	£89.95 inc VAT



## Digital Recording and Editing is here to stay !

Samplitude is a very fast real time wave editor, hard disk-recording, sampling and multimedia program available in several versions which offers up to 16 track recording on a PC. If you want to edit sam-

ples to use in synthesizers, samplers and sound cards, then Samplitude can create samples, edit samples, cut and copy, create loops and more. A loop can be played direct from your hard disk or RAM while you alter the range in real time to find the proper loop position. To smooth over rough spots in

loops you can use the cross fade-function, then dump it to your sampling keyboard (MIDI Sample Dump) or export it to a standard wave file. Powerful re-sampling and time-stretching option, on-screen real time faders, up to 100-level undo, assign markers in record, scroll or jump to them in a fraction of a second, echo, reverb and normalising.

**\* STOP PRESS !! \***

Samplitude Pro Studio just released, featuring simultaneous record and playback, as well as full sync to your favourite sequencer, up to 16 tracks, and support for multiple sound cards.

Software :	Samplitude Pro
Author :	SEK'D
Computer :	PC Windows
R.R.P. :	£249.95 inc VAT

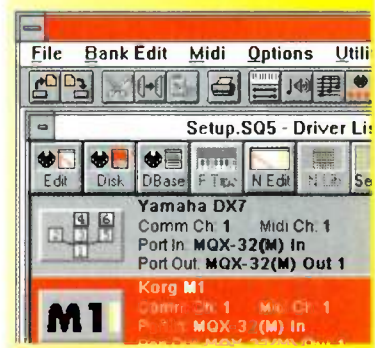
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(SoloQuest also available for £99)



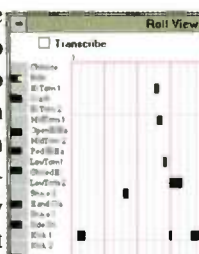
Software :	MIDIQuest
Author :	Sound Quest Inc.
Computer :	PC, Mac, Atari, Amiga
R.R.P. (PC) :	£235 inc VAT
R.R.P. (others) :	£219 inc VAT

## Notation, Sequencing and Audio Seamlessly Integrated

Musicator has been designed from the very start to allow you to edit on notation and piano roll side-by-side. You can rearrange an entire screen of windows with one command, and each window adjusts itself so that it makes sense at the new size.

Sequencing features include fully automated mixing of GM/GS parameters like reverb, pan, and cut-off frequency, SMPTE support, drag-n-drop arrange window, controller drawing, and dedicated drum grid with individual pan, reverb, vol and tuning for each drum sound.

Notation features include multiple voices per stave, flexible splitting of grand-staff any type of tuplets, page preview, and autopart extraction.



Audio features include non destructive region-based hard-disk recording, and cross-fading function. Soon to be upgraded to 16 separate tracks !!!

Software :	Musicator 2.1
Author :	Musicator A/S
Computer :	PC Windows
R.R.P. :	£299.95 inc VAT

## Information super cliché ?

We don't think so ! Arbiter now provides the latest product spec sheets and demo disks on the World-Wide-Web - the friendly face of the internet. Internet access is now available for about £10 per month, with most UK areas requiring only a local call, even if you're visiting Passport's site in California.

Our URL is as follows :

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Our E-mail address is

[arbiter@cix.compulink.co.uk](mailto:arbiter@cix.compulink.co.uk)

## Arbiter Appoints Twelve National Music Technology Information Centres

To cater for enquiries for PC music products nationally, Arbiter has set up ten information centres which can provide free demonstrations brochures, advice & demo disks :

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ANDERTONS	Guildford	01483 38212
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# HOT PRODUCTS FOR SUMMER 1995



# Colossus of Rhodes

## RHODES CHROMA ANALOGUE POLYSYNTH

**NORMAN FAY takes a retro look at the Rhodes Chroma, the last and most obscure of ARP's long line of analogue synthesizers.**

**W**hen I first saw a Chroma, back in 1982, it had been delivered to my local music shop along with a consignment of Memorymoogs. The newly-released Moog was a 'hot item', and people in the shop were actually queuing up to play one. Nobody played on the Chroma — to a generation of synthesists raised on knobs, switches and sliders, the Chroma's flat control panel and weird, clunky piano keyboard were too intimidating. The poor old Memorymoog (super though it is) was almost the last instrument of its kind, while the Chroma was

controls. One day all synthesizers would be made this way!

### ARCHITECTURE

The Chroma is a hybrid analogue/digital polysynth. The oscillators, filters, and amplifiers are analogue circuits, whilst the LFO and envelope generator control voltages are digitally generated. Its 'variable architecture' lets you assign the oscillators, filters, and amplifiers in different ways, making it almost as versatile (and confusing for the unwary) as a small, modular system.

The easiest way to explain how this variable architecture works is to compare it to Single or Double modes on a Korg M1: Single mode on the M1 is the same as Patch 1 on the Chroma. You get one VCO, one VCF, one VCA, one LFO, and two envelope generators. In this mode both instruments are 16-note polyphonic. If you switch to Double mode on the M1, equivalent to Patch 2 on the Chroma, then you double your synthesis power at the expense

### IS THE PRICE RIGHT?

I have no intention of selling my Chroma, so the 'market price' is rather a matter of indifference to me. If you're looking to buy one, then you should try to get it as cheaply as possible — after all, in the longterm it is going to cost you more money, and the non-availability of some components will limit its lifespan.

I may be sticking my neck out here, but I think you'd be mad to pay more than £1,000 for a Chroma — unless it is either an ARP prototype or one of the first 50, which were hand-built by the development team. A typical specialist dealer price may well be in the £1,100 to £1,500 range, however.



a glimpse into the future, with its velocity-sensitive keyboard, pre-MIDI computer interface, multitimbral sound facilities, its availability as a keyboardless 'expander' unit, and (worse luck) its digital parameter access

of halving your polyphony. A further 13 patches are available, with the filters arranged in parallel, in series, or in 'variable mix' mode.

VCO B's frequency can sync to that of VCO A, for a variety of powerful cutting timbres, or you can include a ring modulator. Best of all is 'filter FM', which is selectable in all but one of the basic patch types. Here, VCF A is modulated at audio frequency by VCO B. This produces fantastic but very controllable effects, quite unlike anything else I have ever heard.

This versatility is matched in the Chroma's modulation options, where nothing seems to be preset. There is no 'filter envelope generator', for example. You can choose any, or indeed several, of the four available. Want to use a different envelope for each VCF? No problem. A different LFO for each oscillator? VCO pulse width controlled by keyboard position? Easy!

The synthesis possibilities are almost endless, as are the possibilities for getting lost. Most of the Chroma's circuits have 'something extra' when compared with its contemporaries. The LFOs, for example, have no less than 16 waveforms,

including six different stepped waves. They are also polyphonic, which means that chordal sounds are very spacious and full. Each oscillator, as well as having the usual variable pulse waveform, also has a variable sawtooth wave. Each VCO has its own portamento control, so they can be set at different rates — very effective for both lead and chordal effects.

This depth of control is the key to the Chroma's sound — detailed, wide, airy and rather beautiful. Though it lacks the power of a Memorymoog or a Roland Jupiter 8, the Chroma also lacks the 'muddiness' which seems to go along with that-kind of analogue power. Having owned one of these splendid instruments for eight years, I have found that its only weak area is the production of deep bass sounds, which have evaded me thus far. Its greatest strength lies in the way both lead and chord sounds sit clearly in a mix, without dominating it. With its dual filters, a variety of unusual yet very musical sounds can, with patience, be programmed. Convincing vocal sounds are a speciality thanks to these filters, as both fixed and keyboard-tracking resonant peaks can be placed within the sound.

The Chroma is also very good at 'imitative' synthesis, and the intrepid synthesist is helped here by the excellent velocity-sensitive keyboard, which (when functioning) is one of the nicest I've ever encountered, in terms of playability. It's a non-sprung, weighted design which seems to be an almost perfect balance between organ and piano type feels. It was one of the first velocity-sensitive designs available, along with the Yamaha CS80. An upgrade was planned to give the Chroma polyphonic pressure sensitivity, but I don't think it ever materialised. (If any readers know different, then please let me know!)

### BACK TO THE FUTURE

The instrument has a large, flat top, designed for another keyboard or a computer and monitor. It also has a fine range of controls for

### MIDI-FYING THE CHROMA

Of all the big, old analogue synths, the Rhodes Chroma is the easiest by far to MIDI up — the MIDI interface simply plugs into the TRIAD socket on the back panel, and you're away. No major surgery required.

A full range of MIDI commands is supported, including velocity, poly and mono pressure, controllers, program change, and even System Exclusive dumps. Best of all, the instrument is multitimbral via MIDI, the only limitations being a maximum of eight parts and that all parts must be on consecutive MIDI channels.

Two types of retrofit MIDI interface seem to be in existence, the J.L. Cooper Chromaface and the Syntech type, which I have. If your Chroma doesn't have one of these external boxes, then try telephoning MIDI retrofit specialists Kenton Electronics on 0181 337 0333.



## BIRTH PAINS

The Chroma was designed by ARP Instruments to be a polyphonic, programmable version of their 'classic' 2600. At the time, ARP were in deep financial trouble and the company obviously hoped that a groundbreaking new product would help restore their fortunes. Sadly this was not to be, as they went bust in 1981 with the Chroma just about ready for production. This could quite easily have been the end of the story, were it not for the fact that ARP's liquidators assigned the company's Vice-President of Engineering, Philip Dodds, with the task of running down the company.

Dodds had been in charge of the Chroma's development and, understandably proud of his design, worked hard to sell it to another instrument manufacturer. CBS eventually bought it, assigned the Chroma to their Fender/Rhodes division, and production began in earnest in 1982. Now you may be thinking that this must have been a pretty special instrument to have managed this, and you'd be right. The Chroma was very advanced for its time and remains well specified by today's standard.

expressive playing, including two footpedals, whose functions can be programmed as part of each sound.

Back in 1982, the most futuristic features of the Chroma were the fact that the instrument is multitimbral, and the 'TRIAD' computer interface. When plugged into an Apple II computer fitted with the correct hardware, this acted much like today's MIDI interface. Such features are now taken for granted, but back then the ability to edit your sounds from a computer screen, or replay sequenced parts from a computer, with program changes and so on being recalled, was almost unthinkable. Thanks to this interface, adding MIDI capabilities to a Chroma is very simple (see 'MIDI-fying The Chroma' box).

## BE PREPARED

Some of you may already be rushing out to find an example of this wonderful synthesizer, but hold on... My Chroma, which has never been regularly gigged in all the time I've owned it, has cost me about £100 a year in repair bills. The main problem seems to be the dual voice cards inside the instrument, which go out of tune. Fortunately, when this happens, the instrument's software will switch off the offending voice, so that you can continue playing. In fact, my Chroma is currently functioning as a 7-voice polysynth as I write! This is easy enough to fix — all you need is the service manual and an oscilloscope.

Occasionally something worse goes wrong with a voice board. I've had to replace a special chip on two of mine, a part which is no longer manufactured. It took six months to source one last time, which rather depressingly leads me to conclude that, eventually, my Chroma will become unserviceable, unless an alternative part can be found.

Reliability-wise, the Chroma is no worse than many instruments of its time. This is inevitable, I suppose, given that microprocessor-controlled synthesizers were a new concept back then. So if you're looking for an analogue synth to play at gigs, forget the Chroma and look for a more reliable and portable Japanese instrument. I'd also forget about the Chroma if you're making techno music, since the Chroma only has one parameter slider and is thus not much use for real-time analogue fiddling, and the instrument doesn't have a spectacular bass-end. Otherwise, if you're looking for a fine analogue synth for your studio, then the Chroma is well worth considering.

## FINAL SAY

Despite the fact that it is an ARP design, the Rhodes Chroma is relatively obscure today. This, and the fact that the Chroma isn't well endowed with knobs and switches, means that an example can be picked up far cheaper than its contemporaries. A good deal then, provided you can find one. The problem is that most Chroma owners are very attached to them. If you just want to dabble with subtractive synthesis, then you'd probably find other, simpler analogue synths more instantly rewarding. On the other hand, if you love programming and playing synthesizers, and want something with a lot of depth from which you won't easily tire, then the quality of this instrument will be remembered long after the expense is forgotten.

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# SAMPLE SHOP

Our regular look at the hottest new sample CDs and CD-ROMs.

## PHAT AND PHUNKY (DOUBLE SAMPLE CD)



Following *Funky Ass Loops* and the excellent *Peter Sidleczeck's Orchestra* sampling CDs, East West now bring you *Phat and Phunky*, a double audio CD release. *Phat and Phunky* is another in a successful line of loop and groove construction products, where the whole groove (usually about 40 seconds long) is provided, swiftly followed by all the constituent samples that went to make up the loop.

There are over 160 complete loops spread across the two CDs, and these are then split up into more than 2000 individual drum, effects, and instrumental samples. Clearly, a lot of thought has gone into the format and general layout of the accompanying CD booklet, which comprehensively lists the loop bpm's, and all the pitches of the relevant multisamples.

So what makes up the average loop on this CD? Taking track 34 on CD One as an example, it begins like many of the other loops, with a percussive 8-bar drum loop, joined at bar 16 by a solid analogue bassline. Another eight bars later, Rhodes, laid-back organ, clavinet (with wah-wah), and marimba all join the loop, filling the groove to just the right level. There is plenty of sonic depth to all the sounds, and nothing ever seems too crowded. Once the main groove is over, we then get all of the individual drum samples that made up the loop, followed by a very usable multisample of the bass (C2, C3 and C4), the clav sample, organ pad, and the marimba (sampled at G2 and G4).

Another notable inclusion on the 'good idea list' comes in the form of track index numbers, which are assigned one to each sample. This flexible approach takes the hassle out of recording lots of individual samples from one CD, and should be applauded for its accessibility.

The general feel of *Phat and Phunky* is of a modern dance production tool, with the emphasis on soul, funk and hip-hop, although there are some interesting excursions into reggae and techno territory. There are many samples that we've all heard before (such as Moog and TR909 stuff), but the majority of

noises are fresh and exciting. Particular attention has been paid to the signal processing, which gives many of the samples an unusual edge. Clever use of flanges and creative reverb techniques really make many of the guitar and keyboard sounds stand out from the drum loops, and work nicely in a finished track. All the samples are clean (except where intentionally crackly), and nearly everything is eminently usable.

One more carrot that East West are dangling in front of us is the free provision of either a Mac or Atari/PC disk, containing the MIDI file note information for every one of the 165 loops. This is very useful if you want to fine-tune either the tempo or the mix of a loop, without having to go through all the tedious trial and error experiments of time stretching. This makes *Phat and Phunky* a truly 'interactive' sample CD,



allowing both customising of the loops to fit your own track specifications, and also an insight into the programming ideas and tricks that go into professional loop construction.

Conclusion: *Phat and Phunky* is up against a lot of stiff competition in the soul/funk and hip-hop sampling genre, and in a number of respects, it covers some already too-familiar ground. Having said that, the subtle use of guitar and keyboard sounds linked with the sheer number of usable drum and FX samples should give this release real staying power. At under

£60, it is great value considering the vast range of sounds provided, and although there are some noticeable exclusions (namely vocal and brass samples), this is a release well worth having.

East West is a company that consistently comes up with high quality, value-for-money sampling products, and *Phat and Phunky* is no exception. *Paul Farrer*

**E** Audio CD £59.95. CD-ROM available soon  
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Berkhamsted, Herts HP4 3EP.  
**T** 01442 870681.  
**F** 01442 877266.

## NEW YORK CITY DRUMWORKS (DOUBLE SAMPLE CD)



*Drumworks* is a double audio CD containing a selection of drum loops performed by a collection of some of New York's finest session drummers, namely Kenwood Dennard, Shawn Pelton, Steven Wolf, Thommy Price, Dave Johnson and Frank Duncan. These names may not be immediately familiar, but collectively their drumming credits are significant — they've played for the likes of Sting, Miles Davis, Bobby McFerrin, Chaka Khan, and Annie Lennox.

Each drummer performs about twenty different bpm configurations (at intervals of 12 bpm), and within each there are between four and 12 different drumming styles which mainly take the form of 4-bar loops. Following on from the loops, there are a selection of fills and then a good number of the individual drum samples relating to each drummer's specific kit. With the exception of some of the individual samples, nearly all of the loops are recorded dry and unprocessed, leaving plenty of scope in a mix.

There is a fairly wide spectrum of playing styles on these CDs; reggae, african, brazilian, and even 7/8, waltz and cajun styles are included, but the overall feel is decidedly 'hip' New York jazz/funk fusion. That's not to say that rock and thrash styles don't get a look in (they are all drummers after all) — there's a great set of blasting 216 bpm loops for those who like their

drum loops hot and solid. The playing is extremely accurate, and the recording quality certainly lives up to the standard that we have come to expect from this kind of release.

The main drawback, however, seems to be in the rather haphazard way that the loops and fills are laid out in relation to each other. Firstly, you get all the player's loops grouped together in tracks according to their bpm's, which is fair enough, but in many cases the selection of fills provided (on separate tracks!) don't always match up with the preceding loops. The



producers seem to be aware of this, and advise us to 'make sure you are using the same kit for your fills as you used for the groove.' If only it were that simple....

As you might expect, each of the six different drummers bring to the loops not only their own distinctive styles, but also their own customised drum kits (full details of each kit are listed in the sleeve notes). The sound of each set of loops, therefore, varies considerably between kits, and although most of the loops are eminently usable and have a good sonic range, some seem to lack definition when used in a track, and suffer a little from becoming cloudy and over-busy even when EQ'd carefully. This could partly be due to a lack of any real stereo spread, making a good many of the loops slightly less interesting.

As with any in-depth instrumental study of this kind, it's always the sheer amount of sounds that you get for your money that should inspire you to use a CD like this time and time again, and in that respect, it represents great value for money. I lost count after the two hundredth snare sample, and as far as a conventional contemporary drum kit goes, these CDs cover almost every conceivable angle. What would have made this CD even better, I feel, would have been more attention to the format and the inclusion of even just a few percussion samples (bongos and congas etc.). As it is, however, *New York City Drumworks* represents a wide selection of good sounds and good drumming. *Paul Farrer*

**E** £59.95 inc VAT and UK postage.

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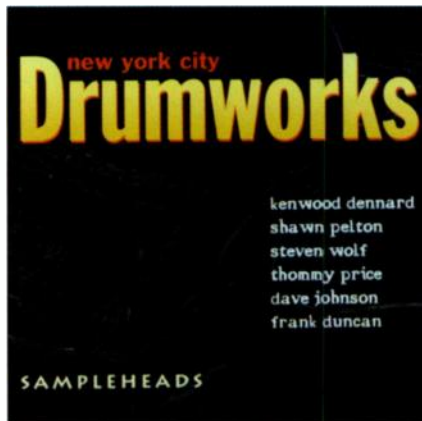
## BASS LEGENDS (SAMPLE CD) (CD-ROM)



Spectronics specifically requested that I review the CD-ROM and CD together, as they consider some of the mapping to be significantly clever. In terms of content, the only difference is that the audio CD features bass riffs, and the CD-ROM features multisamples of the basses used to *play* the riffs, as well as the riffs themselves.

The important point is that the material here is played by three of America's top jazz/funk session players: Abraham Laboriel (10/13), Marcus Miller (10/12), and John Patitucci (15/16). The figures in brackets represent the number of completely different bass multisamples and multibar patterns offered by each player respectively. Credits abound, and I'm sure that potential purchasers will be well aware that each of these bass supremos has a fine track record, and distinctive style of playing.

Looking at the CD-ROM version, each player begins his slot with a short, embarrassed vocal gesture ('Hello, it's so great to be with you' etc). This is followed by multisample tone patches of their chosen instrument, and a



32Mb mini-menu, containing all instruments in their most economical (fewest sample) patches for easy pre-auditioning. Next comes a selection of tempo-indexed riffs, called chromazones, each played at least once in every key. Something called a groove menu follows, which is actually a repetition of all the tempo-indexed riffs on a single patch, each at a single pitch (original key), for finding a feel that fits before you go mucking about with selecting the correct key.

I'll talk about the chromazones first, since the rationale behind them is basically sound, and they are featured on both the sample CD and the CD-ROM. Usually, finding a pattern that fits tempo-wise is hard enough, but finding one that fits tempo *and* key is tremendously hit-or-miss. You've heard about time-stretching (or whatever various manufacturers like to call it). In theory, this should enable tempos to be changed without altering pitch, and vice-versa. However, if you've tried it in earnest, you'll know it's not very good on rhythmic patterns — the feel and timing get crumpled in the interpolation. Spectronics have got around this by actually sampling every riff chromatically, and placing them on adjacent keys over a couple of octaves. If you do want to generate tempos away from the original, all you have to do is to re-tune the entire chromazone patch by x semitones, and alter the note trigger by a similar compensating amount. One of the assigned keyboard keys is always bound to provide a pattern in the key of your song, and there will be patterns in and on other related keys, too. The disadvantage to this approach is that it takes 12 times (at least) as much space to store each riff, and although the

CD-ROM has negligible free space, there is perhaps not the variety of styles to choose from that a more conventional CD/CD-ROM can offer.

For sensible sounds, around +/-3 semitones is recommended as being a responsible maximum pitch shift (the patches here are set to the Roland default pitch bend of +/-2 semitones).

If you are looking for the essence of the CD-ROM, look no further than the three groove menus (combined size about 32Mb). All the patterns are there, and all are pretty fine. Swing, 4/4 and 6/8 grooves are offered in a variety of user-friendly tempos, and although most patterns do enough to establish the quality and character of the player, the parts are seldom overdone, both in a rhythmic and harmonic sense. Often only the root and fifth feature tonally. This means that they are usually not too restrictive when it comes to building tunes on top.

Playing styles include warm finger-style (fretted and not), plectrum, and slap. Patterns and accompanying multisamples feature a wide range of esoteric, vintage electric and (in the case of Patitucci at least) acoustic basses, mostly sampled in mono with tender loving care and appropriate technology. However, greatly detuning a sample reveals a low-level, high-pitched sampling whine, which is fortunately not at all obvious at normal pitches (many products have this embedded in them, but I have yet to find out if this is an unavoidable consequence of using some industry-standard recorder or a digital editor).

A quick note regarding the multisample bass tone sets (CD-ROM only). These are offered in versions labelled a to e, each taking fewer and fewer samples. In fact, the densest (most Mb unfriendly) version is not necessarily the smoothest, as open strings are often featured. Samples are generally long (two seconds and up), and the looping is short and sweet.

