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Piano

Control Palette

19 | 1 | 758

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Tempo: 124

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Piano	1	1
Bass	1	1
Drums	1	1

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Jump

Prog Freq: 10000

Rel Trk: 0

Act Mts: 0

App Vts: 0

Altr Jty: 0

Alt Range: 0

Alt Curbt: 0

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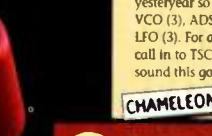
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Having been Editor of hi-tech and recording magazines since the days when MIDI meant a knee-length skirt, and being an electronics engineer by training, I've always been intrigued by electronic instruments, especially synthesizers. Ever since first hearing one of Robert Moog's creations on an ELP album I was a synth fan, even though my main instrument is still the electric guitar. However, like the Bishop of Durham, I have to confess a recent wavering of my faith — I've come to the conclusion that synthesizers are mainly myth, or at best an

analogy for something quite different. However, for some reason that I haven't yet totally fathomed, they continued to call these sample-based instruments synths — which is rather like pasting a lot of bits of photographs together and then claiming you've done a painting. What's more, because sample-based instruments are limited by the finite number of samples you put into them, they still can't generate every sound imaginable — though there are nevertheless those who would have us believe they can produce 'an infinite range of sounds limited only by your imagination'!

The Truth About Synths (Part 682)

analogy for something quite different.

Back in the '60s, the synthesizer was defined as an electronic musical instrument capable of recreating the sound of any existing musical instrument, as well as any imaginable abstract sound. From what we now know about the first analogue instruments, this was far from the case. While they did produce a huge range of exciting sounds, they were pretty poor at imitating 'real' instruments, and their abstract capabilities, while rather more impressive, were pretty limited too. It's odd that although theory proves you can get an infinite variety of sounds from an analogue synth,

there's still an infinite number of sounds that you can't get! Perhaps it's all due to infinity having too many noughts for the average calculator to handle?

Years later, similar claims were



made about FM digital keyboards. However, although these did give us a brand new and 'equally' infinite range of tones and textures, they could *still* only imitate certain types of acoustic instrument, and their abstract capabilities also worked better for some types of sounds than for others. Of course, it was around this time that designers gave up trying to design true synthesizers and turned to sampling as a

Things have continued in this vein for the past few years, with the inevitable drops in price and increase in features, but now we're confronted by another method of sound creation — physical modelling. Is this the answer to our quest for true synthesis, or are we destined to head down yet another side passage of musical history?

My own view is that physical modelling is vitally important, but maybe not for the reasons you might first imagine. If you've seen a physical modelling instrument played, you'll know how important real-time control is: just like an acoustic instrument, a physically-modelled sound responds to the nuances of your playing style, and it's that control that breathes life into what might otherwise be quite a dull sound. Ironically, many of the instruments we *already* own sound far better when played using MIDI controllers for real-time parameter control, but apart from pitch bend and vibrato, many of us simply play the patches the way they come out of the box. However, after seeing how dynamic a physical modelling instrument sounds when 'played' using controllers, it's possible that more people will start to experiment with real-time control using their own synths.

Perhaps we should forget the dream of the infinitely versatile synth, and accept our keyboards and modules for what they are — musical instruments in their own right with their own strengths and weaknesses. Maybe it's time to accept the synth is dead; long live the electronic musical instrument.

Paul White Editor

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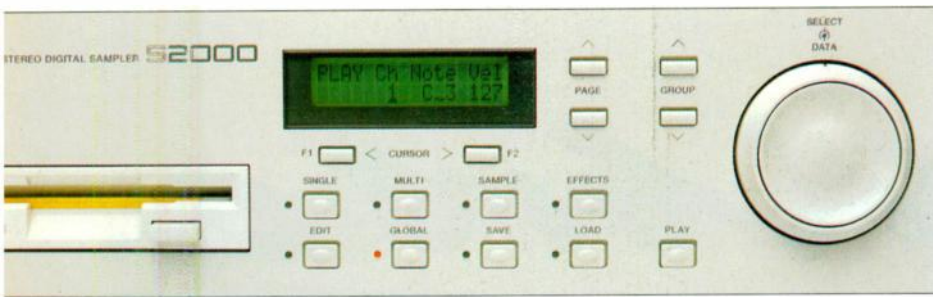
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Akai S2000 Sampler p82
The budget sampler war bots up with Akai's launch of their expandable £999 stereo digital sampler. How good is it?