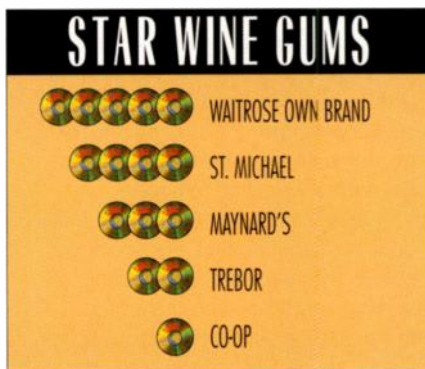
Conclusion: Should you buy this CD/CD-ROM? Well, given that you can go most of the way towards evaluating the content from 32Mb of 41 groove patterns, I'd have thought that the cost-effective route to *Bass Legends* was via the CD. Sample, taking the groove patterns first, then use them to roughly determine which chromazone (or elements therefrom), and associated multisample set (if you've got the CD-ROM) you actually require before sampling them. Also, cutting up the (quite long) riffs into several smaller samples would give you a great deal more programming variety. To be fair, the CD-ROM suggests that you do just this using Steinberg's *ReCycle* or similar. Whichever format you choose, rest assured that this is a quality specialist product. *Wilf Smarties*

**E** Audio CD £59.95; CD-ROM (available in Akai, Roland and Kurzweil formats) £199.00. Prices include VAT and UK postage.

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*We think nothing of using computers to help us create music via the wonders of MIDI — so why not use the computer to generate the actual sounds, and take entire synthesis systems into the realm of computer software?*

**PAUL D. LEHRMAN**  
*puts the case for and against this move, and talks to some software synth developers.*

# Software SYNTHESIS

## THE WAVE OF THE FUTURE?

**W**hen boat owners gather, one of the debates you'll inevitably hear is 'inboard vs. outboard': which is better, in terms of power, efficiency, and maintenance? Now that same argument is being heard in synthesis circles: do we need external hardware or even soundcards to produce our music — or should we be doing it within our computers?

Now, don't panic: no one's going to make you throw away your precious M1s and K2000s. We're not talking about professional studios here, we're talking about the multimedia world, in which MIDI plays a relatively small, but important role: to deliver high quality music and sound effects behind games, presentations, interactive programs, and other desktop media.

In these circles — and watch out, they're getting bigger all the time — the new, superfast CPUs now available for our favourite desktop platforms have spurred a movement to bring the creation of MIDI-controlled music right into the

computer's main brain. Thanks to chips like the PowerPC and Pentium, as well as the development of cheap digital-to-analogue converters (or DACs), companies are looking to move the task of synthesizing audio into the computer itself, as a way of bypassing the notorious difficulties of installing soundcards, particularly on MS-DOS machines. IRQ conflicts, specialised driver software, competing synthesis technologies, and sound library incompatibilities frequently make setting up a soundcard and getting it to play a nightmarish experience. If the cards could be eliminated, the thinking goes, but the quality of sound preserved, one of the music-for-multimedia community's greatest headaches would be removed.

Today's machines are so fast that dedicated sound chips are no longer absolutely necessary for a computer to perform real-time synthesis. The technology is pretty straightforward: a bunch of audio samples (or 'wavetables') are loaded into the computer's

RAM, and when a command is received by the operating system to play a note, that sample is retrieved, run through a pitch-shifter or other real-time processor, and sent to a DAC to turn it into something we can hear. DACs cost about \$50 or so at retail (considerably less at the manufacturing level), and can be found already installed on the motherboards of many multimedia computers, particularly slotless notebooks. From the DAC, the sample then goes out as an ordinary analogue signal to speakers, headphones, or amplifiers. The commands controlling the process are normally in the form of MIDI messages, sent through the computer's operating system using special drivers or extensions, such as Opcode's Open Music System (or OMS; this has been licensed for use in future versions of both Apple's QuickTime and Windows) or Microsoft's Multimedia Control Interface.

### FACTORS AFFECTING SOFTWARE SYNTHESIS

The quality of the sound depends on the usual suspects: sample length (8- or 16-bit), and rate. But there's another important factor: the number of simultaneous sounds that can be played at one time. Since the CPU is spewing out samples at a fixed rate, the number of samples it can generate at one time is a function of its speed. Also affecting the polyphony is how much of the CPU's power is available for this task, and how much needs to be reserved for other things like video, graphics rendering, or digital audio. A slow CPU might be able to handle four real-time 'voices' at a time, while faster ones can handle commensurately more. If a system is to be considered a true General MIDI synth, it needs to be able to play at least 24 voices — if there are fewer available than that, many GM scores will play incorrectly.

Yet another variable is how big the sound set is. A typical GM synth has between 1 and 4 Mb of sample ROM, and for a software synth to have similar capability, all of that has to be available for loading into the computer's RAM.

There are some tricks that designers of software synthesis systems can use to maximize performance without overwhelming the


### ONBOARD SYNTHESIS

Onboard synthesis is not a new concept. Years ago, you could get a computer to play music by writing a machine-language program that triggered its internal speaker at speeds in the audio range. When you toggled the speaker on and off 440 times a second, you got something approximating a square wave playing the note 'A'. In 1983, Commodore put a 4-voice simple-waveform synthesizer chip known as 'SID' (Sound Interface Device), in its model 64 computer, which was well utilised by game designers for the platform. Then, on the first Macintosh, Apple included a 4-voice, 8-bit, wavetable sound chip that could carry out real-time synthesis on the fly. It was supported by a number of products that let you design sounds and play scores, and even use the sounds with a MIDI keyboard. Later, the so-called 'AV' Macs included a 16-bit high sample rate sound chip, but manufacturers who supported it used it for recording and playing digital audio files, not synthesis.




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# Software SYNTHESIS

*"Software synthesis is a great advertisement for hardware synthesis."*



► computer. To keep RAM requirements down, a system can 'cache' sounds, loading into RAM only the sounds needed in a particular sequence just before playing it. Another technique is to compress the sounds, using JPEG or a similar algorithm, and decompress on the fly. This requires a coder/decoder (or 'codec'). Codecs and caching put an extra burden on the CPU, however. To minimise CPU load, sophisticated voice-stealing algorithms can limit the number of simultaneous voices sounding at one time, without the music suffering unduly.

There are already nearly a dozen companies involved in software-based synthesis, designing synthesis engines or supplying sound sets, and they are being driven in large part by two very major players: Intel and Apple. But there are many within the music and multimedia communities who think the whole idea is over-rated, that software synthesis is not ready for prime time, and may never be. Whichever view prevails, the result will have a major effect on the future of music in multimedia.

## THE PLAYERS

Let's take a look at some of the companies currently active in this area, starting with Apple.

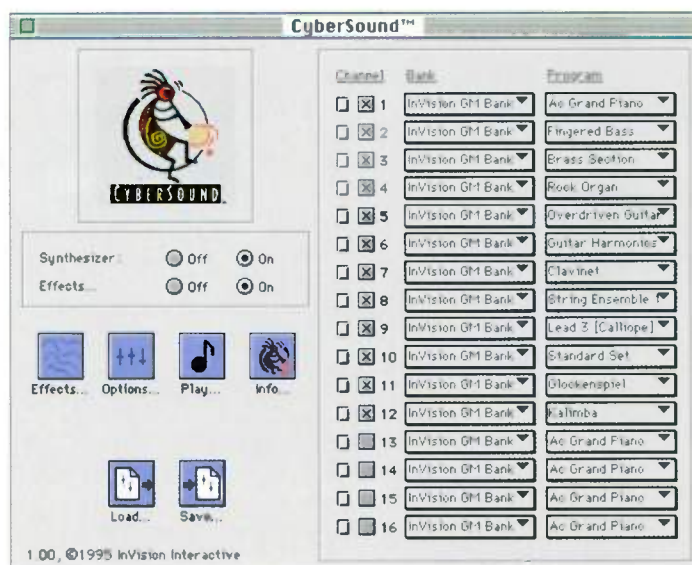
### APPLE QUICKTIME

Apple's QuickTime 2.0 multimedia standard includes a set of samples provided by Roland called QuickTime Musical Instruments, which was drawn from Roland's GM sound set and reduced to about half a megabyte. A sequence track, consisting of a standard MIDI File, can be added to any QuickTime movie. When the movie plays, the sequence track plays the QuickTime Musical Instrument sounds. The quality of the sounds depends on the Mac you're using (8-bit for 68030- or '040-series machines, 16-bit for AV and PowerMacs) and the number of voices available ranges from 4-6 on a Mac LC to as many as 30 on the fastest PowerMacs.

The first incarnation of QuickTime Musical Instruments, released early in 1994, was pretty basic. Only a few sounds from each GM instrument bank were present, and when a program change called for a sound that wasn't there, it defaulted to the first sound in the bank. The problem was, somebody goofed in determining the way program changes were interpreted (that old question of 'do we start counting at 0 or at 1?'), and sometimes the

wrong bank would get called up. In addition, no real-time control over the sounds, except for note velocity, was possible. Finally, there was a significant delay when playing built-in sounds: the software takes approximately 100 milliseconds to process a MIDI command and play a sound. If you're just playing back files, this is no real problem (all sounds are delayed equally), but synchronising built-in sounds with external MIDI sound sources is difficult, and playing the Mac sounds from a MIDI keyboard is nearly impossible.

The next version of the Musical Instruments extension, 2.1, which will probably be out by the end of the summer, takes care of some of these problems. The program change bug is gone. More multisamples are being used, and real-time controllers including volume and modulation are being recognised. "A lot of GM scores will play almost correctly," says a source at Apple. The sound set is the same, but the system now allows third-party sounds to be included. Apple is reportedly looking closely at Sound Fonts, a standard being developed by Emu Systems, as a way to organise and exchange sounds. There's nothing in the 2.1 version to address the delay problem, but the source says Apple are "going to make an aggressive effort to address it with the next go-round. We're looking to get it down to 10-15 milliseconds".



InVision's CyberSound GM.

### INVISION INTERACTIVE CYBERSOUND GM

Another Macintosh system has been announced by InVision Interactive of Palo Alto, California. CyberSound GM, due in October, is a subset of a high-end, professional synthesis system that will be available at a later date. The larger system will support multiple synthesis types including analogue, PCM, and physical modelling, and will come complete with a complex modulation matrix, real-time controllable resonant filters, and programmable time-based effects such as reverb



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# Software SYNTHESIS



► and chorus. The GM set will incorporate all of these technologies, but they won't be under direct user control. The system will load as a control panel, and be playable using either MIDI Manager, OMS or QuickTime. "There's no delay problem," says InVision spokesman Tim Gehrt. "We've specifically paid close attention to latency problems associated with software synthesis. Using technologies such as dynamic sample downloading and intelligent algorithm scaling, the InVision solution manages the synthesizer's load on the CPU and provides better overall performance".

According to Gehrt, CyberSound will ship with two GM sound sets, one for the 68000 platforms and a high-level set for the Power PC environment. The smaller GM set trades off response time for better overall performance, but the high-level Power PC set, according to Gehrt, "will perform equal to all the professional synths out there in terms of response time, sound quality, and performance". Both sets use 16-bit samples, and up to 65 voices will be available on the Power PC, with a minimum of 24 on a 68040 Mac. In addition, CyberSound will include various sounds programmed using the analogue and physical modelling algorithms. The US price was originally projected to be between \$200 and \$300, but the product is currently being revised to include a sequencer (although specific details are sketchy at present). However, Gehrt maintains that despite this addition, the current price projections are now *lower* than they were originally. As usual, the only advice one can give with a product in development like this is "watch this space!"...

#### TURTLE BEACH V-SYNTH

US soundcard manufacturer Turtle Beach include V-Synth, a set of software-based sounds licensed from Seer Systems (a Silicon Valley company run

by Stanley Junglieb, one of the forces behind the seminal synth manufacturer Sequential Circuits) with the cheap Turtle Beach Monte Carlo game soundcard for IBM-compatible PCs. V-Synth is a 32-voice synth engine that works with any 486 or Pentium system, and according to spokesman Roy Smith, "any soundcard with the right drivers". At present, however, the Monte Carlo, a 16-bit SoundBlaster clone, is the only available card that works. The drivers in Windows 95, Smith expects, will make it possible to run the system through any Windows-compatible soundcard. However, since the system depends on the virtual device architecture that Windows provides, it doesn't work with DOS games. Smith also hopes to have the company's *SampleVision* and *WavePatch* editing programs available for the new platform.

#### BROOKTREE WAVESTREAM

Another PC-orientated company is Brooktree. This 12-year-old San Diego semiconductor company has developed WaveStream, which works with Windows on 486/33 machines and up. An MPU401 emulation mode allows use with DOS games. The sound set, which contains 16-bit samples, is from Q-Up Arts, and takes up 8Mb of RAM with the sample rate fixed at 22 kHz. A caching system, which loads the sounds required with any sequence, uses anywhere between 600K and 2.3Mb, depending on the emulation quality required.

Real-time control is provided over pitchbend, aftertouch, mod wheel, and sustain, as well as dynamic filters, filter envelopes, and LFO. The number of voices is selectable on the fly, using a feature called 'dynamic polyphony', from 2 to 32 voices. Another feature called MultiSynth will, if there's an FM card present, offload some of the instruments to the card, reserving wavetable voices for when they will do the most good. Senior

## IS THIS THE END OF HARDWARE SYNTHESIZERS?

With so many companies, including some truly heavy hitters, backing software synthesis, is this the inexorable wave of the future? Is hardware, at least as far as PC-based music goes, doomed?

Well, it's probably still a little premature to melt down your soundcards. Even those who are working on software synthesis are a bit sceptical. The reason is that the performance 'hit' on a computer trying to generate 32 MIDI voices in real time — even a fast one — can be substantial, and some feel that playing music is not the most efficient use of a CPU's time. According to Kurzweil's Fred Lapitino, "playing 32 high quality voices at 44.1kHz bandwidth uses up almost all of an average 486, and about half the processing power of a 100MHz Pentium". Lapitino's colleague Howard Brown adds: "Software synthesis is a great advertisement for hardware synthesis. The hit is considerable: at 44.1kHz, you're looking at 2 to 5% per voice on a 90MHz Pentium. It's a false economy — it looks like the synth is free, but actually, it's taking up as much as 60% of your CPU. When you add in the cost of the RAM that is dedicated to making music, you're

spending \$750 to do what a \$150 soundcard can do."

Some would consider Brown's figures to be a bit high, but many in the audio community share his concern. Gordon Currie, audio designer at Microsoft, says software synthesis is "a great idea, but it still has some way to go. It reminds me of a lot of software implementations of stuff that originated in hardware: it's always slower in software, and not as good quality. Everybody and his brother's going towards software, assuming that with the new CPUs there's so much idle time to spare, but if *all* of your DSP is in software, you end up with a dog-slow CPU that's trying to do everything at once: audio decompression, video, 3-D graphics, and a modem in the background. The hardware is finally fast enough that we can start writing code with fast hardware in mind, but when everybody does it, it's going to slow down again. The user will think 'This is ridiculous — I paid all this money and it's all hype, the system is slow as molasses!'"

Others point out that with hardware-based synthesis as cheap as it is, it makes more sense to use the CPU for tasks which can't be so easily

duplicated in hardware. "A Pentium 120 with 16 megs has enough memory and processing power to do high-quality synthesis," says Microsoft's Geoff Dahl, "but some games would prefer to use the resources for improved 3D rendering, or MPEG video or audio decompression. Maybe you can do one or two of these at once, but it would probably not do a great job with all four at the same time."

Dave Rossum, director of the Emu/Creative Labs technology center, calls software synthesis "a cool thing to use your computer for, but right now the speed of the machines is such that anything that's going to sound interesting is taking a significant hit. If all you're doing is synthesizing music, that seems to work. It's not necessarily the best sound quality and most accurate sequence playback, but I don't retch and vomit when I hear it. But when you get into MIPS-hungry (millions of instruction per second) applications, everyone's going for as many MIPS as they can get, and reasonable synthesis takes 25% or more of performance, so basically, you'll end up sacrificing something".



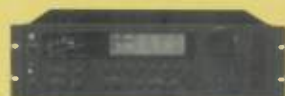
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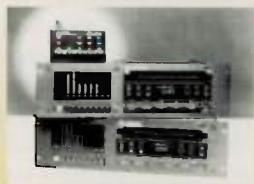
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**E** rjlisle@vnet.ibm.com.
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- A** Kurzweil R&D Institute, 1432  
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- A** Microsoft Corporation, 1  
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- A** Seer Systems, 33 Tintern, #5,  
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- A** Turtle Beach, PO Box 5074,  
York, PA 17405, USA.  
**T** 001 717 767 0200.  
**F** 001 717 767 6033.

► product marketing manager Joe Monastiero comments: "With a 486/33 we recommend using nine wavetable voices, with the rest in FM."

Although the software was developed on a SoundBlaster 16, plans are to ship it initially only with the company's own MediaStream chipset, which, in addition to audio, handles graphics and video on a PCI card. The release is scheduled for October. Ports to other soundcards are expected shortly, and user-designed sounds will be accommodated through a program called *SampleXchange*.

### IBM

Even IBM is getting into the game, with not one, but three software-based systems. Some models of the company's ThinkPad computers have a fairly simple 16-note synth running on the machine's 80486 processor. More interestingly, IBM's Power Personal Systems division has announced a software synthesis system for the company's PowerPC-based computers. It ships with the NT 3.51 operating system, and can play up to 32 notes simultaneously using 16-bit, 22-kHz samples. Three different configurations are supported, each using a different amount of CPU and memory usage. The first configuration is called BASIC and utilises the subtractive synthesis technique employed in the first ThinkPad MIDI synth. This mode requires a very small amount of CPU cycles and zero sample memory. The second configuration (PREMIER) performs wavetable synthesis using about 2Mb of samples. Finally, the third mode combines the first two modes, offering a combination of wavetable and subtractive synthesis. A stereo audio codec is included on the motherboard, along with a joystick/MIDI port that uses the same cable as a SoundBlaster. The system includes a stereo mixer that can combine up to four signals at any standard MME sample rate or word length, in mono or stereo. IBM reports that Sonic Foundry has ported their highly regarded *Sound Forge 3.0* audio editing software to run in native mode on the system.

Finally, IBM are also shipping a third software synth with their PCMCIA card. This makes use of the same samples used in the PowerPC synth (16-bit, at a rate of 22kHz) but does not perform per-voice configurability.

## KURZWEIL *Technology Group*

### KURZWEIL

The Kurzweil Technology Group, at the Young Chang R & D Institute in Massachusetts, is working on a software synthesis engine for a number of large PC manufacturers. The sound set is almost the same as the 2Mb ROM that goes into several of the GM chipsets that Kurzweil market to other equipment manufacturers, and features a maximum 32-voice polyphony at a maximum 44.1kHz bandwidth. According to marketing manager Fred Lapidino, "the number of voices

will be software-controllable by the user. This will allow you to optimise the synth structure for the varying demands of multimedia applications, and the varying PC hardware on which these are run".

The synth can be loaded with new samples using MIDI Sample Dump Standard, but since a real MIDI cable isn't involved, the operation is quite fast, according to Howard Brown, chief architect of the group. The size of the set is not fixed, but can be expanded up to the RAM available in the host computer. The processing delay for live MIDI control is, according to Brown, "comparable to most MIDI instruments, or under a millisecond, except that the operating system sometimes gets in the way".

### ALTEC LANSING

And finally, in a surprise entry, Altec Lansing, the Pennsylvania speaker manufacturer, is dipping its corporate toes into software, with a wavetable synthesis system for Windows scheduled for shipment in late Autumn. It uses only 1Mb of RAM, and will run with a 75MHz (or faster) Pentium. The price is minimal too: \$29.95. No further details were available at the time of going to press.

## THE FUTURE OF SYNTHESIS?

Even the sceptics see a role for software synthesis in the future. "Music professionals will never accept the performance," says Turtle Beach's Roy Smith, "but for what the masses need to play back games, it can be quite happening. As time goes on, the proportion of power being taken will diminish by orders of magnitude, until it gets to the point where it's a background task, like a screen-saver."

Emu's Dave Rossum agrees: "In the very long term, as the machines get an order of magnitude faster, we can go from a situation where the software synth occupies 25% of the CPU to 2.5%, and then synthesis becomes small change. Of course, we continue to discover new things — right now, we're looking at doing 3-D audio from two channels — that may keep demand on audio performance apace with CPU performance. But people using this in the future, in a room with the disk drives yelling and the kids whirring — they'll be very happy if they can get from the software the equivalent quality of a 1995 General MIDI synth."

As to who is going to win out among the players, perhaps Fred Lapidino has the right philosophy: "Just as with hardware, the people who have been doing it the longest will do it the best. All wavetable software synths basically do the same thing, but it's the craft of the people putting the sounds together that will make the difference."

And as to how all this affects the professional musician, nobody's going to *make* you record all your music on this stuff. But just as the professional composer for television checks his work on a 2-inch speaker, the multimedia composer may want to start getting used to hearing what his music sounds like played back on it.

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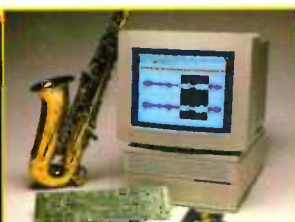
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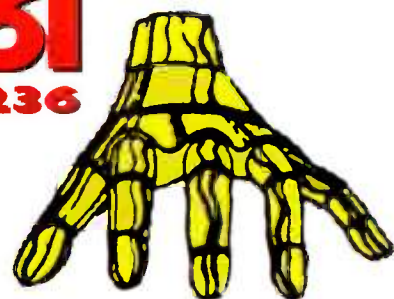
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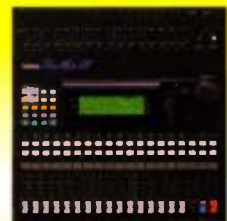
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**Power amps may not be as exciting as synths, but they can make a big difference to your sound. PAUL WHITE checks out Yamaha's latest power tool.**

**T**he H Series power amplifiers are not simply old ideas packaged in new boxes — Yamaha have gone to great lengths to improve the electrical efficiency of these amplifiers without compromising their audio performance. Greater efficiency means you can get more power in a smaller box and, more importantly, that there isn't so much heat to dissipate. In normal use traditional class A/B power amplifiers tend to be only around 30% efficient, so you might say that the circuitry is really a heater which amplifies music as a bi-product! In recent years, several strategies

response of such devices is difficult to maintain.

More recently, Switched Series Regulation systems have been devised in which the amplifier's power supply effectively tracks the signal level. At any instant, the amplifier is working near its maximum power limit, regardless of the input signal level — thus, the power rating of the amplifier is constantly changing to meet the demand. Because an amplifier working flat out is at its most efficient, this system is very effective in reducing the amount of wasted power. However, the drawback is that the power supply circuitry can't always respond to fast transients, which means that some signal peaks may be clipped.

Yamaha appear to have adopted this latter approach, refining the concept by adding an auxiliary power supply that delivers the necessary short-term power to allow transients to be reproduced cleanly during the period in which the main power supply is jacking up its voltage. They call this system HED, or High Efficiency Drive,

# POWER

## YAMAHA H3000 POWER AMP

# HEARING!



and according to the published graphs, it claims to be around twice as efficient as conventional amplifiers.

### HD3000

The HD3000 is the smallest model in the H Series and is rated at 350 Watts per channel into 8 Ohms, 450 Watts per channel into 4 Ohms, or 900 Watts bridged mono into 8 Ohms. This kind of power makes it suitable for medium-sized studio monitoring systems as well as smaller PA and installation applications, and though the amplifier is fan-cooled, the fan speed is fairly low which means there isn't a lot of fan noise. The frequency response of the H Series range extends from 10Hz to 50kHz within 1dB, and the distortion levels, while not quite in the 'two noughts something' category, are respectably low.

The H3000 is a 2U rackmount package, making it the same size as my trusty old Yamaha 2075 (which delivers only 75 Watts per channel). Air is drawn in through vents at either end of the front panel and vented through the rear of the box, which means that suitable ventilation space needs to be left behind the unit. Because the unit is quite deep and heavy, integral rear rack fixing brackets are provided.

Two large rotary controls are used to set the left and right channel gains and a comprehensive array of warning LEDs, four for each channel, provide information relating to clipping, the presence of an output signal in excess of 2 Volts, the presence of an input signal in excess of -40dBm, and operation of the protection circuitry. When the clip LED lights, a limiter comes into operation, and push-on knob caps are provided for

have been employed to make amplifiers more efficient, but most have weaknesses and may be costly or technically difficult to implement.

One increasingly popular trend is to use a system of power supply voltage switching, so that the amplifier's power supply only produces enough voltage for high power operation during signal peaks or high level average signals. Such systems work well enough, but because of the constantly changing dynamics of real-life programme material, the power savings are not as significant as you might imagine.

Another approach, which has been around for at least a couple of decades, is PWM (Pulse Width Modulation). Here, the audio signal amplitude is used to modulate the width of a steady stream of pulses. A low-pass filter in the output stage converts the PWM waveform back to recognisable audio, but because of problems in designing effective filter circuitry, the frequency response and transient

### YAMAHA H3000 £1599

#### PROS

- Energy efficient.
- Good, clean subjective sound.
- Solid and well engineered.

#### CONS

- Fan is quiet, but still audible.

#### SUMMARY

An ideal amplifier for high quality monitoring in small to middle-sized studios, or for quality sound reinforcement work.



applications where the amplifier's gain setting needs to be made tamper-proof.

Balanced inputs are provided on both jack and XLR connectors, and further XLRs allow the input signal to be daisy-chained to a second amplifier. A slide switch allows for Stereo or Bridge operation with a further position providing a parallel input feed, whereby channel A's input feeds both sides of the amplifier. A ground lift switch is also fitted.

The speaker outputs are on conventional binding posts, but in acknowledgement of the new EEC regulations (which may be interpreted as: 'a frail old granny, soaked in sea water and fitted with a dicky pacemaker, should be able to poke about in any piece of electrical equipment with a two-inch steel hatpin, without being able to come into contact with any source of electrical power greater than that required to produce a mild tingle'), a plastic cover is thoughtfully provided, which the majority of users are likely to omit to replace once they've removed it to connect the speakers.

A 15-pin D connector is fitted so that a suitable remote/monitor may be connected, but this is purely for the benefit of installers who can provide such a device, since Yamaha don't manufacture one themselves. The pin-outs provide tallies for the warning LEDs and provide for remote power-up and muting.

As you'd expect from a modern power amp design, the speakers are disconnected at switch-on and switch-off to prevent thumps, and the protection circuit steps in if the heatsinks exceed 95 degrees Centigrade. In real life, this isn't going

to happen unless you're either running flat out in Death Valley in the middle of summer, or if you've buried the amp beneath a pile of duffle coats!

## OPINION

Until you switch it on, a power amp is just a boring black brick (and if you're really lucky, it will remain just as boring once you've switched it on). While I didn't take the H3000 on a gig, I did connect it to a rather nice pair of ATC SCM20 monitors, and it performed flawlessly. Having plenty of clean power in hand really allowed these speakers to work effectively, resulting in a much tighter, more confident bass sound than I obtain using my older (and less powerful) Yamaha 2075 amp. The high end comes over as well defined but not in any way shrill or harsh, and the overall impression is one of extreme competency. During periods of silence, the H3000's fan noise is audible, but not obtrusively so.

It's clear that Yamaha's H Series amplifiers are well designed and well specified. They perform properly in a real life environment, they're built to a very high standard, and in subjective terms they sound extremely good.

SOS

## FURTHER INFORMATION

- £ £1599 inc VAT.
- A Yamaha-Kemble Music (UK), Sherbourne Drive, Tilbrook, Milton Keynes, MK7 8BL.
- T Product Info line 01908 369269.
- F 01908 368872.

## SPECIFICATIONS

Power Output:	350W into 8 Ohms 450 Watts into 4 Ohms 900 Watts bridged mono into 8 Ohms
Frequency Response:	10Hz to 50kHz, +0/-1dB (half rated power)
THD:	0.07% or better
IMD:	0.07% or better
S/N Ratio:	106dB (A wtd)
Damping Factor:	greater than 200 at 1kHz (8 ohms)
Slew Rate:	+/-30V/ microsecond
Sensitivity:	+4dB
Voltage Gain:	32dB max
Input Impedance:	30 kOhms balanced

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# widgets

## CONCISE REVIEWS OF ESSENTIAL ACCESSORIES

### SPECTRA DYNAMICS' ADVANCED DAMPING/ISOLATION POLYMER

Spectra Dynamics is a small Welsh company specialising in the production of a rather interesting, soft polyurethane material, which is very dense, very flexible, and exhibits a high degree of self-damping due to its long-chain molecular structure. The company already manufactures a range of products based on this material, most of which are aimed specifically at the hi-fi market, but some of them seem equally applicable to the recording studio.

Spectra Dynamics first contacted me after reading my suggestion of mounting monitor speakers on blobs of Blu-Tak, whereupon they informed me that they sold a material which would provide greater isolation, and which wouldn't get squashed flat with age. I was intrigued enough to take a look. The product in question consists of a set of four huge stick-on feet (around 5cm in diameter), called

Foculpods, normally sold to hi-fi users to isolate their CD players and record decks from vibration. Foculpods do



seem to provide a respectable amount of isolation, and they have a very tacky feel, which makes them incredibly non-slip.

Apparently, the material works best when it is under compression, so speaker mounting seems to utilise its properties to their greatest advantage, but you can also buy sheets or blocks of the stuff to use in

room construction. It is rather more expensive than neoprene, but in certain strategic situations, the extra cost may well be justified.

Another application for the material is treating the insides of loudspeaker cabinets, and although I haven't tried this on any of my own monitors yet, there are various testimonials to indicate that it is often beneficial — or there is at least an audible difference. Essentially, the inside surfaces of the cabinet are treated by fixing quarter-inch thick Deflex panels, which have a Fresnel lens-style ribbing moulded on to their surface. My calculations suggest the lens contour will have little, or no effect in refracting anything other than the very highest frequencies, but the surface area will be increased, thus helping absorption. The manufacturers claim that the

material works by reducing the amount of reflected energy redirected back through the bass driver's cone. Contoured pieces are also available for treating the inside corners of the cabinet, but again, I can't say at this stage whether this makes a significant difference.

After experimenting with the Spectra Dynamics polymer, I feel that it has a number of beneficial uses, including loudspeaker isolation, isolating guitar amps from the floor (try four Foculpods on the amp, and then stand this on a small paving slab), studio construction, damping resonant panels, and treating equipment where there is a tendency for the lid to vibrate in sympathy with the mains transformer. You could even try isolating DAT, CD, DCC, or ADAT/DA88 recorders in any environments where there is a lot of structural vibration.

You really have to handle this material to appreciate how dense and non-slip it is — its texture approaches that of the dead rubber bats you can get from joke shops! The way that it absorbs energy is explained by simple physics — it is not just another 'snake-oil' product spawned by the hi-fi business, but equally, it isn't going to miraculously solve all your problems either. Ultimately, it's just a new material, and like any material, it has to be used in the right context to produce worthwhile results. Even so, the more you think about it, the more applications you can find for it.

### WASHBURN VGA 15 GUITAR AMP

Guitar amps don't figure largely in the pages of *SOS*, but this little practice amp turns out to be ideal for recording rock and blues guitar. It's a very nice looking amp, with classic tweed covering, a traditional fabric speaker grille, and vintage (Vox) AC30-style pointer knobs. Metal protectors are fitted to the front corners of the cabinet, and there's no risk of poking anything through the speaker, as the back is completely sealed.

Although little larger than a gift-wrapped bundle of 12 issues of *SOS*, this 15 Watt, solid state amp delivers a very mature sound, with plenty of punch at the bottom end, and tonally, it sounds very much like a small valve amp. The controls are simple enough, and include gain, volume, bass, middle, and treble, plus a button which increases the gain setting for more heavily overdriven sounds. Reverb and channel switching are not available, but in the studio, the chances are that you'll add your own effects anyway, and overdub any different sounds at other times.

Some practice amps end up sounding thin and fizzy, but this one sounds like a quieter version of a big amp, having a very natural tone with plenty of touch

responsiveness. The background noise level is acceptably low, and because the maximum power is only 15 Watts, the amp can be miked up in a home studio without giving the neighbours too much of a hard time. Having said that, I can't help feeling that this tiny amp goes a lot louder than it has any right to do

with a 15 Watt rating.

Tonally, you can move from a clean '60s sound, through to a very convincing mid '70s rock sound, so if you're into recording indie music, you should be able to coax all the classic noises out of this baby. There's also enough overdrive in hand to play saturated lead sounds, but modern metal players may want to patch in a pedal to provide even more gain for

single-handed virtuosity.

Best of all is the price. The VGA 15 costs just £99, which makes it about the same as a decent effects pedal, so now you have no excuse not to explore the more traditional methods of guitar recording.

#### FURTHER INFORMATION

- £ £99 inc VAT.
- A Washburn, Amor Way, Letchworth, Herts, SG6 1UG.
- T 01462 482466.
- F 01462 482997.



#### FURTHER INFORMATION

- £ Foculpods £14.95 per pack of four; Deflex panels for loudspeaker modifications (28x21cm) £7.95 each; plain sheets available in various sizes from 2 to 8mm thick. Full price list on request. Prices include VAT.
- A Spectra Dynamics Ltd, Talargoch Trading Estate, Meliden Road, Dyserth, Clwyd, LL18 6DD.
- T 01745 571600.
- F 01745 570194.



# WIN



**Y**amaha's fabulous new P150, worth an incredible £1,899, is up for grabs this month. Retaining the 88-note keyboard and highly acclaimed Action Effect (AE) weighting mechanism of its predecessor the PPF100, Yamaha have added several new features, making this an exciting addition to their stage piano range.

The P150 is 32-note polyphonic, incorporates a new Performance mode (allowing up to 24 user patches to be stored internally), and can be 'personalised' through editing, layering or splitting any of its 12 AWM preset voices. A large, backlit LCD clearly displays all information, and 20 Watt stereo speakers are incorporated. The P150 also includes a 3-band graphic equaliser, six editable DSP effects, and its comprehensive

MIDI control options make it ideal for use either on stage or in the studio.

All you have to do to get your hands on this exciting new keyboard is to answer the simple questions set out below, and concoct an appropriate tie-breaker.

Then send your completed entry to us to arrive no later than

**Friday, November 3rd 1995.**

Good luck!

**Prize kindly donated by Yamaha-Kemble Music (UK) Ltd (Tel: 01908 366700).**

## the small print

1. Only one entry per person is permitted.
2. Employees of Sound On Sound Ltd, Yamaha-Kemble Music (UK) Ltd, 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.
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. Prizewinners must be prepared to make themselves available in the event that the competition organisers wish to make a personal presentation.

# YAMAHA

## P150

### DIGITAL STAGE PIANO

## QUESTIONS

1. The P150 is the successor to which popular Yamaha stage piano?

- a. PPF100
- b. PPF150
- c. P45
- d. PSTTFN

☐  
☐  
☐  
☐

2. What is the full name of Yamaha's AE keyboard weighting mechanism?

- a. Appropriate Energy
- b. Alter Ego
- c. Action Effect
- d. Action Man

☐  
☐  
☐  
☐

3. How many user patches can be stored in the new Performance mode?

- a. 88
- b. 24
- c. 32
- d. 12

☐  
☐  
☐  
☐

4. How many editable DSP effects are available on the P150?

- a. None
- b. 6
- c. 3
- d. 33 1/3

☐  
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## TIE BREAKER

If you won a P150, what would be the first tune you'd play on it and why? Please use no more than 30 words in your answer.

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**BOSS DS330 DR SYNTH** as new, £210, MMT8 plus the complete guides to MMT8 HR16, £110, Yamaha RY10, £125. All as new with manuals etc. Dave 01733 315833/371502

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**CASIO CZ3000**, £175. Also Hohner Pianette T, early electric piano, rarity, £150. Adrian 0114 274 6190 (Sheffield)

**CASIO CZ3000** mint condition, £195; Also EPS sampler keyboard, £550. Steven 01690 710231 anytime

**CASIO CZ5000** synth, VGC, PSU, Atari editor disk, £250. Kawai R50 drum machine with effects and editing, manual, PSU, see SOS July '95, £100. Paul 0171 982 1803 (work), 0171 474 7973 (home) (London E6)

**EMU MPS PROTEUS** keyboard, 4Mb of great sounds, excellent master keyboard functions, boxed with manuals, as new, £450 ono. Atari SM124 mono monitor, £70 ono. Cubeat 2.0 for Atari with manual and dangle, £40 ono. DAC5 MIDI patchbay, connects 10 MIDI instruments, £40 ono. John 01434 603031 (Northumberland)

**EMU PERFORMANCE** piano module, boxed, excellent condition, £150. 01243 374401

**EMU PROTEUS 1** sound module. Excellent condition. £285. Manual included. Stephan 01273 694894

**EMU PROTEUS 1**, home use only. Boxed with manual £275. 01204 693893 (N W Area)

**EMU PROTEUS 2 XR** orchestral module, as new, £495 ono. Korg M3R multitimbral module with extra sounds on disk and RE1 remote control, £375. Yamaha TX7 with disk full of sounds, £165. All in excellent condition. Kenny 01424 421814

**EMU PROTEUS 2** orchestral synthesizer, mint condition, boxed with manuals, £395. Matt 0121 449 6593 (Moseley)

**EMU PROTEUS FX** new, £350. Contact: J Condon 33 Kimbolton Green Borehamwood Herts WD6 2NQ.

**EMU VINTAGE KEYS** expanded, £650. Korg 03RW, PCM card, 30 banks of voices, ST editor, £500. Both VGC. Tim 01222 388093 evenings and weekends (Cardiff)

**ENSONIQ ESQ1** keyboard, perfect condition, £350. or Fax: Ian 01702 616961 (Southend)

**ENSONIQ SQ1 PLUS**. Great sounds, excellent condition plus two cards, £450. Paul 01484 602193 (Huddersfield)

**ENSONIQ SQ80** synthesizer/workstation with quad RAM cartridge, manual etc. £400. Roy 0171 223 8817 (London)

**ENSONIQ VFX**, mint condition, including manuals, cables etc. £500 ono. Robert 0161 366 8744 (Cheshire)

**EVOLUTION EVS 1** module with editing software for Atari, 16-voice polyphonic, immaculate condition, £90. John 01225 723513 (Bath)

**FATAR CM561** mother keyboard, mint condition, £150; Peavey bass module, light use, £150. Phil 01784 433115 (Surrey)

**HAMMOND A100** organ plus valve Leslie, £950. Buyer collects. Kim 0171 263 9772 (North London)

**HAMMOND T200** tonewheel drawbar organ, original cheesy sounds! Same sounds as C3 for less money and less space! Oiled every year since 1969, may deliver £450. Richard 01274 869904

**HAMMOND XB2** organ plus Korg G4 Leslie effects, £950. Roland D50 synthesizer, £450. Yamaha TG77 module, £600. Alesis Quadraverb GT effects £275. Mike 01792 466573 after 6pm (Swansea)

**KAWAI G** mega module, 32-part, multi 384 editable sounds inc. House/dance/analogue type. 14 drum kits, 808 samples, editable effects. Perfect condition, £320 inc. postage. 01925 754831

**KAWAI K1R** classic multitimbral rack synth with editor and hundreds of sounds, £220 ono. Also Tascam 32 2-track recorder, £430. Andy 01633 613342

**KAWAI K4**, £300, Roland D10, £270, Yamaha EMT1, £45; Yamaha PSS680, £45; Tascam Porta 07, as new, still guaranteed, £250 buyer collects, excellent condition. 0191 455 4376 (Tyne & Wear)

**KAWAI K4** £420 or swap for U20, V50 or SY55. MC50 MkII, £425 ono. Lee 01472 267665 (Grimsby)

**KAWAI K4** multitimbral keyboard, £390. Roland MT32 multitimbral sound module, £180. Both with editors. Frank 0171 735 9654 (London)

**KAWAI K4** synthesizer, excellent condition with tons of extra sounds (Atari), £350, no offers, Yamaha FX550 multi-effects, as new, £185; Novation BassStation, £275. 01933 678608 (Northants)

**KAWAI K4R** rackmount with manual, excellent, £265; Also Moog Opus 3, great for string and brass sounds live! Lastly Korg M1 sound cards, £15 each. 0181 845 4979

**KAWAI K5** sound module, plus card and Atari library and editor, £300. Paul 01484 602193 (Huddersfield)

**KORG i3** interactive workstation, including Korg EC5 foot controller, 40-disk library, keyboard cover. All in mint condition, (all boxed). £1299. Mark 01875 641526/Mobile 0378 741448

**KORG M1** excellent condition, £575; Tascam 644, 4-track 16-channel MIDI studio. Hardly used, £450 half price! Atari 1040 STE + creator V3.1, £250, Carlsbro 90, £150. 01394 273259 w/ends eves

**KORG M1**, excellent condition, with flightcase, ROM card, manuals, £650; Ensoniq ESQ1, excellent condition, with flightcase, 2 RAMs, manuals, £375. Brian 0141 633 1311 after 6pm (Glasgow)

**KORG M1** good condition, plus Editor/Librarian (Atari) £600 (no offers) or swap for Jupiter 6, same condition, (or expanded D50 plus £150). 01442 231370 (Herts) answerphone

**KORG M1** with stand and manual, home use only, excellent condition. £650. Jackie 01732 462847 (Kent)

**KORG M1** workstation with PCM and ROM card — sequencer, built-in effects, etc. £580, also Casio FZ1, £495. Mark 01772 792280

**KORG M1** rex T3 sounds in ROM, £650, Yamaha TG33 Vector synthesis module, £250, Emu Performance Plus,



excellent digital piano, £200, Yamaha TX7 module with extra sounds on ST disks, £150 ▢ Dave 01959 570867 (Biggin Hill)

**KORG MONO M500SP** electronic synthesizer, great analogue sounds, good condition, £190 ▢ Horace 01604 845597 anytime (Northampton)

**KORG MS10** analogue synth with patch leads and manual, £150, Roland M64CX memory cartridge £25 ▢ Paul 01952 460326 (Shropshire)

**KORG MS20** with Octi/Volt modification, £350, Korg MS50, £350, Kenton Pro 2 MIDI to CV/Gate interface, £100 or all three for £700. ▢ Mike 0115 978 1132

**KORG M3R**, excellent condition, box, manual, £250 ▢ 01299 271090

**KORG 01W**, good condition, home use only, £900. ▢ Nick 01242 672058 (Glos)

**KORG 01WFD** music workstation, mint condition, hardly used, with manuals, £1050 ▢ 01524 67210 eves (Lancaster)

**KORG 01WFD** plus 600 extra sounds, £1000 ▢ 01269 871014

**KORG 01WFD** plus voice crystal sounds, complete with manuals and original factory presets and demos, as new, £975 ono ▢ Andrew 01629 814134 (Derbys)

**KORG 01WR** as new, £725, Peavey PC1600 MIDI controller with SY99 editor, £265, Yamaha A100 stereo amp, £150. All boxed and immaculate. Private sale ▢ Bill 01708 223345 (Nr M25)

**KORG OSRW** half-rack module, boxed, as new, £350 including postage ▢ John 0115 941 1185 (Notts)

**KORG OSRW** plus sounds, £400, Novation BassStation, £300, Cheetah SX16 sampler, £300; Studiomaster Diamond 12.2, £300; Electric guitar + tuner, £120, Microphone + stand + lead, £60. All manuals included ▢ Colin 01733 578531

**KORG OSRW** sound module. Excellent condition. £360 ono. Also Roland JV86, excellent condition, only £600. Both for £900 ono ▢ Matt 01628 471047 (home) or 01494 510044 (work) (Bucks)

**KORG VC10** vocoder, VGC. With manuals, £400 ono. Buyer must collect. ▢ 0171 834 2361

**KORG WAVESTATION** pristine condition, limited home use only, manuals, updated software, £750; Foxtex X28H 4-track, pristine, hardly used, boxed, manuals etc. £325 ▢ 01235 521397 (Oxon)

**KORG WAVESTATION EX** including program cards, £850 ono ▢ John 01562 822236 (Kidderminster)

**KORG WAVESTATION SR** — more exquisite sounds than you can wave a stick at. Hardly used. £550 ▢ Steve 01222 497638 (Cardiff)

**KORG WAVESTATION SR** swap for 01WR ▢ Brad 01633 873118 (days) 01633 865758 (eves and weekends)

**KORG X3**, brand new, boxed, with stand, disks etc. Still under warranty. £825 ono ▢ John 01782 412658 (Stoke on Trent)

**KORG X3** workstation, home use only, manual, carry case, X-stand, £800. ▢ Rob 0181 381 2693 (Middlesex)

**KORG X5** keyboard, hardly used, £600 ▢ 0181 840 7029 (London)

**NOVATION BASS STATION** analogue synth, dual oscillator, LFO and modulation wheel, excellent acid sounds, thumping bass and sweeping filters, home use only, boxed and guaranteed, £300 ono ▢ 01274 877233

**OVERHEIM 4-VOICE** vintage analogue synth with 16-mem program and manuals, can run as 4 dual-osc mono synth, £2500 ono ▢ 0181 995 8773

**OVERHEIM MATRIX 6R**, immaculate condition with manual, £550, Korg MonoPoly ex condition, £340, Roland SH09 good condition, manual, £210, 100 and 120 semi flightcase racks, ex condition, £100 and £120 ▢ 01825 724093

**OVERHEIM MATRIX 1000** analogue MIDI synthesizer module, huge range of classic sounds, programmable over MIDI. Complete with manual, voice list and box, £300 ▢ 0161 861 7261 (Manchester)

**QUASAR QUASIMIDI** with TRE board, hardly used, only 4 months old, £1000 ▢ Andy 01536 520363 (Northamptonshire)

**RHODES 73** piano, very good condition, reluctant sale, £180, Roland D5 synth and flightcase, perfect condition, £230. Both are bargains. ▢ Nick 01661 842891

**RHODES STAGE 73** electric piano. £100 ono ▢ Stuart 01372 745032 (Essex)

**ROLAND A80** professional master keyboard, excellent condition, £830 ono, Korg 01RW 16 multitimbral sound module, 4 outputs, built-in effects, home used only, excellent condition, £800 ono ▢ 0171 720 3702