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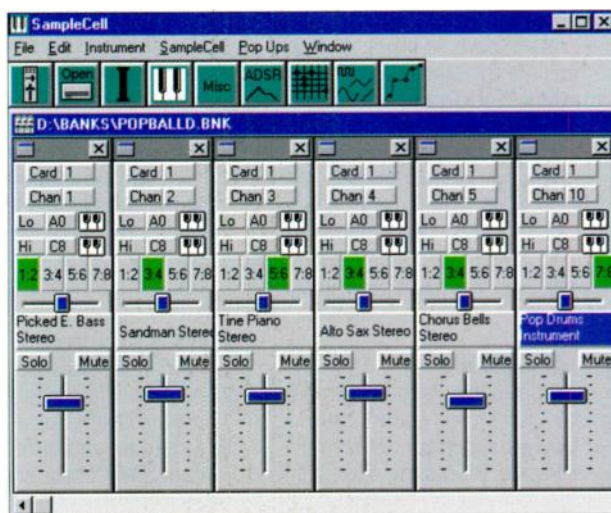
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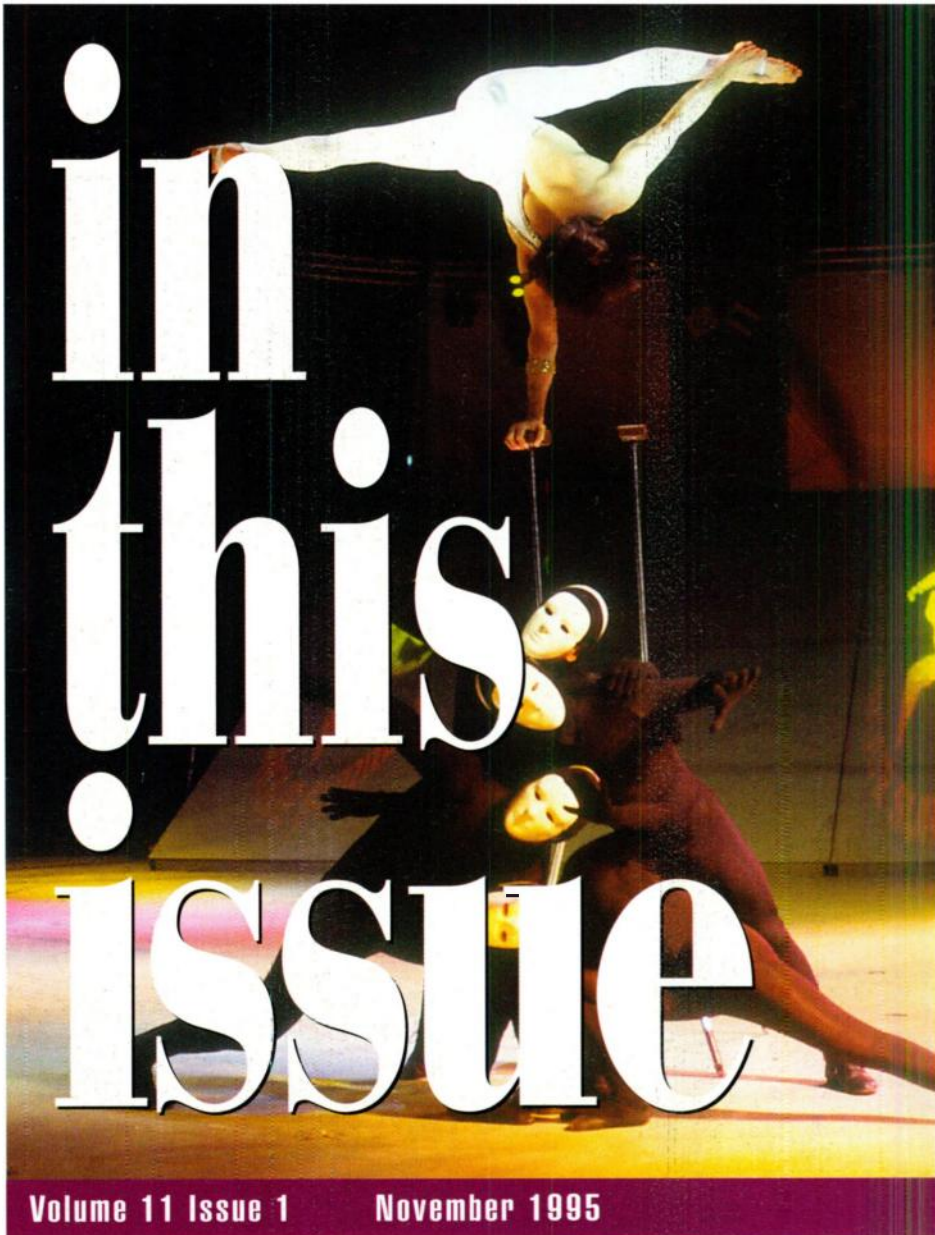
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In this exclusive preview, we unveil the next generation of Korg 'superworkstations'.