**ROLAND CM64** module. NT32 and D110 sounds. Hardly used. £150. ▢ Paul 01628 526469 (Bucks)

**ROLAND D20** £450 with disk and stand, Roland W30, £730 with large sample library. ▢ Rob 01455 631088 (Leics)

**ROLAND D20** with manuals, £450; Atari 1040 STE, 2Mb RAM, Notator Logic Log 3 interface, manuals and monitor, £450. ▢ John 0181 776 1308

**ROLAND D50** synth, home use only, with editor and 3000 excellent sounds, £450 ▢ 0181 656 0291

**ROLAND D50** and PG1000 programmer, £550; R8 drum machine and 909 dance card, £300. All boxed and in mint condition. ▢ Chris 01785 819929 (Staffs)

**ROLAND D110** multitimbral module with PG1 programmer, complete, boxed, mint, £200 ono ▢ 01473 748293 (Ipswich)

**ROLAND D110** sound module. Eight separate outputs, good keyboard and drum sounds, with manual, £245. ▢ Stuart 01403 752647 (Billingshurst area)

**ROLAND E86** excellent condition, home use only, £850 ono including style disks and keyboard stand. Also Yamaha SY22 in mint condition, only £300 ono ▢ John 01284 725639 (Bury St Edmunds)

**ROLAND JD800** 14 months old, one owner, never gigged, excellent condition, boxed, manuals, £1500 ▢ 01737 832282

**ROLAND JUNO 6** warm, analogue polyphonic synth, £200 or swap for a decent mono synth ▢ Francis 01495 290413 (Gwent)

**ROLAND JUNO 60** £300 ono, Korg Delta, synth/strings with manual, £150 ono. Both mint, fully metal flightcased, £400 for both, must sell. ▢ Mark 0191 237 5108 (Tyneside)

**ROLAND JUNO 106** analogue polysynth, excellent condition. Get those analogue sounds you have been dreaming of and not pay too much either £320 ono ▢ Jim 01268 282109 (Bauldon)

**ROLAND JUPITER 6**, £650, swap for Microwave Roland MK550, swap for Alpha Juno 2, Korg S3 drum workstation, £220. Any deal considered. ▢ Paul 01772 626269

**ROLAND JUPITER 8** needs slight attention otherwise VGC, hence £575, Roland JX8P VGC, £425 or £900 for pair. Swap Jupiter 8 for wavestation (mint, boxed) ▢ Chris 0421 507144

**ROLAND JV880** 3 months old with JV90 presets built-in, boxed with receipt and guarantee, cost £599, sell for £445. Also Roland M26E memory card, cost £90, sell for £45. Wanted, two 4Mb SIMS and Novation rack station. ▢ Paul 01302 538304 (Doncaster)

**ROLAND JV880** module with vintage synth board. R50 multi-mode filters, lots of modulation, hundreds of magnificent noises. Perfect. £600. ▢ Steve 01222 497638 (Cardiff)

**ROLAND JX1**, JX3P, Juno 6, 60 and 106, Juno 2, DS, D50, Korg Trident Mk1, MS10, 700 Mini, Poly 61, Poly 800, P3, Kawai K1, K5, K1M, Casio CZ101, CZ1000, CZ3000, Yamaha DX7, TX7, DX100, CS01, TG33. ▢ Gordon 01670 523363 (Northumberland)

**ROLAND JX3P6**-note analogue poly. Step time sequencer, MIDI (mono only), £250. Two-tier quick-lock keyboard stand, very sturdy, £80. ▢ Martin 01223 845588 (day) (Cambridge area)

**ROLAND JX3P** Programmable analogue synth, MIDI compatible, VGC, £250, Korg MS20 analogue mono synth with patchbay and patch leads, £180 ono ▢ Andrew 01884 266361

**ROLAND JX8P** MIDI analogue synth, £450 ono. Viewtech mono Atari monitor with high-res software, £30. 19" angle trolley rack, £30. ▢ Keith 0161 747 5372 (Manchester)

**ROLAND MC202** mint condition, comes with instruction manual and sheets, £250. ▢ Montrose 01674 677654 after 1pm

**ROLAND SH101** analogue synth, good condition, real analogue sounds bass blips beep plus arpeg, £160 ono. ▢ 01268 282109 (Basildon)

**ROLAND SH101** classic synth, mint condition, £250 ▢ Andre 0171 286 3330 (London)

**ROLAND SUPER JV1080** 2 months old, £940, Yamaha RY30, plus dance and rap card, £210 ▢ Paul 01159 782808 after 6pm (Nottingham)

**ROLAND SYSTEM 100M** analogue synth plus 181 keyboard, excellent condition, £1600 ▢ Chris 0171 938 2470

**ROLAND SYSTEM 100M** full modular setup including rack and 49-key controller keyboard. Superb condition. £1600. ▢ 0171 265 8131 (London)

**ROLAND T330** piano module, £250, Roland SH101 with filter kit and CV converter, £300, Akai S950 sampler, £800. Boss DR550 drum machine, £70. ▢ Dan 0121 633 4742 (Birmingham)

**ROLAND U20** synth. Superb sound, as new, £350. ▢ 0115 920 6545 (Notts)

**ROLAND U20** with ROM card containing acoustic guitar sounds. £480. Yamaha SY35, like new, £350. ▢ Neil 01743 350240 (Shrewsbury)

**ROLAND U220** sound module. Great sound samples. £295 including 3 cards. Alexis Quadrawer Plus. Little used. Boxed. £225. ▢ 01494 791876 (M25 area)

**ROLAND U220** PCM/sample module, new condition, £220, Also Voce Hammond Sample Player, 3 channels, 32 presets, Leslie, chorus, full MIDI control, £250. Interesting swaps? ▢ Jon 01522 750846

**ROLAND W3061**-key keyboard with built-in 16-track sequencer and sampler, with stand, leads, box and manuals. Lots of disks with various samples, excellent condition, £850 ono. ▢ Phil 0589 732289 after 5pm, may deliver (Notts)

**ROLAND W30**, £750, Korg M1 Rex, £700, Yamaha SY85, £800, Mackie CR1604 mixer with automix, £850. ▢ Jimmy 0161 799 4092 (Manchester)

**ROLAND W30** excellent condition, boxed, huge 250Mb library of sounds spanning decades of keyboards and percussion. ▢ Dave 0117 983 9558 (Bristol)

**ROLAND W30** sampling workstation. All original, plus samples and case, £775 ono. Boss Diversity radio system for guitar, better than a long lead, £145 ono. ▢ André 01435 865435 (East Sussex)

**ROLAND W30** sampling workstation with 50 sample disks, £850 ono. ▢ 01582 864223 (Luton)

**ROLAND W30** sampling workstation, excellent condition, home use only, £500. ▢ Nick 01789 296721

**ROLAND W30** with flightcase and 100-disk library, £850 ono, Korg P3 piano module, £100 ono, Seck 12.2 mixing desk, £150. ▢ 0589 971631 or 0114 257 1915 (Yorkshire)

**SEQUENTIAL CIRCUITS Pro One** analogue monosynth. Original box and manual. Probably best example in the country! £300. ▢ 0191 253 2460 (Tyneside)

**SEQUENTIAL CIRCUITS Prophet 600**, £600, Yamaha TX816, £1000, Roland SVC350 Vocoder, £475, Yamaha RX5 drum machine. 5 carts, £200. ▢ Mike 01942 204800

**STUDIO ELECTRONICS** MIDImoog for sale. £900. ▢ Nick 0117 971 3443 (Bristol)

**WURLITZER EP200** piano, £250, Tokai fretless jazz bass, immaculate, cased, £350, Peter Gaunt fretless bass, immaculate, cased, £250. Will trade all items for a Yamaha TG500. ▢ Mark 01732 844307 (Kent)

**YAMAHA CP80** electric grand piano and Cobra 90 keyboard combo speaker. Both VGC and ungigged. £1650 ono. Buyer collects. ▢ Williams 01752 261770 (Plymouth)

**YAMAHA CS30** 1970s analogue synthesizer. 9-step sequencer, input facility, 2 VCFs, 2 VCOs and 2 VCAs, 5 envelopes, good sounds, excellent condition. No manual, hence £350 ono. ▢ 01273 208099 (Hove)

**YAMAHA CS80** Classic polysynth in PWo and fully serviced, p/sex possible, £800. ▢ 010 353 1 6273589 (Dublin)

**YAMAHA DX7** Mk I with flightcase, immaculate condition, including several Skyship ROMs, £225 ono. ▢ Les 0191 483 2932 after 6pm

**YAMAHA DX7 MKII FD** good condition, £450. Roland MKB300 mother keyboard, well serviced and battered. £280. ▢ Mark 01252 713792 (Surrey)

**YAMAHA DX11** multitimbral FM synth. Makes some smart bass noises and the odd drum sound! Excellent condition, £220. ▢ Mark 01747 854406 (Dorset) swaps considered.

**YAMAHA DX100** excellent FM bass synth, £90, Opcode studio 3 Mac interface, 2 In/6 Out, SMPTE, £200; Foxtex M20 2-track reel-to-reel, £225. ▢ John 0131 447 3111 after 7pm

**YAMAHA PFP100** electronic piano, 88 keys, weighted wooden action, immaculate, unmarked condition, cost £1799. Will sell for £1150. ▢ 01296 658782 (Bucks)

**YAMAHA PSR6700** 76-note keyboard, 200 programmable voices with 8-track sequencer and disk drive, complete workstation for only £700 ono or part exchange for Jupiter 6 or Oberheim OBXA. ▢ 01524 382873 (Lancs)

**YAMAHA SY22** 8-part multi, 16 effects, brilliant sound creating possibilities, mint condition, come and have a listen. Genuine reason for sale to purchase sampler, only, £310 cover, manual and box. Contact: Mr SJ Joyce, 24 Third Ave, Oldfield Park, Bath. **YAMAHA SY22** multitimbral synth, mint condition, selling due to lack of space only, £290. ▢ Colin 01282 602120 (Burnley, Lancs) anytime

**YAMAHA SY35** keyboard, mint condition, boxed, manuals, 2 years old. Stunning sample and FM synthesis, 16-note polyphony, £375 ono. ▢ Johathan 01252 725529 (Farnham)

**YAMAHA SY35** synth, superb sound, as new. £325. ▢ 0115 920 6545 (Notts)

**YAMAHA SY85** workstation, Atari editor, RAM card, as new, £750. ▢ Martin 01255 508843

**YAMAHA SY85** workstation in good condition with stand, hardcase, leads, sustain pedal, RAM card, extra disks, £720. ▢ Mark 01243 552071 (West Sussex)

**YAMAHA SY99** boxed, as new, 100's sounds, stand, extra RAM, £1150, Roland SC55, boxed, £260, Atari 1040 STE, SM144, 2Mb, MIDI software, as new, £250. ▢ 01661 834209

**YAMAHA TG33** 32-voice polyphonic MIDI sound module, 16-part multitimbral, 4 separate outputs with effects, £300 ono. ▢ Nick 01603 627085 (Norwich)

**YAMAHA TG77** sound module, £600; Roland D50 synthesizer, £500; Quadrawer GT effects, £300. All ono. ▢ Mike 01792 897426 (Swansea)

**YAMAHA TG100**. £215, MDF2 Data Filer, £245 with PSU, Poly 800, £140, with PSU, Shure dual impedance 5885D microphone, £40, Boss CH1 stereo chorus, £35. ▢ Andy 01452 522559

**YAMAHA TG300**, sound module, two months old, under guarantee, when new cost £349, sell for £269. Hardly used. Plus XR300 SMPD SMPTE code reader code generator, brand new, sell for £100. ▢ 01344 306343

**YAMAHA W5**, immaculate condition, four months old, boxed, all manuals, home use only, would prefer buyer to collect, £1200 ono. ▢ 01823 286789 after 5.30pm (Somerset)

equaliser, noise gate and regulated power supply, £30. ▢ Jeremy 0181 692 5105 after 6.30pm (London)

**AKAI ME30P** MkII MIDI merge unit, £100. JBL Control 1 monitors, £100. Yamaha DD5 drum pads, MIDI, plus stand, plus PSU, £60. ▢ Louis 01869 245309 (Bicester)

**ALESIS 3630** compressor/gate, £195 C-LAB export MIDI expander providing 3 extra MIDI outputs on Atari ST, £65. ▢ Sid 01372 276791 (Surrey)

**ALESIS ADAT**. £1850. ▢ Kim 0171 263 9772 (London)

**ALESIS MIDIVERB II**, £140; Sansamp, £95; Hoftner JT60 guitar, £140. All mint and including delivery. ▢ 01273 729200 (Brighton)

**BELL STEREO** flanger, classic BF20, mint, £350, TR808, classic, mint, £450. ▢ Jason 0171 328 6577

**BOSS MX8** stereo mixer, good condition, used only in home keyboard setup, £120. ▢ Norman 0181 302 9063

**DAC 44Mb** rackmount Syquest drive R4000 II, £275 ono, 20 carts at £20 each. ▢ Steve 0181 660 0522 anytime. **DBX150X** four units. 8 channels of noise reduction, boxed, as new, £675. ▢ Adrian 0171 722 2134 (London)

**DAT TAPES** professional quality, £2 each, 60 minutes, post and packing extra, excellent value. ▢ Bird 0115 922 5902 (Notts)

**DESTECH (LANEY)** 16.2 mixing desk, 3 band EQ, 2 auxiliaries, excellent condition, home use only, original manual and packaging, quiet and reliable, £299 ovno. ▢ Jon 01952 260064 (Telford)

**FORMER COMMERCIAL** 16-track studio equipment for sale. As a whole or separate items. Phone for details. ▢ Phil 01480 462544 (Huntingdon)

**FOSTEX 4030** synchroniser, £300; Foxtex 4010 timecode generator/reader, £300; Foxtex 4011 VTC reader and timecode inserter, £250. All good condition with manuals. Home use only. ▢ 0171 793 7376

**FOSTEX DCM100** rackmount mixer. MIDI-controllable volume, mute, pan, EQ and aux, plus Foxtex Mixtab mixer tablet to control above. Boxed and unopened, £250 (RRP £799). ▢ 0191 253 2460 (Tyneside)

**FOSTEX E16** plus 4050 autolocator, excellent condition, £1650. Sony DTC750 DAT recorder, immaculate, £350. MIDIVERB II, £150. ▢ Michael 0181 997 7256 (Middlesex)

**FOSTEX G165**, as new, home use only, £2900. ▢ Steve 0181 986 9582

**FOSTEX G165** multitrack with 80330 sync board. Mint condition, hardly used, boxed, manuals, bargain £3500 ono. ▢ daytime 01225 310657 and ask for Archie or John (Bath)

**FOSTEX M20** reel-to-reel 1/2 track mastering tape recorder 15ins/sec sync centre track 8 hours use, £250 ono. ▢ Les 0191 483 2932 after 6pm

**FOSTEX M80** 8-track recorder. Immaculate condition. Home use only. £750 ono. ▢ Neil 01895 433105 or 0831 677718 (Essex)

**FOSTEX M80** 8-track recorder, quarter inch tape, £690 ono. Also Foxtex 454 mixing desk, 8.4.8.2, £350 ono, immaculate condition. ▢ Mike anytime 0161 688 0966 (Manchester)

**FOSTEX M80** 8-track with footswitch, reels. Excellent. £595. ▢ Martin 0973 400612 or 01536 522267 office hours (Kettering)

**FOSTEX R8** 8-track, immaculate, plus MTC sync unit, remote, extension lead and new reel of tape, £950. ▢ Andy 0171 792 9710

**FOSTEX R8** plus 812 desk loom + remote ext. very little use, £1500 ono; Alesis Compigate 3630, £200 ono. All boxed as new and in A1 condition. ▢ Steve 01522 529330

**FOSTEX R8** with MPC1, box and manuals, very good condition, £850. Foxtex 820 mixing console, 20.8.2, MIDI muting plus manual, £750. ▢ Andy 01483 453685 (Surrey)

**FOSTEX R8** with remote extension and MIDI sync. Mint condition. Hardly used. Sparkling sound quality. £800 ono. ▢ Richard 0171 393 3049, (Patrick 01604 710806, evenings) (Northants)

**FOSTEX 280** multitracker, mint condition, home use only, mainly used as mixer, £350. ▢ Keith 01707 33386

## RECORDING

ACCESSIT COMPRESSOR, dual-sweep



Studio 1100 66 holes with zoning + A10000 27.99



# PRICES GUARANTEED \*



## COMPUTER

**TURTLE BEACH Multisound Classic**  
FREE CAKEWALK & WAVE LIFE BUNDLE  
RPP £569  
£369

Fantastic bargain price bundle for PC hard-disk recording / MIDI sequencing. The Multisound Classic is basically a full Takti card with 16 bit 64k oversampling stereo sampling, on-board Motorola DSP chip (as used in digisignal products). It supports every feature of SAW, Quid, Sampleline, Cubase Audio etc. including simultaneous record and playback and DSP effects. ALSO on-board is a full E-mu Proteus 1VXR (whereas the Takti has no synth at all) 4 Meg ROM containing 384 sounds from the EMI library, 32 note poly, 16 part multitimbral, choice of E-mu or General MIDI presets. Fully editable without additional software. Built-in Windows compatible MIDI interface with in, out and thru. GREAT BUNDLED SOFTWARE: CakeWalk Express is a new version optimised for bundling with sound cards. You can upgrade to CakeWalk Home Studio or Pro 3.0, later. Also included is WaveLife hard-disk recording software.

## MUSICTIME version 16 FOR PC or MAC

MusicTime has no arrange page, no piano roll, no drum grid and no MIDI Manager. All editing is done on the score itself - it's what we call a 'pure' score program. The makes it much simpler & quicker to use, and ideal for educational use.

## MIDI QUEST version 5.0

Universal Editor and Librarian package  
PC/MAC £235

## THE WIDEST MIDI DEVICE SUPPORT AROUND

ROLAND JV-1080 NOW SUPPORTED

Now supports 200 MIDI devices, including J0900, Vintage Keys Plus, Kawai K11 & G-Mega, Westwood SR, X3, 2 and G, Waldorf Microwave, JV1080 J0900, MU80, Classic Keys, Morpheus, UltraProteus etc. ...£49.95 upgrade. SoloQuest 5 also available - £39

## BAND-IN-A-BOX version 6.0

Intelligent - Arranger  
version 6.0 also for Atari

Highly sophisticated composition aide which combines editable styles and a chord list to provide computer generated backing tracks in seconds.

Cubase Cubasis (NEW VERSION)	£149
Cubase MusicStation (styles)	£199
Cubasis Audio (here, 4 audio tracks)	£249
Cubase 2.6 (best selling version)	£299!
Cubase Score 2.0 (notation DTP)	£429

Music PC MP4041-H £65 MQ32m SMPTE £199  
KEY MS124 serial £139 MQ 8Port/SE POA  
KEY MP125N parallel £175 MIDI Express PC £399  
KEY MP125X parallel £175 SoundMaster compatible  
MQ Note11 parallel £89 MIDI adapter set £29

## STUDIO hard ware

**TM1000 condenser mic**  
RPP £299  
£119

Using over 40 years of experience in selling microphones, Turnkey have specified the TM1000 condenser mic to be built by Audio-Technica, makers of the legendary AT4033. The TM1000 has a flat frequency response from 30 Hz till the way up to 21 kHz ±3 dB making it ideal for vocals and instruments with delicate harmonics such as acoustic guitar, piano etc. Built-in pop shield, battery power means no phantom supply required. On/off switch, all metal casing. We think it's the best recording mic under £250, if you don't agree, we'll take it back against any other mic with 14 days. Price includes heavy duty clip.



## SOUNDRAFT RAC PAC

This excellent addition to the Folio range is a sure-fire winner combining superb sound quality with a fantastic list of features: 3 Band EQ with mid sweep, 6 auxiliary sends, high-pass filters rackmountable (includes mixing connector lead) up to 28 inputs on midrow, 4 line sub-groups plus separate mix bus, insert points and direct outs on every channel.

## Sibelius PACKAGE

Acorn RPP £499  
£499

Why are we promoting an expensive score package which doesn't work on Windows or the Mac? Because for professional notation type-setting and engraving, nothing else comes close. In a totally different league from anything else! Paul Patterson, Royal Academy of Music, Future Music Platinum award. London Exclusive Showroom CALL TO ARRANGE A FULL DEMONSTRATION

## SAMPLITUDE PRO 2.0

MULTIPLE TRACK PC HARD-DISK RECORDING SYSTEM  
RPP £249  
£249

Samplitude is a very fast real time wave editor, hard disk-recording, sampling and multimedia program capable of handling all aspects of multi track recording on a PC, running Windows 3.1 with any 16-bit soundcard. Create and edit samples, Crossfade, then dump to Sampling-Keyboard (SBS) or export it to a Standard Wave File. Also re-sampling, time-stretching up to 100-level undo, echo, reverb and normalising. MIDI files can be integrated. Synchronise sound with video.

STOP PRESS FOR PENTIUM OWNERS: Samplitude Studio now available with up to 16 tracks, simultaneous record & play, full SMPTE sync with any windows sequencer and support for multiple sound cards, dynamic compressor, limiter, expander and noise gate and digital EQ with real-time preview etc. Only £399 inc VAT

## GoldStar ONLY £65!

GSC-X21 STUDIO QUALITY SOUND CARD HALF PRICE  
Windows95  
The GSC-X21 is on a par with today's professional sound cards and the most recent cards costing 4 times as much. Built-in MPU401 MIDI interface (cable included), 250 x 16 bit stereo channels, 4 part multi-tilt, 32 note polyphonic. We have secured a limited quantity at a fantastic price. RRP £199  
£65 REFUNDED IF NOT SATISFIED (7 days)

Get the latest info from our Website:  
<http://www.demon.co.uk/turnkey>

## Yamaha Sound Edge £179

KEY SMPTE 128 MIDI channels  
PC parallel interface  
MP128S  
£299

Far cheaper than the nearest competitor, the new Key MP128S has been exhaustively tested with Cubase and other leading packages. 2 in, 8 out SMPTE. All frame rates, jam syncs, free-wheel, drop-out protection.

## Cadenza £49

VOYETRA V-SERIES PC MIDI INTERFACES  
Reliable, Compatible, Affordable  
V22 £99 V24s £249  
V44 £199 V41 £115

Recommended by Steinberg, V22 has 2 in 2 separate outs. V24s has 4 in 4 separate outs. V44 has 2 in, 4 sep outs. V41 has 2 in, 4 sep outs. All excellent SMPTE unit (all frame rates, click detector, SMPTE free-wheeling and reconditioning etc). The VP11 is the most reliable laptop interface around - with auto-printer thru switching - no switching cables, no constant resetting of windows etc...

## YAMAHA CBX-T3

MODULE/INTERFACE/SOFTWARE  
"HELLO MUSIC" BUNDLE  
RPP £399  
£139

This great starter kit includes: Yamaha CBX-T3 sound module. This General MIDI sound module is basically a TG100 (Original R.P.P. £399), except with separate LED lights for each MIDI channel. It is 28 note poly, 16 part multi-tilt, has 10 drum kits, and on-board reverb controllable for each channel separately. A great money saver is the built-in MIDI interface for Mac or fast PC, which STEINBERG works via the computer serial port (cable included). The package also includes Steinberg's famous Cubase Lite (Mac or PC version) free, to get you off to a great start with software from one of the world's leading music software houses. Also included Steinberg Music Box MIDI file player and editor, and song disk (20 well-known titles). If you don't use a computer, give the software to a friend and use your MIDI synth keyboard or Master Keyboard. 1st come 1st served.

## KEYBOARD BUNDLES

Fantastic reduction if you buy a touch-sensitive MIDI master keyboard with your CBX-T3:  
NOVEL CMK49B 4 oct + gender slider £299  
PC200 MK2 4 oct + bend/port £329  
STUDIO 610 5 oct + wheels / controls £349

## Cakewalk 3.0 £179

## TURNKEY PC MUSIC CD-ROM ENCYCLOPEDIA FREE!

5 Over the Shoulder view of music making tips  
Recordings of Goldstar & Roland sound cards  
Demo versions of over 20 music packages  
Side-show with over 80 digitised bios  
Library of unique sound files in WAV format  
Free with any purchase over £25. GO FOR IT!

## TURTLE BEACH TROPEZ £249

16 bit sound card with ICS General MIDI synth and special ability to record samples and play them back from MIDI optional RAM expandable to 12 Meg. Also works with hard-disk recording software (included). optional MIDI card for use as a MIDI interface.

## FREE ACCESSORIES • SECOND HAND & ETC.

Steinberg Cubase	POA	Emagic Unit2	£299
Cubase Lite	£39	OpCode Studio 4	£POA
Cubase Core	£399	Desk 2.2	new £399
Cubase Audio	£999	220 Mb Optical from	£999
Steinberg	£1199	SC99 DAT backup from	£999
Mac Synchron	£199		
Violon 2.0	£249	270 Mb SyQuest from	£249
Violon PC	£149	1 Gig H-Disk from	£249
Emagic Notator Logic	£209	1 Gig H-Disk from	£249
new copy at	£299	HiSpec CD-ROM	£39
Emagic Notator	£199	4 Meg SIMMS from	£139

## PRICES INCLUDE 17.5% VAT

UK mainland carriage £9.99

Please allow 10 working days for personal cheque clearance

\* We will beat any genuine quote from a UK or European dealer. We must be able to substantiate the quote and the goods must be available and in stock.

Intermet Free credit (typical APR 9%) is available on selected items subject to status. Soho Soundroute is a licensed credit broker under the 1974 consumer credit act. Written details are available on request.

## The UK 4 TRACK Centre

Our famous 4 track pack includes everything you need to start making music. Musical headphones, microphone with cable, chrome tapes, cables, head-cleaning kit and the best book we've yet seen on multitrack recording, taking you through basic track laying, madmen etc., with sections on everything from mic placement to synchronisation 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 £299.95) absolutely free with the units featured herein.

NEW Fostex XRT + 4 track pack  
NEW Tascam 380S + 4 track pack  
NEW Tascam 424 + 4 track pack  
NEW Tascam 488 II + 4 track pack  
NEW Yamaha MT4X + 4 track pack

## TASCAM 424

A fantastic new machine from the makers of the Portastudio. Double speed, EQ on each channel, built-in dbx, 4 channel recording system.  
RPP £469  
£469

## FOSTEX 280

8 channel mixer, high speed Dolby C transport, optional MTCT computer synchroise / MIDI machine control. flexible 3 band mid-sweep EQ. etc.  
RPP £599  
£599

## 40% OFF • SECOND HAND & EX DEMO • END

Tascam 488	£849	Tascam 464	£539
Tascam Portastudio 03	£149	Fostex XPS	£329
Fostex X26	£189	Fostex XPT	£429
Fostex X18	£149	Yamaha MT4X	£999

## EFFECTS

## ART MULTIVERB

Art Multiverb L1	£135	Digichem VHS1	POA
Alesis MIDVerb4	£349	Dynacore DPA400	£299
Alesis microverb2	£299	Lexicon PCM40	POA
Alesis QuadVerb	£299	Lexicon Reflex	£299
Alesis QuadVerb2	£349	Lexicon Reflex	£349
Alesis 3630	£199	Roland SRV30	£549
Alesis MG230	£219	Roland RE800	£179
Alesis microverb3	£149	Roland RE800	£499
Behringer MultiVerb	£299	Sony HR-CP5	£299
Behringer AutoQuad3	£399	Sony HR-CP5	£299
Behringer Compressor2	£99	Sony HR-CP5	£299
Behringer Integrate	£319	SPL Vitalize	£249
Behringer DualVerb	£39	Studiomaster MP1	£199
Behringer MultiVerb	£299	Symmetry S11a	new £299
Behringer PowerPlay	£299	Viscount EFX1	£179
BSE 822	£299	Yamaha EMP700	£249
Boss SE70	£425	Yamaha SPX900	£349
dbx 163comp	£125	Yam Rev100	£199

## PHONIC PCL3200

If you're in the market for a budget compressor, look no further than the Phonic PCL3200. It features a separate compressor and gate with hard or soft knee compression, peak or RMS detection, side-chain, frequency conscious gating. LED displays for every function and level. From the makers of a leading American compressor! Why spend more?

## BEHRINGER POA

We have the entire Behringer range in stock and on permanent demonstration at Turnkey. Choose one now to improve your mix!

## APHEX TYPE C2

Poweration + 2 x JBL MR625  
Poweration + 2 x JBL MR625  
Poweration + 2 x JBL MR625  
Poweration + 2 x JBL MR625

## PA Systems

## SOUNDRAFT SPIRIT POWERSTATION

Another winner from Soundcraft, their first entry into the powered mixer market is sure to be a success. Based around the well-known Power 12, and also featuring a 2x300w amplifier, dual 7-band graphic and a built-in Lexicon Axi! Check out these amazing package deals:  
Poweration + 2 x JBL MR625 £1749  
Poweration + 2 x JBL MR625 £1809  
Poweration + 2 x JBL MR625 £1999  
Poweration + 2 x JBL MR625 £2299

## DJ Producer

## GEMINI GMX2

Massive saving on this pro-mixer features including 2 long-throw pro line feeders. Replaceable cross-fader. LED channel displays for left and right signals. Inputs switchable from line/CD to phono levels. Balanced microphone input with separate fader. Also includes variable auto for the mix signal.  
DJ STARTER PACKAGE £399 • GMX2 mixer, 2 x B19000 decks, free station cards & audio technicals £5000 decks

## LONGEVIN CR-3A

The CR-3A is a professional quality large diaphragm condenser mic, hand-built in the USA by Master Laboratories and has a beautiful and flattering tone on vocals and a wide range of other instruments. Switchable 10 dB pad and high-pass roll-off filter, comes with shock-mount, case and pop shield.

## OMNIPHONICS FOOTPRINT

Superb quality 75w per channel power amp from top studio amp manufacturer omniphonics. Balanced inputs, emergency cut-out and bridgeable to mono, 1U rack-mount case. These are flying! RRP £399.

## SPIRIT Folio 10 & 12

3 band mid-sweep EQ, 2 auxiliaries (1 switchable pre/post fade) professional grade Neutrik connectors, superb clean signal path and compressors make them unbeatable value for money, phone for unbeatable price!

## FOSTEX XR5

Stunning new double speed Fostex machine with individual EQ, up to 3 bus sends and 2 stereo returns, 2 inserts & 4 sep. tape outs allowing use with an external mixer.  
RPP £420  
£389

## YAMAHA MT8X

Best-selling 8 track portastudio now brought to you at even better value by Turnkey.  
RPP £1275  
£969

features 3band EQ, separate bus mix, full LED metering insert-points, dtx noise reduction, individual tracks/outputs, 2 aux sends, double speed, logic controlled transport, auto punch-in/out, memory loads and cycle facilities.

## TASCAM 424

A fantastic new machine from the makers of the Portastudio. Double speed, EQ on each channel, built-in dbx, 4 channel recording system.  
RPP £469  
£469

## FOSTEX XR-3

High Speed, new auto-bounce facility.  
RPP £249  
£249

## YAMAHA MT50

High Speed, record on all 8 tracks simultaneously, dbx noise reduction, 2 band EQ on each track, as well as auxiliary send/return.  
RPP £309  
£349

## VISCOUNT STUDIO MULTI-EFFECTS

These have to be the best value for money multi-effects units on the market pound for pound. Buying direct from the manufacturer brings you a feature-laden quality product at a down to earth price.

## EFX1

16 bit stereo I/O, large display, 95 dB dynamic range, MIDI control. Excellent sound quality, shimmering reverb, fully editable, 5 effects at once. Reverb, chorus, phasing, flange, delay, distortion, pitch-shift, auto-tune, compressor, noise suppressor.  
RPP £299  
£199

## EFX2

Same processor as EFX1, 48 presets made from 7 banks of 7 sounds: reverb, delay, chorus/flange, phaser/pitch-shift, multi, guitar1, guitar2. Main parameter editable. Footswitch control. 95 dB dynamic range.  
RPP £199  
£119

## LEXICON ALEX & REFLEX

POA

## ART DXR, RXR elite, DXR elite

All models are based on 2 of ART's top of the range 24 bit processors. This not only gives superb audio quality, but also allows them to act as either 1 true stereo processor, or 2 entirely independent mono processors. All are full-size 1U rack units.  
DXR: 256 preset delay-based effects. Up to 1 second delay on each channel plus chorus, flanging and multi-tap effects.  
RPP £279. MegaDeal £89!  
DXR Elite: As DXR, but with programmable with MIDI patch-change and real-time control of parameters.  
RPP £249. MegaDeal £179!  
RXR Elite: 128 high quality reverb effects including rooms, chambers, halls, plates, gated and reverse reverb MIDI Control as DXR elite.  
RPP £249. MegaDeal £189!  
Other incredible ART clearance deals available

## BEHRINGER POA

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Poweration + 2 x JBL MR625 £1809  
Poweration + 2 x JBL MR625 £1999  
Poweration + 2 x JBL MR625 £2299

## DJ Producer

## GEMINI GMX2

Massive saving on this pro-mixer features including 2 long-throw pro line feeders. Replaceable cross-fader. LED channel displays for left and right signals. Inputs switchable from line/CD to phono levels. Balanced microphone input with separate fader. Also includes variable auto for the mix signal.  
DJ STARTER PACKAGE £399 • GMX2 mixer, 2 x B19000 decks, free station cards & audio technicals £5000 decks

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## OMNIPHONICS FOOTPRINT

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## SPIRIT Folio 10 & 12

3 band mid-sweep EQ, 2 auxiliaries (1 switchable pre/post fade) professional grade Neutrik connectors, superb clean signal path and compressors make them unbeatable value for money, phone for unbeatable price!

## PRO-MIX 01 STOCK

MacInte 1202	£299	AKG C1000S	£199
Alesis Adit	£199	AKG C3000S	£299
Fostex Adit	£299	Gefell UM70	£499
J.C. DataMaster	£299	Shure SM58	new £39
Niles Monitor	£299	Sony 28	£299
Alesis RA100	£275	Sound	£19
Tannoy PM8.5	£280	Studio	£16.2
Seck 1282	£240	Fostex F8	£799
Yam NS10m new	£239	Quid 303	£139



**JL COOPER PPS 100** MIDI SMPTE synchroniser, reads all time codes etc. With manual, £80.  $\Rightarrow$  Mark 01744 810091 anytime

**LEXICON LXP1**, £245. TC spacial expander stereo chorus flanger, £275. All box. Home use only.  $\Rightarrow$  Gordon 01225 761360 (Trowbridge)

**LEXICON LXP1** reverb £275, Boss DE200 sampling DDL/flanger £90, Boss Micro-rack RPS10 DDL/pitch shifter £75, Boss Micro phaser RPH10 (lovely!) £75, Yamaha CG2020 comp/lim £100, SVC noise gate with EQ £75  $\Rightarrow$  Steve 01222 497638 (Cardiff)

**LEXICON PCM70** multi-effects processor, Drawmer DL251 dual compressor, Drawmer DS201 dual gate, Alesis MIDiverb II. All new. £2000 the lot, will split  $\Rightarrow$  0831 679532 or 01922 38040 (West Midlands)

**MACKIE 1604** mixer. Excellent condition. Boxed with manual £675 ono.  $\Rightarrow$  Chris 01388 663051 or 0378 526105 (Co Durham)

**MACKIE 1604**, mint condition. Boxed, manuals. £650.  $\Rightarrow$  John 01676 541699 (Coventry)

**MACKIE CR1604**, 16-channel mixing desk with rotor pod. Still under warranty, home use only, £680  $\Rightarrow$  Keith 0161 969 0260 (Manchester)

**MAESTRO** ring modulator, vintage EFX, £600.  $\Rightarrow$  0181 995 8773

**MARANTZ DD82** DCC deck, (18-bit D/A converter) As new, £180, Yamaha FX550 multieffects (reverb, delay, distortion, pitchshift, etc.) As new, £185, Kawai K4 synthesizer, £350.  $\Rightarrow$  01933 678608

**OKTAVA MK129** transducer microphone. Immaculate, £190, also Trace Elliot AH200 series 6 amplifier, £190.  $\Rightarrow$  Malcolm 0181 870 1078 (London)

**REVOX A77** with varispeed, £230, Takamine Jasmine Electro-Acoustic Guitar, £125, Tascam Porta 1 for spares or repair, offers.  $\Rightarrow$  01703 636393 eves (Southampton) ask for Flat 7

**REVOX PR99 MkII** with Revox Stereo speaker unit, in floor standing desk, complete with 5 reels Apmax 499. Leader tapes cutting block, excellent condition, £950.  $\Rightarrow$  01923 231866 (Warford)

**ROLAND DM80** hard disk recorder, boxed with Macintosh software. £2000 or swap for Alesis ADAT in excellent condition.  $\Rightarrow$  Neil 0831 677718 (Essex)

**SAMSON MPL 22 4 2** mixing desk, £600. Novation BassStation, £275. Both still under guarantee. Korg X5 keyboard, £500.  $\Rightarrow$  Wes 01491 826081 (Oxford)

**SECK 16:8:2** desk, recently serviced, 4 band EQ 3 aux sends, 2 returns, PFL on all channels, aux etc, ideal for 8.4-2-track recording, £525 ovno.  $\Rightarrow$  0171 241 2043

**SECK 18:8:2** Mk I mixing desk, £500, Fostex M80 8-track with rack storage module, £600, Alesis 3060 compressor, £200, Casio DAT £300, AKG 525 mics £60 each plus much more. Sold as a package or separate. All price negotiable.  $\Rightarrow$  Ian 01245 496952 (Chelmsford)

**SECK 18:8:2** desk in slim suitcase-style aluminium flightcase, home studio use only, £650.  $\Rightarrow$  Andy 0171 792 9710

**SONY DTC690** DAT recorder. 100 hours home use only. Boxed. £390 including postage.  $\Rightarrow$  John 0115 941 1185 (Notts)

**SONY DTC1000EC** studio DAT recorder. Virtually as new, approximately 30 hours use only, infrared remote, £600 ono.  $\Rightarrow$  Alan 01568 613477 after 6pm (Herefordshire)

**SONY DTC1000ES** with new head serviced by HMB communications 1994, vgc, £600.  $\Rightarrow$  01536 710375

**SONY PCM 501** Record 16 bit on domestic VCR, VGC, £100, Rotel RB250 power amps (2 off), each 2x50w or 110w bridged, as new, £120, £220 pair.  $\Rightarrow$  01661 834209

**SOUNDTRACK SPIRIT** Auto 16 8.2, £2500, JL Cooper. Data sync for ADAT, £290, never used, with guarantee.  $\Rightarrow$  0171 263 0116

**SOUNDTRACK SPIRIT STUDIO** 16 8.16 2 desk, superb quality, home

use only, boxed, £1400 ono.  $\Rightarrow$  Steven 01273 565754

**SOUNDTRACK 24:8 SPIRIT STUDIO AUTO**, 56 inputs + fader automation, as new cost, £4000 12 months ago, will accept £2250 for quick sale.  $\Rightarrow$  01226 790541

**SOUNDTRACS 16:8:16** mixing console with stage box, £600. Fostex M80 8-track recorder, as new, serviced 3 months ago, £700.  $\Rightarrow$  Stephen 01642 550795 (Cleveland)

**SPIRIT ABSOLUTE** Two monitors, amazing sounds, bought for project now finished, virtually brand new, £225.  $\Rightarrow$  Andy 0171 792 9710

**STUDER A880B**-track professional 1" tape machine plus noise reduction, plus 20 reels of tape, fully lined up, serious offers only please.  $\Rightarrow$  Martin 0181 881 9266 (London)

**STUDIOMASTER MIXDOWN** 16 8.16 2, mint, little used, great sound, £950, Also Simmon Kit SDS1000 with MIDI interface, £295.  $\Rightarrow$  01690 710231

**STUDIOMASTER P7** mixing desk, 16 8.16 in-line. MIDI muting, 6-band excellent EQ. 10 months old, cost £1900, accept £1250.  $\Rightarrow$  01273 694894 (Brighton)

**STUDIOMASTER PROLINE** 16 8.16 mixer. Perfect condition. £800.  $\Rightarrow$  Dave 01959 570867 (Biggin Hill)

**STUDIOMASTER PROLINE GOLD** 16 8.16 mixing desk with MIDI muting, boxed, manual, £795, Fostex Patch bay, £30. P8R patch bay, £40.  $\Rightarrow$  01420 84030

**STUDIOMASTER SERIES 5** 16 8.2 console 5 aux's, good EQ. Very good condition, but few crackly pots, hence £600, original box and manual.  $\Rightarrow$  01203 713685

**STUDIO RESEARCH** mixer: 6 input, Mic/line, two auxiliaries, ideal for home studio/MIDI setup, £100. Wanted: Cubase V3.1 with dongle, S-F Atari 51100 front-panel software, Acoustic tiles.  $\Rightarrow$  Andy 0113 243 0177

**SYQUEST** 44Mb removable hard drive plus 10 cartridges with professional 51000 library, £350.  $\Rightarrow$  John 01268 726953 after 6pm (Basilston)

**TANDBERG 3000X** freehead reel-to-reel. Mint condition. £200 ono.  $\Rightarrow$  James 01723 871146 (Scarborough)

**TANNOY SRM10** monitors, 2 pairs, £330 and £300, also lots of home studio gear. Phone for details.  $\Rightarrow$  0181 941 8958 (Surrey)

**TASCAM 32** quarter-inch 2-track reel-to-reel, £250.  $\Rightarrow$  Martin 01223 845588 (days) (Camps)

**TASCAM 32** 2-track recorder, 15 ips, ideal for mastering or editing from DAT, mint condition, £430 ono.  $\Rightarrow$  Andy 01633 613342

**TASCAM 34B** reel-to-reel 4-track, plus Fostex 450 8-channel mixer with 2 free Ampex tapes, £550. Pair of DBX150X noise reduction units, £60.  $\Rightarrow$  Gary 01670 511935 (Morpeth)

**TASCAM 38** 8-track with 9 channels of bell noise reduction and Seck mixing desk 18.16 in excellent condition, £1500 ono.  $\Rightarrow$  Mike 0113 266 9189 after 6pm

**TASCAM 58** 8-track, pro machine, SMPTE connector, £975.  $\Rightarrow$  Adrian 0171 722 2134 (London)

**TASCAM 464** portastudio, mint, hardly used, £450 or swap for analogue synth (Juno etc)  $\Rightarrow$  0181 749 6847

**TASCAM 488 MK I** boxed, manuals, excellent condition, perfect working order, £650.  $\Rightarrow$  Mark 01732 362215 (Tonbridge)

**TASCAM 688** 8-track MIDI studio, 10-channel, 20-input, boxed, unused, £1500.  $\Rightarrow$  Ellen 0181 840 7029 (London)

**TASCAM 688** 8-track MIDI studio. Very good condition. Home studio use only. £1200.  $\Rightarrow$  01283 552542

**TASCAM 688** MIDistudio 8-track cassette recorder & mixer, £1200.  $\Rightarrow$  0181 670 2941

**TASCAM M216** mixer. 16 8.4.2. Made for 8-track recording or live use. £550.  $\Rightarrow$  or Fax 01702 616961 (Southend)

**TASCAM T5R8** 8-track analogue recorder with controller, £1100, Akai SO1 sampler, £430, both excellent condition.  $\Rightarrow$  01254 691197

**TEAC 322B** 2-track mastering

machine, recent service, excellent condition, few hours use, £380.  $\Rightarrow$  Paul 01473 233161 ansaphone

**YAMAHA AM602** mixer, 6 ins, 2 outs, very quiet, boxed, as new, £120.  $\Rightarrow$  Richard 01443 208495 (Mid Glam)

**YAMAHA MT100 MK II** 4-track, DBX, 5-band stereo equaliser, box, manual, totally perfect condition. Bargain at £200.  $\Rightarrow$  Spencer 01273 383609 (Brighton)

**YAMAHA MT120** multitrack recorder, boxed and hardly used, dual speed, noise reduction system, graphic EQ, LED monitor, £275 ovno.  $\Rightarrow$  Gaddis 01698 428613

**ZOOM 9002** plus 9002F, £190, both mint, boxed, 6 simultaneous FX, metronome, tuner, includes rechargeable battery, PSU, leads, finger board, good reviews, sounds excellent.  $\Rightarrow$  Dave 0191 372 2621

## SAMPLERS

**AKAI CD3000**, 8Mb, SCSI, CD ROM, five CD ROMs, five months old, immaculate, boxed with manuals, also Roland A30 master keyboard, condition as above, sensible offers.  $\Rightarrow$  Robin 0191 514 3393

**AKAI 501**, 2Mb, £550, U220 plus rock drums card (808 sounds) and percussion card, £300.  $\Rightarrow$  Mark 01502 731562

**AKAI 501**, immaculate condition, 4 months old including 3 full-price sample CDs, £440 ono.  $\Rightarrow$  Nick 01242 672058 (Cheltenham)

**AKAI 501** with warranty card and box, good condition, £550 ono.  $\Rightarrow$  Michael 0121 772 7517 (Birmingham)

**AKAI 5612** plus MD280 disk drive + 60 + quickdisks + 4U racksleeve, £220 ono, or swap for Cheeta M56 or something interesting. Wanted, dead Transcendent 2000, will pay £20.  $\Rightarrow$  Chris 01235 534152 (Oxon)

**AKAI 5950**, 2.25Mb, home use only from new, 40+ disks, MIDI cable, manual, boxed, £850.  $\Rightarrow$  Mick 01254 202956 or Mobile 0385 115506

**AKAI 5950**, 2Mb memory, digital input board, 100-disk library, £950.  $\Rightarrow$  Dave 01959 570867 (Biggin Hill)

**AKAI 5950**, complete with library of disks, excellent condition, £850 ono.  $\Rightarrow$  01222 360577

**AKAI 5950**, excellent condition, 2.5Mb upgrade, £850 ono.  $\Rightarrow$  Jon 01647 432400 Mobile 0585 701908 anytime

**AKAI 5950**, fully expanded, boxed, manuals with library, £850.  $\Rightarrow$  Glyn 0151 928 7687 after 6pm (Liverpool)

**AKAI 5950**, fully expanded, home use only, manuals, books, disks, £850, Alesis Quadraverb Plus, £200, Peavey SP sample player and disks, £400.  $\Rightarrow$  Chris 01482 825267 (East Yorks.)