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STAY ON THESE RHODES

I was very pleased to see Norman Fay's article about the neglected Rhodes Chroma synthesizer [SOS Retrozone, October '95]. I am also pleased to say that there are solutions for all the problems he has encountered. I'll deal with the hardware first.

Let's clear up the biggest worry straight away: every single electronic component inside the Chroma is either still being manufactured or has a directly compatible modern equivalent, so there will be fully



working Rhodes Chromas long after all those custom-chip devices have met their inevitable death.

Taking the voice boards as an example, the three rarest chips are the 3350 filters, 3360 amplifiers and 4151 oscillators. The first two are still being churned out in their thousands by OnChip Systems of California, whilst the 4151 is not only alive and well, but also has an even better younger brother named the 4152.

If you are worried about Chroma MIDI interfaces, the KMX interface is my favourite, with its extensive programming facilities, multitimbrality, System Exclusive dumps and polyphonic pressure support. For more info, phone 001 805 582 0845 (in the USA) and ask for Ken Ypparila.

Polyphonic pressure sensitivity was fully implemented on later Chromas. Most instruments shipped to the UK had software revision 12 hidden inside the case. This cannot handle polyphonic aftertouch, but revisions 13, 14 and 14A can. Of these, 14A is by far the preferred version, since the others alter the keyboard attack velocity response in a detrimental manner, although the polyphonic release velocity remains unharmed. A word of

warning if you upgrade your ROM chips to version 14A: you must use the AMD EPROMs supplied with the instrument, because they have a significantly lower power consumption than later so-called improvements from other manufacturers. The new ROMs will provide instant polyphonic pressure response to aftertouch from an external keyboard, but you need an additional item of hardware to be able to send 'I've been squeezed'-type messages back out again.

Moving on to other matters: suppose you

want a killer bass line to make your Minimoog green with envy. This requires some devious programming, but there are at least three main methods to boost your bass. I'd better not get too detailed, but the core of the patches are as follows:

1) Audio frequency modulation of a filter

Set 'Patch' to 4, 'Tune A' to 36, and 'Tune B' to 12... and you'll have to work out the rest yourself.

2) Binary ring modulation

Set 'Patch' to 7, 'Tune A' to 12, 'Tune B' to 31. That's enough to be going on with...

3) Dual resonance parallel filtering

This is easy — set one filter to high resonance and one to only slight resonance, then use amplifier B as a mixer, and a couple of exponential release envelopes plus a rising sawtooth LFO at very slow speed with key synchronisation into both filters. I'll leave further tweaking to you!

By the way, ARP aficionados, if you thought the ARP 2500 was big, you should see the ARP 2100...

Martin Straw
Southampton ☐

BE IN AWE OF YOUR '32

Following on from Brian Heywood's tip in Crosstalk and PC Notes last month for getting digital sound out of your Creative Labs AWE32 soundcard: Brian pointed out that he'd heard that a connection kit was available, but he'd had difficulty sourcing it. I am pleased to announce that Turnkey have now come up with a solution. Our kit comprises a digital/analogue converter (DAC), high-quality phono leads, a power supply and the S/PDIF cable to go from the card to the DAC.

The kit is easy to install (it takes about 10 minutes) and retails at £149 including VAT. It is available from us at the shop or via mail order for an extra cost of £9.99 for postage.

As Brian pointed out last month, I must stress that this kit will not allow the output of WAV files, as the S/PDIF output only comes from the wavetable chip. Contact Turnkey for more details (0171 379 5148).

Neil Roberts
Soho Soundhouse/Turnkey ☐

3D SOUND FOR £25, ANYONE?