**AKAI 5950**, fully expanded, mint condition, with manual, £900.  $\Rightarrow$  Andre 0171 286 3330 (London)

**AKAI 5950** sampler with full memory expansion, loads of samples on disk, £795. Not gigged, excellent condition.  $\Rightarrow$  Bob 01684 576423 (Midlands)

**AKAI 5950** sampler. Unexpanded, boxed, with manual, excellent condition, £800 ono. May deliver.  $\Rightarrow$  Phil 0589 732289 after 5pm (Notts)

**AKAI 51000** 4Mb, lots of disks, Timesstretch software, £1600.  $\Rightarrow$  Derek 01444 471567 (Sussex)

**AKAI 51000** 10Mb hard drive, 60Mb internal SCSI interface. £1800.  $\Rightarrow$  Teo 0181 287 3597 (London SW)

**AKAI 51000** 40Mb hard disk, home use only, good condition, £1200.  $\Rightarrow$  Neil 0121 351 4011 after 6

**AKAI 52800** sampler. 4 months old, as new, 100 sound disks, £1000. Mackie 1202 mixer, as new, £200. Casio CZ101 and memory cartridge, with manuals, £70.  $\Rightarrow$  01983 612537 (Ile of Wight)

**AKAI 53000** sampler. As new. 10Mb. Quick sale. £2100, no offers.  $\Rightarrow$  Tony 01422 842178 (W Yorks)

**CASIO F21** sampler/synth with 20 disks and original box. £480. Quick sale, no offers.  $\Rightarrow$  Steve 0181 543 2398 or 0956 834678 (London)

**CASIO F21** sampler, £480, Roland RA50 expander, £260, Wersi EX20 expander, £280. Not on phone — write to D C Luya, 5 Goodfellows

Road, Spalding Common, Spalding, Lincs, PE11 3AT

**CASIO FZ10M** 2Mb, 8 separate outputs with over 100 professionally recorded disks and 3 manuals, £675.  $\Rightarrow$  John 0115 941 1185 (Notts)

**EMU EMAX II** keyboard, 8Mb, 16 stereo voices, disk library, boxed, manual, VGC, £950, Roland D10 synth, VGC £375.  $\Rightarrow$  Paul 01227 361089 work (Kent)

**EMU EMAX II** sampling keyboard with 8 outputs, SCSI, and resonant filters etc, £850 ono, or will swap for rack version of same machine.  $\Rightarrow$  Nick 01603 627085 (Norwich)

**EMU EMULATOR II** sampler, 8 outputs, very old, £600 ono.  $\Rightarrow$  David 01425 616354

**EMU EMULATOR II** sampler, v3 software, huge beastie, £600, Korg RK100, remote control controller, £150, Yamaha DX100, £125.  $\Rightarrow$  Ian 01202 734739 (Dorset)

**EMU ES132** sampler v1.04 with Syquest 88Mb hard drive and 3 cartridges, guaranteed, £1300. Also, Ensoniq DP4 4-parallel effects unit, 4 In/4 Out, £700, Mackie 1604 16-channel mixer, £650, JV880, £450, Novation BassStation rack, £360, Casio GA7 DAT recorder, £400, Akai MX73 master keyboard £250.  $\Rightarrow$  0181 543 2027 (London)

**EMU ES132**, SCSI interface, 32Mb RAM, home use only, boxed with manual, £1850.  $\Rightarrow$  Mike 01395 514904 (Devon)

**EMU SP1200** sampling percussion. The alternate hip-hop beat machine. Very sought-after in the USA. Built-in sequencer etc. Cost £2000, as new, still under guarantee, £1400.  $\Rightarrow$  01273 694894 (Brighton)

**ENSONIQ ASR10** stereo sampling keyboard, expanded to 8Mb, home use only, boxed with instructions and large sound library, £1450, PC MIDI interface Musicquest MQX17M, £40.  $\Rightarrow$  01785 664914

**ENSONIQ ASR10** rack. Latest operating system. Lots of sounds including 8Mb RAM. £1550 ono.  $\Rightarrow$  Robert 0161 366 8744

**ENSONIQ EPS** keyboard sampler, 2x memory expansion, £550 ono, also CZ3000, mint, £195.  $\Rightarrow$  01690 710231

**ENSONIQ EPS** rackmount sampler with 4x memory, perfect condition, £800.  $\Rightarrow$  Jerry 0171 703 7133 (London)

**ENSONIQ EPS** sampler, comes with manuals and library, will swap with cash for a Roland A880 mother keyboard or will accept £500.  $\Rightarrow$  Alvin 01926 435056 (Leamington Spa)

**ENSONIQ EPS16+**, fully expanded memory plus flash bank RAM, includes small library and manual, good condition, home use only, £895.  $\Rightarrow$  Chris 01628 29688

**ENSONIQ EPS16+** keyboard workstation, on-board sampler/SEQ/FX/MIDI with floppy disks, manual, flightcase and stand. £750.  $\Rightarrow$  Andy 0585 560132 after 6pm (Bucks)

**PEAVEY DPM5X** 16-bit MIDI sampler, 1U rackmount, complete with box and manuals, hardly used, £175.  $\Rightarrow$  Joe 01256 478048 after 6pm (Hants)

**PEAVEY SP/SX** sampler including latest version Firmware 2.3 memory upgrades, and two SCSI ports. Boxed as new, great machine, £860 ono.  $\Rightarrow$  Brett 01844 345754

**ROLAND CM32P** 6-part multitimbral sample player with U110/U220 card slot, boxed with manual and PSU, £100.  $\Rightarrow$  Neville 0113 2530350 eves (Leeds) or 0113 2601222 daytime

**ROLAND MS1** sampler, one month old, hardly used, boxed with manual and CD, £300.  $\Rightarrow$  Jay 01206 45714 after 6pm

**YAMAHA TX16W** sampler plus Typhoon operating system, huge library, £650, Boss BX 16.2 mixer, £300, Roland pitch-to-MIDI converter, £120.  $\Rightarrow$  01633 212373

**YAMAHA TX16W** stereo sampler, 10 separate outs, 4.5Mb RAM, Typhoon operating system, £600.  $\Rightarrow$  Duncan 01332 622 622 ext 1763

## COMPUTERS/SOFTWARE

**170MB 2.5-INCH** hard drive, ideal for Falcon, unused, £90, 4 TFX 4-track D-to-D recording, Clarity 16, both £50 each, boxed and original.  $\Rightarrow$  Tim 01474 703304 after 7pm

**486SX25 PC**, 4Mb RAM, Pentium overdrive compatible, 214Mb hard disk, SVGA colour monitor, 16-bit sound/MIDI card, comes with all the serious music/business software you could need, less than 3 months old, boxed as new, £650.  $\Rightarrow$  or Fax: Ian 01702 616961 (Southend)

**ATARI CUBASE LITE**, boxed, new, unregistered, £45, Extraports 48 extra channels, £40, Hands on 16+, £10.  $\Rightarrow$  Eddie 01934 812715

**ATARI FALCON**, 4Mb RAM, 65Mb hard drive with super VGA Multisync monitor with Falcon adapter, as new, £650.  $\Rightarrow$  Ben 0161 761 2958

**ATARI FALCON**, 4Mb, 200Mb internal HD. Hi-res monitor, loads of great software, £590, 270Mb super fast Quantum SCSI, £225, Cubase Audio with FDI, latest version, £600.  $\Rightarrow$  01702 616961

**ATARI MEGA** one high resolution and colour monitors, extra disk drive, loads of software, Pro 24, games, WP, databases etc. £250 ono.  $\Rightarrow$  Leanne 0181 570 9700

**ATARI MEGA ST**, 1Mb RAM, SM124 monitor, Replay 16 sampler cartridge, boxed, manuals, as new, complete with printer and modem, bargain at £300.  $\Rightarrow$  Joe 01256 478048 after 6pm (Hants)

**ATARI 520 STFM** with 1Mb, SM125 monochrome monitor and Steinberg Cubase V3.1 with Midex (64 MIDI channels) plus various games. The lot, £600.  $\Rightarrow$  John 01268 726953 after 6pm (Essex)

**ATARI 520 STFM** with 1Mb upgrade and SM124 monitor, plus Steinberg Pro24 V3 and other software, £200.  $\Rightarrow$  Ian 015395 68581

**ATARI 1040** hi-res monitor and extra external disk drive for sale, offers over £200 accepted for quick sale.  $\Rightarrow$  Bob 0171 477 8275 days 01487 814227 eves

**ATARI 1040 STE** plus SM124 hi-res monitor, keyboard, mouse, plus Steinberg Cubase sequencer with dongle. All manuals, leads, boxed as new. £240.  $\Rightarrow$  01392 433533 (Exeter)

**ATARI 1040 STFM** DS, DD, hi-res monitor, mouse, leads plus external drive, Cannon PW1156A printer, £250 ono.  $\Rightarrow$  David 01772 712161 (Lancs)

**ATARI ST** and hi-res monitor, studio sequencing setup complete, was used with Cubase sequencer editors etc, scaling studio, £240 inc help by phone.  $\Rightarrow$  Allan 0589 195071

**ATARI ST** 1Mb monitor and software, £150. Viscount EPX1 Multi FX, £75.  $\Rightarrow$  Colin 01733 578531

**ATARI ST** 1Mb RAM, boxed with SM124 hi-res monitor, useful sequencing tool, £170 for quick sale.  $\Rightarrow$  Gareth 01904 425464

**ATARI ST** computer, 1Mb memory, high resolution monitor, mouse, sequencing software, all leads, cables, boxed, mint, reliable, quick sale, £250 or p/x TR909, TB303, JD800 etc.  $\Rightarrow$  01276 31010

**ATARI ST** computer, with SM144 hi-res monitor, excellent condition and complete with software, £240.  $\Rightarrow$  Naz 0181 571 1490

**ATARI STACEY 240S** Tacey 4364 and Atari colour monitor. Also Casio CZ3000 and Notator for Atari. Make me an offer.  $\Rightarrow$  0114 274 6190 (Sheffield)

**ATARI STACEY** 4/40, £650, Quad 405 £250, Denon DRM510 cassette deck, £150. All pristine.  $\Rightarrow$  Dave 0171 435 9674

**ATARI STACEY** Portable computer, 4Mb RAM 40Mb hard disc, complete with loads of original software, Canon BJ10 bubble jet printer, £650 or will split.  $\Rightarrow$  0161 225 1166

**ATARI STE 1040** with Cubase, plus Megafile 30 hard drive, plus SM124 monitor, £350.  $\Rightarrow$  Martin 01223 845588 (days) (Camps)

**ATARI STE** 1Mb plus mono monitor, £250 ono, Cubase 3.1 for Atari, £200, Replay 16 sampler for Atari, £60.  $\Rightarrow$  Jeremy 01904 700329 (York)

**ATARI STE** computer and high resolution mono monitor, excellent for



sequencing, £240; includes manual, mouse, leads, has only been used in home studio setup. ☎ 01908 233520 (Bucks).

**C-LAB CREATOR** Version 3.1 ☎ Tony 01427 614135.

**COMPLETE ATARI** Mega 4-based Soundtools digital editing system with upgraded software, monitor, and rackmount, 200Mb hard disk, £750. ☎ 0181 830 4091 (London) 01603 631112 (Norwich).

**CREAMWARE TRIPLE DAT** in box, MIDI Express PC, offers. ☎ Sean 0171 424 0194.

**ENCORE V4.0** Mac version notation software, latest version, boxed and unused. £260. ☎ 0181 940 3680 ask for Rene (Surrey)

**EZE SAMPLE** Editing software for Ensoniq EPS, runs on 1Mb Atari ST computer for on-screen waveform and parameter displays, cost £150 accept £95, very rare. ☎ Chris 0421 507144 (Mobile).

**MACINTOSH 660-AV 6** tracks of digital recording/editing with Deck II, no extra hardware needed, £985 ono. ☎ Andy 0121 605 6082.

**MACINTOSH LC3** computer 4/40 with mass co-processor, mouse and leads. £400 ono. ☎ Alex 01580 752780 (Kent)

**MAC SE** with hard disk, MIDI interface, EZ Vision sequencer and other software. £275. ☎ Paul day 01483 295744, eves 01483 505314 (Guildford).

**OPCODE STUDIO 4** as new £425 ono, boxed. ☎ Steve 01522 529330.

**PASSPORT MASTERTRACKS PRO V 6.0** sequencing software, latest Mac version, boxed and unused. £100. ☎ 0181 940 3680 ask for Rene (Surrey).

**SAMPLITUDE STUDIO** direct-to-disk recording software for PCs. Absolutely brilliant. Boxed, as new, £250. Clarity 16-bit sampler for any Amiga computer, boxed as new, £69. ☎ or Fax: Ian 01702 616961 (Southend).

**SAW v4.6** with effects utility rack, 8-track audio for the PC, expandable to 16 tracks, worth over £600, sell for £345. Cubase 2.6 for the PC, cost £399, sell for £285, MIDIman Portman, 2 Ins, 4 Outs, MIDI interface for PC, cost over £180, sell for £125. Brand new MQX 32 MIDI interface for PC, still in box, cost £250, sold for £180. All less than 3 months old, all boxed with receipts and guarantee. Bought in error. ☎ Paul 01302 538304 (Doncaster).

**STEINBERG CUBASE 2.6** for PC. Original with manuals and latest Saw 8-track audio for PC, version 4.5B. Offers on both. ☎ Paul 01302 538304 (Doncaster).

**STEINBERG CUBASE AUDIO** Falcon system complete with 250Mb hard disk, FDI, MM8. Offers. ☎ Dave 01959 570867 (Biggin Hill).

**STEINBERG CUBASE** For Windows V1.1, VGC, £95; Also MPU-401 MIDI interface card, excellent condition, £40. ☎ 01924 298907 (Wakefield).

**TWO ATARI STACEYS** 2/40 and 4/364, £550 and £900 respectively ono. Also Atari Notator and videos. Offers. ☎ Adrian 0114 273 6190 (Sheffield).

**YAMAHA CXSM2** music computer with MIDI recorder, music composer and FM voicing cartridges, also a selection of games. £45 ono. ☎ Keith 01282 701756 (Lancs).

## SEQUENCERS

**AKAI ASQ10** sequencer, latest version for sale. As new, hardly used, excellent for gigging and recording, retails at £999, quick sale due to leaving country at £500 ono. ☎ Kate 01273 587129.

**AKAI ASQ10 99**-track, 64 MIDI output channel sequencer, manuals, £650. ☎ Eddie 0181 643 6401 (Surrey).

**ALESIS MMT8** 8-track sequencer, boxed as new, £100. ☎ Gordon 0181 968 0095 (London)

**ROLAND MC50** Pro sequencer, 2 MIDI Outs, 32 channels, excellent song pointer tape sync, many sophisticated editing features, practical live

performance software, boxed as new, £395. ☎ Kyt 01208 831069.

**ROLAND MC50** Hardly used, £450. ☎ Neil 01743 350240 (Shrewsbury).

**ROLAND TB303** Immaculate, complete with case manual etc, offers. ☎ Stephen 01623 554672 or 01246 410799 eves.

## DRUM MACHINES

**ALESIS SR16** 233 sounds, VGC, boxed, manuals, £115. No offers! ☎ Brian 01623 651565 eves. only.

**CHEETAH MD16** drum machine and manual. Boxed. Excellent condition. £100 ono. ☎ 01222 623180 after 6pm (Cardiff).

**OBERHEIM DX** drum computer, superb sounds, individual outputs, triggers, tuning on each drum. Easily programmable, includes manual, immaculate, cost £1000, accept £150 or swap Quadraverb Plus. ☎ Ricky 01482 448767 (Hull).

**ROLAND R5** human rhythm composer, power supply, manual, good condition, £130. ☎ Steve 01342 826686 (Sussex).

**ROLAND R5**, excellent condition including PSU and manuals, £170. ☎ 0161 445 2474 (Manchester).

**ROLAND TR828** drum machine, boxed with original perspex template covering front panel. Will send by post, £325. ☎ 0589 022076 (day or night).

**ROLAND TR909** drum machine. Boxed. Manual. Excellent condition. Offers. ☎ Steve 0115 952 3059 after 6pm (Notts)

**ROLAND TR909** drum machine, mint condition, boxed, manuals, and original batteries, £650. ☎ Kerry 01202 731179 or Graham 01202 716125.

**YAMAHA DD10** drum machine, £25. ☎ Stuart 01372 745032 (Epsom).

**YAMAHA RX11** drum machine, stereo outputs and separate outputs for each sound, very good condition, fully MIDI, tape sync, £65 ☎ Kez 01208 873649 (Cornwall).

**YAMAHA RY30** + card, good condition, £250; AKG C1000S, £110; Roland PR100 Sequencer, £110; Roland HP600 electric piano, £500 ☎ Martin 015242 41619

## PERSONNEL

**CREATIVE PARTNER** for ZTT/Leftfield/Jam & Spoon project. Reliable, open-minded with own equipment in London area. ☎ Michael after 8pm 0171 354 1300.

**FILM MUSIC** Composer seeks new and interesting film project to collaborate with. Also available, talented and unique vocalist with nightingale-like voice. ☎ 01437 710515 for further information.

**KEYBOARDIST** urgently required for melodic rock band with worldwide distribution deal, influences Floyd, Genesis etc. No cash yet, but potential! ☎ Andy 01582 862902.

**KEYBOARDIST** with monster BVs and leads immediately required. Available to travel now. Need CV, tape, photo. ☎ 01252 312976 (Hants).

**MATTHEW CHALK** formerly Siren Records A&R Department. Where are you now? ☎ Paul 01253 765904 (evenings).

**MUSICIAN (30s)** seeks others of a similar age for sound collages and desperate songs somewhere between lo-fi grunge and jazz. ☎ Alan 01206 796447 (Colchester).

**PRIME SOUND** Small 8-track studio for hire, DAT mastering, quality results assured. ☎ 01275 817122.

**SKINT MUSICIAN?** Earn extra cash working from home, just send an SAE for details. Mr. A. Corbett, 59 Valmont Road, Bramcote, Notts, NG9 3JD. What have you got to lose?

**SONGWRITER/MUSICIAN** wanted to form partnership. Any standard welcome but dedication essential. Influences are rock, pop, soul. Interested? Must be local. ☎ Keith 01462 441362 (Hitchin).

**SYNTH-BASED** vocalist/composer, needs co-writer/programmer with serious intent, preferably with own

equipment and other musical attributes. Send Demo to P Zarins, 23 Crowlane, Milnsbridge, Huddersfield, W.Yorks, HD3 4PH.

**URGENTLY REQUIRED** talented female vocalist to work on uplifting house, dance and garage projects. ☎ Andy 01440 62310 (Suffolk).

**WANTED FOR BRAND NEW** jazz act, a new and challenging sound, jazz mixed with soul and hip-hop require drummer and two dancers, preferably Beds, Bucks, London area ☎ Colin 01908 311639.

## MISCELLANEOUS

**AMPS** Peavey KV300 keyboard amp, 3-channel plus reverb, 15" speaker plus horn (loud), £250 ono. Colt 100 guitar amp, twin channel with kick, plus reverb, 2x10" speakers, £120. ☎ Martin 01223 845588 (day), 01223 562150 (eves) (Cambs)

**BRAUN N120** movie camera, unused since major service, £250 ono, or swap for good stereo mike — AT825, ECM999 etc. ☎ or Fax: Peter 01597 825315

**CLEAROUT!** Atari 1040 plus Emagic 3.1, £450; Akai 950, £900; Roland D110, £220, HH 12.2 mixer, £300; Boss SE50 effects, £300, AKG CS1000S, £150; Roland GR1 guitar synth, £900. ☎ Graham 0973 500507 (Birmingham)

**COMPLETE 1800W PA** lighting rig and van, chance of a lifetime price for immediate sale, £5500 no split no offers. ☎ Paul 01387 711003 after 6pm.

**EL ECOSSE SR300** power amp. 150W per channel, 8 Ohms, 2U-pro-rack chassis c/w handles, high output! Superlative sound quality! Made in the UK! ☎ H C Noble 01224 321486

**EX-STUDIO** sound collection for sale. Sounds for Korg M1, Roland D10, D20, D110, D50, Yamaha DX7, TX7, SY22, SG33, Kawai K1 and K4, Waldorf Microwave ☎ 0121 449 8433 ask for Stephen (Birmingham).

**EVS200** PA speakers, excellent condition, £975 ono ☎ Veronica 01865 375236

**HOW ABOUT THIS** Outta Spaceboy Recordz presents Eletro-canoodle ep 10 trx chrome, £3.50 until 22/9/95 only. Cheg/PO to DTA Clear, 34 Mil Rittes, Tiptree, Essex, CO5 0LQ.

**JACKSON** soloist guitar for sale. 24-fret, two humbuckers, Floyd Rose tremelo, beautiful cherry sunburst, £375 ono. ☎ Adrian 01494 674407 (Bucks).

**KORG MS20** Flightcase just requires padding, £40 ☎ John 01484 667317 (Huddersfield).

**KORG 01W** combi data disks. £9.99 per disk, speciality new age cosmic textures. ☎ Ken 01268 541449.

**KRAMER FOCUS 6000** Black, original Floyd Rose, 3 pick-ups, £290, cash problems force reluctant sale. ☎ 01708 670549 (Essex, near London).

**MANUALS FOR RARE** Oberheim 4-voice (plus programmer and blank sound sheets), along with Yamaha DX7 II manual. HR-6 V1.09 (final version) ROM chip. ☎ Eire (+) 353 21 778168.

**OWNERS MANUALS** for sale including: Minimoog, Pro One, Odyssey, MS1Q20, Mono/poly, Juno 60/106, Jupiter 6/8, TR808/909, SH101, Synthi AKS, VCS3, OBB plus others. Prices £3-£10 inc. p+p. ☎ 01274 620004 (W Yorks).

**PCM SOUND CARDS** Roland R8 power drums, Roland U110 x 2 orchestral wind/orchestral strings, £25 each. Can Deliver. ☎ 0113 2787180 (Leeds).

**RACK, FULL SIZE** 39U on casters, fully enclosed, glass front door, bit tatty, hence £70; HP Laserjet 4 memory Simm 4Mb, unused, unopened, £100. ☎ 01273 455692 after 7pm.

**RACKMOUNT** flightcase, custom-made, £120. ☎ Nick 01964 527645 (North Humberdale).

**RACK SYSTEM** for sale. M1REX (T3PCM) plus 12 cards, £750, D550 plus 4 cards, £525; MK520, £350; MK530 plus PG200, £500; MK570, £500; Roland M12E 2U mixer plus EQ £175; 2x6U AArmar rack pods, plus

USS stand, all in black, £150; Complete system, £2500. ☎ Dominic 0161 431 7425 (Stockport).

**REEL OF AMPEX 456 2"** tape, only one song on tape, rest of reel totally unused, £30. ☎ Neville 0113 2530350 (Leeds) eves. or 0113 2601222 daytime

**ROLAND AFC10** scale converter for keyboard. Converts keyboards to quarter scale. New, unused, £340. ☎ Ellen 0181 840 7029 (London).

**ROLAND D50** sounds on Atari disks, with manual and ROM card, £430. ☎ 01474 355052 (Kent).

**ROLAND JDB800** string card and more sounds on disk, £1100; MC202 with Kenton CV+ gate, £225; Fostex X15, needs repair, £50. ☎ Gavin 0181 552 5124 till 5pm.

**ROLAND JD990** voice crystal sounds on two ROM cards, £25 each. Korg 01W piano PCM/ROM card set, £75. C-LAB Creator manual, £25. Roland R8M drum machine, £200. ☎ Ricky 01475 630181.

**ROLAND OCTOPAD** with KID key trigger and pedal, £295, Roland R8M drum module with five sound cards, £295. All boxed, manuals, excellent ☎ 01420 84030.

**ROLAND SPD11** total percussion pad, eight independent pads, 255 classic sounds including TR808/909 kits plus effects. Boxed, manual, as new, £450. ☎ 01244 382815

**ROLAND U20 SOUND CARDS** £20 each ☎ Alan 01543 685614 (Staffs).

**SIMMONS SDS 1000** drum kit with Cheetah MIDI interface, mint condition, £295. ☎ 01690 710231.

**STUDIO CLEARANCE** S1000PB x2, Casio FZ10M; Emu ProCussion, Emu Proteus 1; ART Multiverb, Matrix 1000; TX81Z x2, MC50, Fostex rack mixer, 16-channel; Akai MG614; MIDiverb II, plus more. Open to offers. ☎ Lee 01472 267665 (Grimsby).

**STUDIOMASTER 200W** stereo power amp, 19-inch rackmount, voltage selector, stereo/mono switch, plus bridge mode, excellent condition with manual, £195. ☎ 01628 28626.

**ULTIMATE SUPPORT SYSTEMS** 'Stealth' keyboard stand, as new, £50; Fostex DCM100/Mixtab MIDI-controllable mixer combination, boxed, unopened and unused, £250 (RRP £799). ☎ 0191 253 2460 (Tyneside).

**YAMAHA G10** and 10C MIDI guitar, excellent condition, manual and original flightcase, £450 ☎ Mark 0171 226 8836 (London).

**YAMAHA GQ2015** graphic, £200; Crown PCC160 PZM, £150; AKG C414E8 (For spares), £140; Music Prose (Mac) Notation, £140; 17U F/Case, £150, 12U with castors, £140. ☎ Steve 01507 463182.

**YAMAHA P2350** power amp. Retail price £889. Good condition. Bargain price for quick sale, £250. ☎ 01202 511416 (Bournemouth).

## WANTED

**360 SYSTEMS** 20/20 frequency shifter or similar device, also looking for 360 systems guitar synth. ☎ Martin 0171 639 9727.

**AKAI MPC60** Mk II wanted, cash waiting. ☎ 0181 883 4329 or 0860 482 822.

**AKAI 5950/1000** sampler or similar, example Ensoniq EPS 16+. Must be in good condition. Also, mother keyboard and Atari ST plus monitor, and software wanted. Fair price paid. ☎ Carl Hughes, 3 Ormond Street, Ashton Under Lyme, Lancs, OL6 8JQ.

**AKAI S1000/S1100** can play £1400; M1, SY85, TR909, £500; Juno 106, TB303, D50, D20, £300; SH101 MC202, BassStation, DX7, JX3P, SE50, Quadraverb, SPX90, £150; JV1080, £750. ☎ 0973 123965.

**ATARI SM124** or SM125 hi-res monitor and Atari 1040STE. No upgraded 520 STE please, cash waiting. ☎ 0181 665 1840.

**B55 DPR502** noisegate wanted, cash waiting. ☎ 0181 883 4329 or 0860 482 822.

**D50 MEX** multimbral board wanted urgently. Money waiting. ☎ 0181 656 0291 (Croydon).

**DIGIDESIGN PRO TOOLS II** 8-, 12- or

16-channel system with system accelerator card, cash waiting. ☎ 0181 883 4329 or 0860 482 822.

**DIGITECH VHM5** vocalist harmoniser, and Yamaha KX5 remote keyboard controller, and Simmons SDM 8:2 MIDI mixer. ☎ John 01484 546062.

**ENSONIQ SQRMODULE**, cash waiting. ☎ Tony 01530 244391.

**FOOTSWITCH** Sequential model 839 for Prophet VS. ☎ Duncan 0121 444 2681 (Birmingham).

**FOR ENSONIQ EPS** old model: 8-output expander and 4x memory expansion. Reasonable prices please. ☎ 01702 341755 (South East Area).

**FUNCTION JUNCTION MIDI** patchbay wanted, cash waiting. ☎ 0181 883 4329 or 0860 482 822.

**KENTON PRO 2** MIDI to CV converter and TB303 bassline wanted, cash waiting, please contact Keith Salmon, Flat 2, 40 Alhambra Road, Southsea, Hants, PO4 0RL.

**LYRICS OF 'Working Men'** by Rita McNeil. ☎ Chris 01639 633715.

**MANUAL FOR KORG MT1200** Mastertune guitar tuner. ☎ Nick 01964 527645 (North Humberdale).

**MIDI SCAN** and Mac music printers wanted. ☎ 01247 453812 (Co Down).

**NOVATION BASS STATION** for cash or exchange for SY22 keyboard, see keyboard section. Contact: Mr S J Joyce, 24 Third Ave, Oldfield Park, Bath.

**ROLAND D110** Editor for Commodore Amiga and Roland U110 sound cards. ☎ Pete 01723 862751 after 6pm (Scarborough).

**ROLAND JD800** in exchange for Akai S2800 and PC200 master keyboard. ☎ Richard 01482 796712 (Hull).

**ROLAND M64C** Memory cartridges desperately needed, more urgent than urgency, somebody please, please help. Will collect if possible. Also 202/101/808 wanted. ☎ Pete 01235 525059.

**ROLAND R8** with/without cards. Will pay up to £250. ☎ Alan 01242 579185 (Glos).

**ROLAND TB303, TR909** required urgently, top dollar paid! Will collect, no MIDI retrofits please ☎ Stephen 01623 554672 or 01246 410799 eves.

**ROLAND TR909** drum machine top price paid, will collect. ☎ Ian 01703 268817 (Southampton).

**ROLAND JUPITER 6** will pay £550; and collect. Also wanted: DP4 effects. For Sale: DX27, £130 ono ☎ Ian 01432 266752 (Hereford).

**ROLAND TR909, TB303**, samplers, any outboard, keyboard, am rebuilding smaller home studio, cash waiting for sensible offers, absolutely no dealers or silly prices. ☎ 01252 370550.

**SOUNDS FOR KORG 01WFD** on disk or card, swap your collection for mine. ☎ Ralph 01308 456945 eves.

**SOUNDTRACS MRX32, PC32** mixing desk or similar pro desk, also wanted Ensoniq UFX, cash waiting. ☎ Matt Williams 0121 550 7077.

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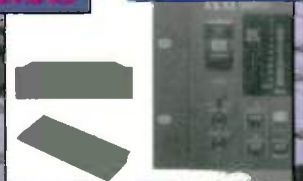
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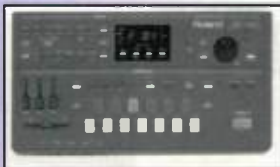
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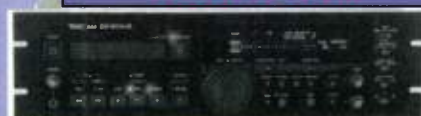


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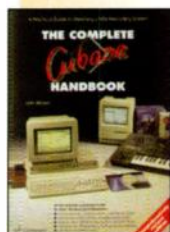
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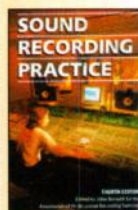
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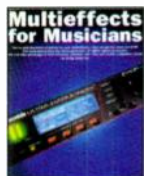


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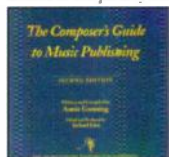
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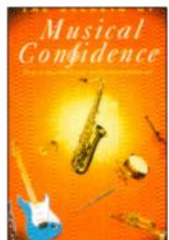


This book has been produced by the Association of Professional Composers and examines the business of musical copyright and music publishing from the composer's point of view. It aims to educate composers of all kinds of music in the operation of the music publishing business to help them obtain, negotiate and benefit from publishing agreements and avoid expensive mistakes. Apart from publishing, the book also covers copyright legislation, performing and mechanical rights, the royalty administration societies, music in film, broadcasting, theatre and ballet and commissioning agreements. There is also advice for composers setting up their own publishing companies. An exhaustive and useful book.

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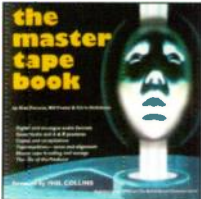
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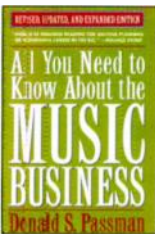
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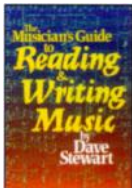
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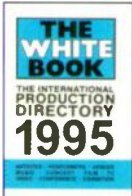
## THE MUSICIAN'S GUIDE TO READING & WRITING MUSIC



It's an entertaining but practical introduction, well, to reading and writing music. This is as friendly as it comes. Learning to read and write music isn't easy, but at least the process is lightened up with considerable doses of wit.

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## THE WHITE BOOK INTERNATIONAL PRODUCTION DIRECTORY 1995



This is the latest edition of the essential source of contacts for artists, performers, venues, services and facilities associated with music, concerts, shows, festivals, film, TV, video, conferences, exhibitions and corporate hospitality - there's even a comprehensive international section.

The layout is logical and an index makes fact finding an easy task - altogether an indispensable 864 pages. The new edition once again comes with a complementary copy of *The Little White Book*, which distils the contents of the larger volume to a pocket-sized list of names and phone numbers.

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## THE SONGWRITER'S MARKET GUIDE TO SONG & DEMO SUBMISSION FORMATS



From the Editors of *Songwriter's Market*

If you've got the songs and you've got the contacts, this book will help you to choose a format that will get your demo heard as well as overall packaging and presentation and dealing professionally with publishers, A&R reps and other industry people. Plenty of example documents (lyric sheets and letters) are given, and the book is nicely rounded off with a glossary and index. Hardback.

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## NETWORKING IN THE MUSIC BUSINESS



by Dan Kimpel

Think of this book as a popular psychology course for musicians. If you feel you could benefit from developing a positive attitude to getting ahead in your area of the music business, then *Networking* is for you. There's nothing like it for good, sensible advice: it's often not enough to have talent. To be successful, you'll need to persevere, have good "people skills", and exercise good networking skills. Success depends on what you know, who you know, and perhaps most importantly, who knows you. An essential book, and a snip at £11.95. Hardback.

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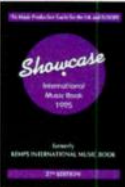
by Sheila Davis



If you want a textbook, this is it: 250 pages of serious, intelligent insight into songwriting. Loads of good advice and a friendly tone make this a useful read to anyone, whether beginner or seasoned pro. The focus is firmly on lyrics rather than music, and the prominent references to poetry terminology shouldn't really be a surprise. Use Davis' 40 strategies and you to could soon be "designing distinctive songs". Hardback.

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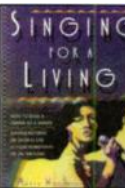
## SHOWCASE/KEMPS INTERNATIONAL MUSIC BOOK 1995



The music industry equivalent of *Yellow Pages*! Nearly 500 pages crammed with all the latest information, including new phone and fax codes for record companies, recording studios, music publishers, equipment manufacturers, artist management, producers, PA and lighting hire, and more. Plus a new USA section.

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by Marta Woodhull  
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## BEGINNING SONGWRITER'S ANSWER BOOK

by Paul Zollo

If you're just starting out as a songwriter to haven't progressed very far, perhaps you have questions about the art and business of songwriting that you can't find answers for. Chances are, they're covered in this book. Over 200 of the questions songwriters most often ask are answered in this book. There are 11 chapters, covering subjects such as lyrics, theory, song structure, collaboration, demos, publishing and the music business. Some answers - such as "What makes a professional-sounding demo?" are actually mini-articles - and an index allows you to target subjects without wading through the text. A friendly, informative read.

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## SONGWRITER'S WORKSHOP



Edited by Harvey Rachlin  
If you want to work systematically at improving your songwriting skills, then try this book: it's divided into four individual 'lessons', each of which is backed up by audio material on cassette. This allows you to listen in the car or walk around with

your personal stereo and still absorb useful information. The four sections are: On Songwriting by Janis Ian (yes, the Janis Ian); Making Demos by John Barilla; Understanding MIDI by James Becher; and The Art of Pitching Songs by Teri Muench (ex-A&R director with RCA and publisher). Also included is an intro, a quick and breezy glossary and an index. Includes two cassettes.

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examples, and a helpful question and answer appendix. Expensive, but invaluable. 522 Pages.

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## THE ARC MUSICIANS' DIRECTORY



The new Musicians' Directory from Arc Publishing aims to provide all things to all musicians: whatever your style of music, the comprehensive listings offer you the contacts you need, whether it's labels, studios, venues, music shops or management -

and that just scratches the surface of the dozens of topics covered by the book. Apart from being a directory proper, the Handbook also includes a selection of useful articles, including subjects such as how to be a session player (by SOS's very own Paul White), music publishing, releasing your own record, copyright protection, accounting, legal advice and more. The Musicians' Directory offers over 380 information-packed pages for little more the price of a new CD.

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## 88 SONGWRITING WRONGS & HOW TO RIGHT THEM

by Pat & Pete Luboff

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by Dan Walker with Gregg Perry

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## YAMAHA SY55 GUIDE

by Bobby Maestas

A good helpful look at this arguably overlooked instrument; technicalities are explained in context of music throughout. 155 pages.

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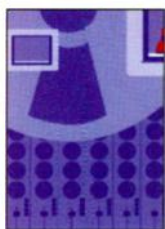


# SOS Book Shop

## MIDI

### MUSIC TECHNOLOGY REFERENCE BOOK

by Peter Buich & Vic Lennard



Written by Peter Buich and Vic Lennard (author of SOS's Atari Notes column), this book offers information at your fingertips and is an indispensable reference source for the musician or sound professional in the recording, broadcast, live, video, computer,

multimedia, post production and theatre industries. It includes comprehensive MIDI spec, General MIDI, MTC, MSC, and SysEx information. It also includes charts, check lists, useful hints, tips, and ideas, plus a glossary, list of contacts and a comprehensive indexed, it is also organised into convenient sections. 150 Pages.

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### PRACTICAL MIDI HANDBOOK (3rd Edition)

by R A Penfold

This book is completely updated, and features a section on General MIDI. It provides a 'straightforward, non-mathematical introduction to MIDI', and features a full glossary of MIDI terms.

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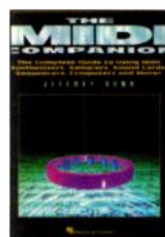
### A BEGINNERS GUIDE TO MIDI

by R A Penfold

The title says it all: all aspects of MIDI are explained, and many common beginner's problems are discussed.

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### THE MIDI COMPANION



By Jeffrey Rona  
A breezy run through MIDI that would suit the absolute beginner, this book is well-illustrated, clearly expressed and explains the technical bits in as close to non-technical language as the subject matter allows.

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### MIDI: A COMPREHENSIVE INTRODUCTION

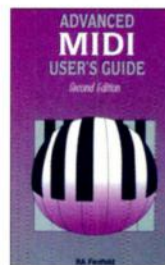
by Joseph Rothstein, Product Review Editor, Computer Music Journal  
Series Editor: John Straum

MIDI – Musical Instrument Digital Interface – is the data communications system which enables music equipment, computers and software from many different manufacturers to exchange information. Since its introduction in 1983 the impact of MIDI on the design and operation of synthesizers has been dramatic, yet to date, information about it has been scattered, but this book fills that gap, providing a practical guide for readers seeking a thorough discussion of the basic principles of MIDI.

Computer Music and Digital Audio Series  
238 Pages, numerous figures 1992  
0-19-816293-6 Hardback.

**CODE B215 £25.00**  
Postage: UK £2.50, Europe £6.95, R.O.W. £9.50

### ADVANCED MIDI USER'S GUIDE (2nd Edition)



by R A Penfold

Most MIDI users do no more than scratch the surface of MIDI's potentialities. But dare to dig a bit deeper and you'll find a whole new world of creative possibilities.

With the Advanced MIDI User's Guide, you'll learn how to optimise your MIDI system to get the best results from your particular setup, and you'll find out how to use gadgets like switchers and mergers to enhance your system. If you want to incorporate a multitrack tape recorder into your MIDI system there's a section on synchronisers, SMPTE and MIDI time code, and retro freaks will learn how to hook up that dusty old analogue synth to their MIDI systems.

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### MIDI SYSTEMS AND CONTROL

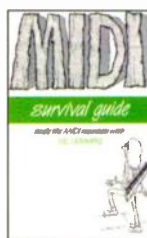


By Francis Rumsey

This revised edition has been expanded in an number of topic areas, to provide even more comprehensive coverage of every area of MIDI. Contents include: an introduction to principles and terminology; MIDI timecode; librarians and editors; different approaches to sequencer software design; practical systems design.

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### MIDI SURVIVAL GUIDE



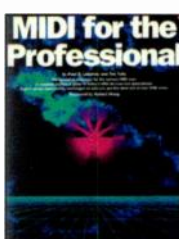
by Vic Lennard

Whether you're a beginner or a seasoned pro, the 'MIDI Survival Guide' shows you the way. No maths, no MIDI theory – just practical advice on starting up, setting up and ending up with a working MIDI system. Contains over 40 cabling diagrams, and how to: connect synths, sound

modules, sequencers, drum machines and multitracks; using switch, thru and merger boxes; transfer songs between different sequencers, get the best out of general MIDI, and understand MIDI implementation charts.

**CODE B196 £6.95**  
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

### MIDI FOR THE PROFESSIONAL



by Paul D Lehman and Tim Tully

Co-written by SOS contributor Paul D Lehman, this substantial, exhaustive work covers pretty well any aspect of MIDI that you could think of. As an overview of what MIDI is and does in 1994, this

239 page book couldn't be better.

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Postage: UK £3.95, Europe £7.50, R.O.W. £14.50

## Synthesizers

### VINTAGE SYNTHESIZERS

By Mark Vail

This well-illustrated, 300 page book covers synth history, interviews with designers and overviews of important instruments. Mark Vail's book could be the most entertaining and useful synth book yet – check out the definitive history of the Minimoog, complete with pre-production designers' sketches. While not strictly a buyers' guide, there is a comprehensive section to sourcing, valuing, upgrading and servicing classic instruments.

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Postage: UK £2.50, Europe £6.95, R.O.W. £9.50

### KEYFAX 2

by Julian Colbeck

1989 version of Keyfax provides individual summaries and specifications of the last of the great mono synths, digital pianos, and classic polysynths like the Roland JX10 and Prophet V5. Keyboard and rack-mount samplers are covered in this indispensable guide. Still a great buy.

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### KEYFAX 4

by Julian Colbeck

The new Keyfax book (1993) is the most comprehensive guide to professional keyboards yet compiled. Keyfax 4 spotlights synthesizers and expander, and MIDI keyboard controllers. From classic analogue machines right up to the latest synth/sampler hybrids. Reviews include technical tour on a practical, need-to-know basis. Everything you need to decide which instrument is best for you.

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### KEYFAX 5



by Julian Colbeck

The latest instalment in the intrepid Keyfax series offers potted specifications and concise mini-overviews of digital pianos, home keyboards, General MIDI modules, stage organs and computer sound cards. Look out for company

backgrounders, contact details and cross-references to earlier Keyfaxes.

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### THE MUSEUM OF SYNTHESIZER TECHNOLOGY

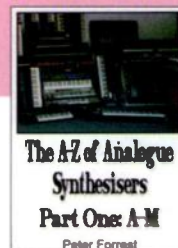


by Martin J Newcomb

If you liked our feature on the opening of the Museum of Synthesizer Technology in October, but haven't got the time or the cash to visit in person, then the next best thing has to be the museum's guide book. This 118 book is printed on glossy paper and contains full-colour pictures of a large selection of exhibits from the museum, together with some descriptive text and company backgrounders. The text reads a little like a fanzine, but the hardcore synth fanatic will want this book for the pictures. In these pages you will glimpse instruments that you are unlikely ever to experience in the flesh: an exceedingly large Roland System 100 modular set-up, an EMS Synthi 100, an ARP 2500, a large Emu modular and what must be the comprehensive collection of Moog equipment anywhere. The Museum of Synthesizer Technology book is yours for £24.95, plus postage.

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### THE A-Z OF ANALOGUE SYNTH PART ONE: A-M



by Peter Forrest

The author has aimed to make his book a complete rundown of all the major analogue synths and keyboards ever made, and on the evidence of this first volume, he seems to have succeeded. The book is useful and detailed, and shows evidence of

the massive amount of research and effort put in by Peter. He gives pocket company histories and detailed data on the instruments produced – but note that a few entries for a few particularly obscure instruments and companies are limited due to lack of data. The book also provides a comprehensive overview of the qualities of various instruments; charts and tables assess second hand values and maintenance levels necessary to keep a given instrument playable as well as such intangibles as sound quality, collectability and user interface. The A-Z of Analogue Part One, which is limited to 8000 copies worldwide, also features 96 colour pictures of classic instruments.

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## Drum Machines

### DRUM PROGRAMMING — A Complete Guide to Program and Think Like a Drummer



By Ray F Badness

Coming from a publisher that has a good range of real drum texts, we'd expect this book to be a little different. And it is: it gives plenty of insights into how real drummers approach their job, and there are plenty of example patterns to help translate these

ideas to a drum machine.

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By Sandy Feldstein

For use with Roland drum machines or any grid-based pattern system. First 75 pages on programming huge range of rhythms in rock, latin, jazz and funk styles. Remainder analyses styles and patterns of world's top drummers – Phil Collins, Billy Cobham, Steve Gadd, Stewart Copeland, etc. Highly recommended.

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By Siegfried Hoffman

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By Rene-Pierre Bardet

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## Playing Techniques

### CLASSICS IN SEQUENCE

by William Lloyd & Paul Terry

Takes concepts behind Music In Sequence and applies them to all-time favourite classical music scores. Authors show how to make fresh, exciting interpretations of classic scores. Info on reverb and effects, interpreting scores, editing synth voices. Highly creative—an ideal workbook for the music classroom. Covers Medieval, Renaissance dance music, Bach's Toccata in D minor; Vivaldi, Purcell, Handel; opera excerpts from Rossini, Verdi, Borodine; Mozart, Schubert, Tchaikovsky, music from Carmina Burana; Debussy, Satie, Steve Reich's Piano Phase and more. Highly recommended.

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### MUSIC IN SEQUENCE

by William Lloyd & Paul Terry

Still one of our best-selling books. Easy to follow, practical guide to making real use of your sequencer, written by people who really understand music and how to create it using today's technology. This brilliant, unique book carries the SOS seal of approval.

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### 1000 KEYBOARD TIPS



by J Drakler & Q Harle

The hi-tech musician's guide to the basics of music, scales, chords and harmonies. 256 pages covering chord relationships, improvisation, suggested drum machine patterns, plus comprehensive chord

table. Too good to miss!

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### SOLID GROOVES

By Dieter Peterle & Herb Quick

128 pages dealing with both bass and drums, the 'heart' of the pop group, together. Although written primarily for drummers and bass players, anyone interested in understanding rhythmic music in popular styles will find this book invaluable.

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### COMPLETE KEYBOARD CHORDS



by Warren Nunes & Steve Doherty

A handy guide to all the keyboard chords you wish you could play - from simple to complex! Includes exercises designed to help their use. Explains chord symbols and music notation.

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## Computers & Music

### MULTIMEDIA ON THE PC



By Ian R Sinclair

If you want to know what multimedia is and what it can offer you, then this is the book for you. Much of the information is general enough for everybody, but as the title suggests, the book is aimed at PC users. The

book explains the installation and use of a CD ROM drive and a sound card and covers all key concepts behind multimedia. As an added incentive, if you buy this book, you can send away for a free copy of Picturebook, a multimedia authoring package.

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### COMPUTERS AND MUSICAL STYLE

by David Cope, Professor of Music, University of California, Santa Cruz

Series Editor: John Strawn

Professor Cope provides a step-by-step description of the way in which he analyses and replicates musical style by computer. He demonstrates his results in the style of composers such as Bach, Mozart, and Prokofiev with compositions which sound entirely new and yet somehow familiar. Musicologists, theorists, and composers will find this work to be both ground breaking in its quality and thoroughness, and composers may also find a method to assist them with their own compositional processes.

**Computer Music and Digital Audio Series**  
262 Pages, music examples 1992  
0-19-816274-X Hardback.

**CODE B216 £30.00**  
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### MULTIMEDIA ON YOUR PC

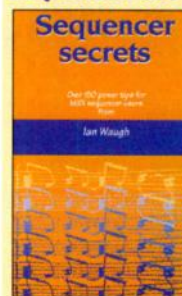


by Francis Botto

A practical guide to multimedia specifically on the PC. Botto's book is once aimed at users, educators and developers, and comprehensively discusses the hardware required to take advantage of multimedia in a PC environment as well as the hardware and software necessary in a multimedia authoring situation. The book is provided with comprehensive appendices covering a glossary and comprehensive product and manufacturer lists.

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### SEQUENCER SECRETS



Ian Waugh

Ian's book aims to "go beyond the manual" in telling you how to get the best from your sequencer. The book features 29 hands-on sequencing projects and is suitable for use with all software sequencers. The book hopes to help you optimise your MIDI system and use your sequencer to create all sorts of useful effects. A troubleshooting section helps you track down stuck notes, double notes and so on.

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### COMPUTERS AND MUSIC

By R A Penfold

2nd edition. Covers hardware and software applications. Excellent glossary of jargon, and now bang up to date.

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### MULTIMEDIA, CD ROM & COMPACT DISK - a guide for users and developers (2nd Edition)



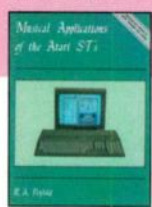
by Francis Botto

Practical guide to CD ROM and interactive multimedia aimed at both users and developers. Virtually all platforms and technologies are covered in this book - CD-I, CD ROM, CDTV, Macs, PC clones etc - and a comprehensive range of appendices include a glossary, and lists of development tools, manufacturers, and existing CD ROM titles. All aspects of system development - from image capture to sound - are covered.

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### MUSICAL APPLICATIONS OF THE ATARI ST's

By R A Penfold



Includes a general introduction to MIDI, a handful of MIDI add-on circuits (Thru box, MIDI switcher and so on), plus a collection of programs, in Fast BASIC, that allows you to use the ST's internal sound generator and create little MIDI applications.

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## Live Sound

### SOUND REINFORCEMENT HANDBOOK

by Gary Davis and Ralph Jones

From recording to broadcast, fixed installations to touring, this 400 page reference covers live sound setups, equipment, techniques and jargon.

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Edited by George Thompson

This book provides an authoritative look at safety matters for workers in the live entertainment industry. It is edited by the Standards Officer of PLASA (Professional Lighting and Sound Association), and provides good solid information in an easily digestible, well-illustrated form. Topics covered include audience and crowd control, fire safety precautions and engineering, electrical safety, laser safety, sound levels and noise control and much more.

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### INTRO TO LOUDSPEAKER & ENCLOSURE DESIGN

by V Capel

The book provides both useful background to speakers and enclosures in general, plus practical information on crossovers and full details on constructing the so-called 'Kapellmeister' design of speakers.

**CODE B281 £2.95**  
Postage: UK £1.50, Europe £3.95, R.O.W. £4.50

### LIVE SOUND MIXING

by Duncan R Fry

This is a hands on, friendly introduction to all aspects of mixing live. It hails from Australia, and is an SOS Bookshop exclusive. The author is an experienced live sound engineer and has packed his book with loads of information, diagrams and hints to take you from basic principles through to trouble shooting when things go wrong.

**CODE B256 £19.95**  
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

### PUBLIC ADDRESS LOUDSPEAKER SYSTEMS

by V Capel

All aspects of PA speaker systems are covered in this book, including low-impedance matching, 100V systems, transmission lines and how to install inductive hearing aid loops. At the heart of the book is the Line-Source Ceiling Array, a system that is claimed to improve clarity, even coverage and reduce feedback. Full step-by-step construction and installation details are given.

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## Electronic Projects

### ELECTRONIC PROJECTS FOR MUSICIANS

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### MIDI PROJECTS

by R A Penfold

A comprehensive collection of simple MIDI projects, including CV and gate converters and a MIDI Thru box. A lot of the book is taken up with interface various obsolete computers to MIDI (Spectrum, CPC464, Commodore 64, BBC B, ZX81 and so on), but the general information is basically sound. Could prove a boon to musicians who are really broke!

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### HIGH POWER AUDIO AMPLIFIER CONSTRUCTION

By R A Penfold

Much useful background to amplifier design, speaker matching and more is included in the first couple of chapters, while the last section contains a selection of high power amp circuits plus suitable PSU circuits. Copper track patterns are also provided to allow you to make your own PCBs. While the circuits aren't too difficult as such, those with limited constructional experience should note that due to the high supply currents and voltages involved, even minor mistakes could be extremely dangerous.

**CODE B282 £3.95**  
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

### ELECTRONIC MUSIC AND MIDI PROJECTS

by R A Penfold

Want a MIDI THRU box, patchbay or switcher? Well they're all here. And you don't need a degree in electronics either. All the projects are explained in detail, with full instructions on assembly. So if your into MIDI and you want to expand your system without taking out a second mortgage, fear not. Here's the book to help you build up your MIDI system without laying out thousands on hardware.

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### DIGITAL AUDIO PROJECTS

by R A Penfold

A two part book, with the first section looking at the basic principles involved including converting an audio signal into digital form and then converting it back to an analogue signal. The second part contains some circuits - for the moderately experienced only.

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It includes a booklet listing all the main and sub sections along with their respective TimeCode number for easy access when used as a reference tool.

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Presented by the National Academy Of Songwriters

Code V003 **£14.95**

Running time: 1 hour 7 minutes

Format: VHS (PAL)

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### ROLAND MS-1 VIDEO MANUAL



This video manual has been produced by Roland Corporation US, and has been designed to provide the user with tuition, and examples of how to apply your new found knowledge in various applications. There is also a comprehensive 'Tips & Tricks' section to give you that extra

edge!

Code V047 **£24.99**

Running time: 50 minutes (approx)

Format: VHS (PAL)

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

### ROLAND JV-1080 VIDEO MANUAL



Roland's amazing JV-1080 synthesizer module is covered in detail in this informative video. Presented by Tim Walter the video guides you through the basics, and leads you painlessly into the advanced features. The video even shows you how to fit the expansion boards & gives

demonstrations of some of the wonderful sounds they contain. Once again this video has been produced in association with Roland UK & USA to ensure that everything it contains is accurate, and relevant to the new and more experienced users alike.

Code V046 **£19.99**

Running time: 80 minutes

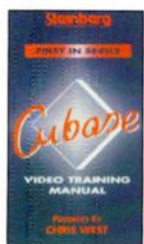
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Postage: UK £1.75, Europe £4.95, R.O.W. £6.95



# SOS Videos

## STEINBERG CUBASE



This manual, the first in a series, 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.

**CODE V011 £29.99**

Running time: 1 hour 30 minutes Format: VHS (PAL)  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## CUBASE 2.6 FOR WINDOWS BASICS



Practical guide to Cubase for Windows covers all the basic functions, ideal for the new user and those who need added insight into this complex system. Contents: Basic MIDI, Value Selection, Arrangements, Arrange Window, Transport Functions, The Inspector, The Toolbox, Quantisation, Grid Editor, Step

Recording, and much more.

**CODE V035 £34.99**

Running time: 85 minutes  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## THE ART OF SEQUENCING

Composer Don Muro presents six lessons that demonstrate how to create a multitrack sequence, how to correct wrong notes, how to correct rhythmic errors, how to correct dynamics, how to change synth programs, and how to change tempos. The tape is not dedicated to any one sequencing package - the information is valid no matter which sequencer you use.

**ORDER CODE V030 £30.95**

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## BAND IN A BOX 6.0 BASICS FOR WINDOWS

Designed to get the new user, and those less familiar with Band In A Box, up and running quickly and easily. Experienced users can also benefit from the in-depth tutorials which cover Basic MIDI, MIDI Connections, Custom Patch Maps, Screen Layout, Juke Box, Printing, Recording & Editing Melodies, Importing & Editing Styles, Drum Editor, Masks, Assigning Instruments.

**CODE V031 £34.99**

Running time: 88 minutes  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## CAKEWALK 3.0 For Windows

A collection of three videos on the Cakewalk Professional system for Windows, covering just about everything you would need to know to become totally proficient with Cakewalk. If you own Cakewalk Home Studio — no problem! The videos cover everything Cakewalk Home Studio is capable of and more...

### BASICS

Basic MIDI, Step & Realtime Recording, Playback Features (on the fly), Editing Features, Graphic Views, The Inspector Menu, Menu Overview, The Control Bar.

**CODE V032 £34.99**

Running time: 120 minutes  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

### BEYOND BASICS

This video explains Customising Cakewalk, Extract Merge, more graphic Views, Advanced Editing, the Settings Menu, Synchronisation, Embedding Wav Files and more...

**CODE V033 £34.99**

Running time: 113 mins  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

### CAL

Programming Fundamentals, Creating a Program, Creating a CAL Program, How to use CAL Programs, CAL Examples, Automating Tasks, Tips on working with CAL, Creating Computer Music, Troubleshooting.

**CODE V034 £34.99**

Running time: 90 minutes  
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## KORG AX30G TONEWORKS

**CODE V028 £19.99**

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## ANALOGUE HEAVEN



Remember our feature on the opening day of the Museum of Synthesizer Technology which we ran back in October 1994? Wish you'd actually been able to attend? Well, now you can have the next best thing: the museum has released a fascinating 50 minute promo video that features footage shot on the day as well as a

lightning tour of the facility. The program is hosted by SOS contributor Julian Colbeck. The tape opens with synth pioneer Bob Moog making the inaugural speech and officially opening the museum, followed by a nostalgic run through one of his old modular systems. Analogue Heaven makes diverting viewing for anyone interested in vintage synths, represents good value, and offers the perfect companion to the Museum's guide book, also available from SOS Bookshop.

**CODE V026 £15.95**

Running time: 50 minutes Format: VHS (PAL)  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## ENCORE 3.0 FOR WINDOWS

The basics of Encore for Windows is covered, with in-depth tuition over 83 minutes. Everything you need to get up & running is here. Basic MIDI, Score Layout, Accidentals, Key Signatures, Note Editing, Step Time Entry, Adding Staves, Click Setup, Record Setup, Linear View, Quantisation, Editing, Printing, Staff Position & Spacing, and much more...

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Running time: 83 minutes  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## MASTER TRACKS PRO 4/5 BASICS FOR WINDOWS & MACINTOSH

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**CODE V041 £34.99**

Running time: 105 minutes  
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## YAMAHA PSR6000 ELECTRONIC KEYBOARD VIDEO MANUAL

**CODE V029 £19.99**

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## EMAGIC NOTATOR VIDEO TRAINING MANUAL



This video manual is detailed and helpful, and is presented in a most friendly and approachable manner by session musician Tim Walter, whose tone throughout the video encourages and inspires confidence. If you are new to Notator and are still in awe of its power, this is the video to bring you down to earth. An introduction and 28 tutorials take

the user from the absolute basics - including plugging in the dongle - to working with Unitor and SMPTE, and synchronising to video. As well as actual recording of MIDI data and sequencing, comprehensive coverage is given to using the score layout and printing facilities that are so much a part of Notator. Topics covered include: sequencing page, score editing, lyrics and text, graphic arranger mode, hyper edit, the printer page, using the part box.

**CODE V012 ONLY £19.99**

Running time: 2 hours 20 minutes Format: VHS (PAL)  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## THE EMAGIC LOGIC TUTORIAL VIDEO

**VOLUME 1**

Produced by Emagic themselves, this video once again sees Tim Walter (featured on the excellent Notator video) in the tutor's chair. There are plans for a series of videos which become ever more detailed and informative, but for now Volume 1 takes you through the first steps of getting the software up and running, and covers virtually all the controls you'll need. This video is valid for all versions of Logic, whether bring run on an ST, Mac or PC. Presentation is rather intriguing, with a mobile camera that helps to hold the interest more than the average training video and some interesting graphics that aid comprehension and help to quickly find specific tutorials and bits inside tutorials. Contents as follows:

- Tutorial 1: The Arrange window and basic sequencing
- Tutorial 2: Playback parameters & Toolbox
- Tutorial 3: Controlling MIDI data flow
- Tutorial 4: Manipulating sequence data
- Tutorial 5: Moving around in Logic
- Tutorial 6: Windows and key commands
- Tutorial 7: More sequencing
- Tutorial 8: Score
- Tutorial 9: Looking at the Event List
- Tutorial 10: Editing the Event List
- Tutorial 11: Using the Environment
- Tutorial 12: The best of the rest (HyperEdit, Matrix Editor, Cycle Mode and more).

**CODE V023 £29.99**

Total running time: 70 minutes Format: VHS (PAL)  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## BOSS DR-5 DRUM MACHINE



Presented by Nick Cooper (Roland UK Product Specialist) this video covers all the functions of the DR-5 in a clear and concise manner. Produced in association with Roland UK & USA. By using the information gathered from Roland 'helplines', particular attention has been paid to the areas that many users find

most difficulty in. This makes it of interest to beginners and experienced users alike. Nick imparts the information with ease and a professional manner, making it enjoyable and entertaining.

**CODE V043 £19.99**

Running time: 57 minutes  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## KORG X3

This video offers an easy way in to this powerful workstation. It starts from absolute basics, including audio connections and volume levels, and the clear and helpful script covers all basic facilities of the X3. The video features a sophisticated use of picture in picture, with the X3's display cut into the main image to show you clearly what Phil is actually doing, and main points are reinforced with on screen text and graphics. The main section headings are:

- X3 Audio Connections
- Getting Around the X3
- Factory Disk
- Disk Drive Modes
- Selecting Sounds
- Global Modes
- Sequencer Mode
- Quick Sound Editing
- Playing MIDI Files on the X3
- Using the X3 with an external sequencer

Note that these are loose headings, with each section also containing information on connected subjects in varying amounts of detail. A lot of ground is covered, and we can recommend the tape to any X3 owner.

**CODE V018 £19.99**

Running time: 55 minutes Format: VHS (PAL)  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

## HOW TO GET THE MOST OUT OF HOME RECORDING

**3 TOP CLASS VIDEOS**

A superbly presented set of videos which no home recordist should be without. Have you got your set yet?!

### LEVEL ONE



This well presented video explains how to set up and operate a simple cassette-based multitrack home studio. It clarifies all the basic terminology and demonstrates the recording of a song from beginning to end, covering how to record guitars, keyboards, vocals and drum

machines; which microphones to choose; how to patch in effects units and use them well; what makes a good arrangement; what makes a good mix; plus what to master on to and why.

Full of professional tips and clear examples, this superb video offers the musician with no recording experience a fast route to successful operation of a simple home studio.

**CODE V005 £24.95**

Running time: 1 hour 10 minutes  
Format: VHS (PAL) HiFi Stereo  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

### LEVEL TWO



This is, in our opinion, the best ever guide to the equipment and skills needed to produce high quality results from a home studio. Full of clear examples and graphic information, the video majors on effects and how to use them well. It also covers the do's and don'ts of track bouncing; microphones and mic techniques for

different applications; getting the most out of multi effects units; plus an analysis of guitar effects with top session guitarist Milton MacDonald and an enlightening interview with ace producer Alan Parsons.

Writer/presenter Julian Colbeck packs the programme with professional tips, allowing musicians of all kinds to get the most out of their home studio.

**CODE V006 £24.95**

Running time: 1 hour 45 minutes  
Format: VHS (PAL) HiFi Stereo  
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

### LEVEL THREE



This video is packed with information and professional tips on advanced MIDI applications in the home studio, including interfacing with sequencers, which sync code is best for which application and why. Hit producer Martyn Phillips (Erasur, London Beat) discusses

modern recording techniques, and top programmer Paul Wiffen examines the opportunities and benefits offered by hard disk recording.

It offers practical advice on sampling - how to save time and tracks; plus professional tips on advanced arranging and mixing techniques, including spectrum mixing.

**CODE V007 £24.95**

Running time: 1 hour 30 minutes  
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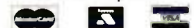
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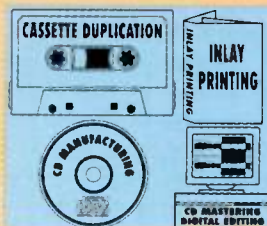
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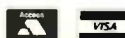
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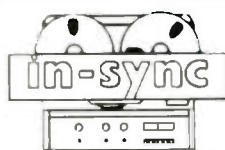
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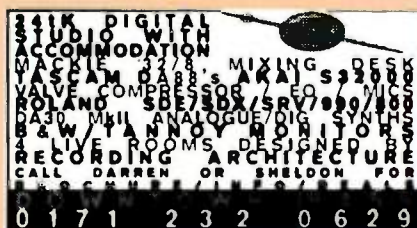
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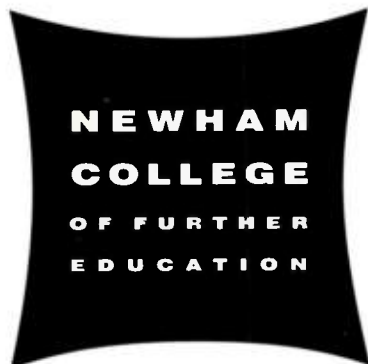
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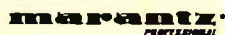
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It was Arthur C. Clarke, I believe, who wrote something about sufficiently advanced technology being indistinguishable from magic. I certainly think you'd be hard-pushed to explain to a 12th century peasant that a motor car is not the product of magic!

I have found the modern recording studio to have a similar effect on the average person in the street. On seeing my studio for the first time, family and friends gaze with a sense of awe, usually followed by something approaching disbelief when they hear a full arrangement of a song, complete with strings, choirs, guitars, drums and vocals — all without a single piece of tape in

## sounding OFF

**Thanks to MIDI, modern musicians can achieve effects that would have seemed nothing short of magical only a few years ago — but it can still seem like mumbo jumbo to the uninitiated. Regular *SOS* contributor PAUL WARD believes it could all be so different with just a little standardisation.**

sight. In our sheltered, technologically-oriented little world, we hi-tech musicians are unaware of the leaps of logic required to get a grasp of the concepts behind the electronic toys and gizmos that we now take for granted. A synth capable of realistic pianos and strings is now the norm, sampling allows us to include the looped performances of real instruments played by real players, and tapeless recording is now an (almost!) affordable reality.

Your visitor asks if it's possible for him/her to play a few notes of a simple piano sound, so you spend a minute or two flicking through program changes and dialling up a new MIDI patchbay configuration, then reset the MIDI volume which was turned down at the end of the piece you just played, and turn down the aux send on the mixer that was supplying a flanged delay effect... OK, maybe I'm exaggerating slightly, but you get my point. Much like an ancient magician or alchemist, we

are bound by a series of ritualistic activities to perform the simplest

of tasks. By now, your guest is usually saying something to the effect of 'How on earth do you manage to understand all of this?', and is also somewhat dismayed, as a key press now introduces the sampled delights of a Vietnamese pot-bellied pig

in labour!

The technology we employ to drive a car or to make hi-tech music is nothing short of miraculous, but there is one glaring difference — no matter

how complex the underlying technology, cars have a pretty much standard user interface. There may be the odd extra feature, such as cruise control or an automatic gearbox, that may take some getting used to, but essentially all cars are driven in the same way. How would you feel about buying a car that requires you to programme the exact route you are going to take before you set off, or where the windscreen wipers stopped when you went above 50mph because the CPU couldn't handle the extra demand? How well would a car sell if the maker decided to swap the pedals around, or put the accelerator on the dashboard?

I have to admit that this analogy has its flaws. You wouldn't expect the same controls in a helicopter or an aeroplane as a car, although they perform much the same basic job of transportation. Similarly, a sampler and a synth have fundamental differences that will determine much of their user interface. Surely we must be beyond the point where we can all agree on what constitutes a patch, a voice, or a program?

Have we not arrived at a time when this array of equipment should be able to communicate without our constant intervention? How about being able to define that 'I just want to sit down and play a piano sound' as a kind of macro patch that could be recalled by a single command, whereupon the individual elements in the system will respond by getting themselves into the correct state to achieve that task? MIDI certainly goes a long way towards making this possible, but we are still mucking about with patch numbers, SysEx data, and control information — much like lifting the bonnet to re-configure the engine for a day trip to the coast.

So, what is the answer? Well, I'm not a designer, but I'm sure it doesn't lie in producing manufacturer-specific disk formats (like the now ubiquitous Akai format which can't be read by a PC!), or infuriatingly tortuous program architecture (look to your Wavestation, Korg). I'm also fairly certain that MIDI will have to give way to a newer, faster communication system before we see any real improvements to our control and command of the next generation of hi-tech musical marvels. While the experts are busy trying to define the standards for MIDI's successor, might I suggest they also consider some other standards, such as the definition of a basic user interface requirement for specific devices. Most importantly, the underlying technology must be hidden under the bonnet. A consistent and familiar user interface will not only make the equipment easier to use and get more people interested (look at the growth in the PC market once Windows applications took hold), but also make upgrading to newer equipment less traumatic, creating more new sales for the manufacturers.

Does all this sound like a Utopian dream? So did MIDI back in the '70s...

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