I have recently developed a very inexpensive recording system for full 360 degree spherical sound field recording, which is the currently the subject of a patent application. It uses neither a dummy head approach, nor the electronic matrixing of the QSound or Roland systems [for more on QSound's approach to 3D sound, incidentally, check out the interview with their head of technical support, Scott Willing, on page 36 this month — Ed].

My prototype is an analogue transducer recording system, which is highly portable and can be fed into a DAT recorder. Although it certainly represents a 'bare minimum' system, I should nevertheless point out that the prototype cost under £25 to build!

My reason for releasing this information is that I am anxious to contact people interested in developing this highly creative sound medium at a price we can all afford. I'm currently negotiating with a company regarding manufacture and I can't release any further details at present. If you are interested, please contact me via SOS.

Dallas Simpson
East Midlands ☐

NOW £1495* BUYS YOU A BUILT-LIKE-A-TANK LIVE SOUND CONSOLE GOOD ENOUGH FOR DIGITAL RECORDING. SAY HELLO TO MACKIE'S NEW SR24•4.

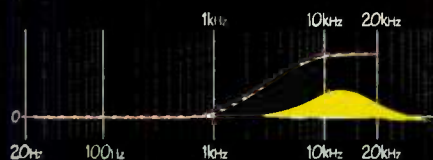
WHY COMPROMISE? The new 4-bus SR24•4 is the first affordable live sound console with the features and sound quality necessary to create professional quality studio recordings.

That's because it's a direct descendent of our 8•Bus console series. Same high headroom and ultra-low noise. Many of the same features, components and circuitry.

Don't settle for a cheap PA board. Now, for a few bucks more, you can own a Mackie console that makes you sound good on stage AND in the studio.

The SR24•4 is shipping in quantity and is in stock now at your nearest Mackie dealer.

A NEW MACKIE INNOVATION: FACTORY "AIR" EQUALIZATION on each submaster! A unique peaking EQ circuit for enhancing guitars, vocals, drums — and sound reinforcement speaker systems themselves. Centered waaay up at 16kHz, AIR applies a gentle boost to the extreme high end without affecting lower treble octaves like Hi



shelving EQ does (red line). You've gotta hear AIR to believe the "high fidelity" effect it has on PA systems, especially those with horns and compression drivers.

CHS. 1-20 are mono with 1/4" TRS balanced line inputs, and the same renowned high-headroom, low-noise XLR mic preamps found on our 8•Bus console series (including individual mic TRIM controls & globally-switched phantom power), **HI SHELIVING EQ** with 15dB boost/cut at 12kHz, **SWEEPABLE MID EQ** from 100Hz to 8kHz (1.5 times wider bandwidth than other consoles), and **80Hz LO SHELIVING EQ** and **LOW CUT FILTER** with 18dB/octave roll-off at 75Hz just like on our 8•Bus console.

ALL CHANNELS feature **60MM FADERS** with the same precision, log-taper as our 8•Bus consoles. New design uses a recently-developed, long-wearing wiper contact material for extended fader life and improved resistance to solid and liquid contaminants.

CHANNELS 21-24 are stereo line input channels with Hi & LO shelving EQ plus 2 peaking Mid bands.

6 MONO AUX SENDS per ch., ALL

accessible at any time. Aux 1 & 2 are pre-fader; 3 & 4 are switchable pre/post; Aux 5 & 6 are post-fader.

STEREO AUX RETURNS also feed Aux Sends 1 & 2 via separate controls for returning delay or reverb to stage monitors.

TALKBACK has separate rear XLR input, level control & assign buttons to send Talkback to main mix or to Aux 1 & 2 for stage monitors.

Globally switchable **PFL or AFL (SIP) SOLO**.

PHONES/CONTROL ROOM level control drives two stereo Phone outputs plus Control Room output. Switch can route stereo Tape Return to Phones/Control Room for monitoring 2-track recording.

TAPE RETURN TO MAIN MIX also disables other inputs to mains so you can play music during breaks without losing channel and submaster settings.

-20dB SIGNAL PRESENT LED

SOLO switch. PFL or Solo In Place (SIP/AFL) via Master Section Solo mode switch.

"DOUBLE-BUSSED" SUB OUTS let you feed an 8-track recorder without repatching.

Balanced **XLR MAIN OUTPUTS** (plus balanced 1/4" TRS outs).

Dual **HEADPHONE OUTPUTS**.

***FINEPRINT.** Including VAT, brilliant, glorious VAT.

INSERTS on every mono ch., sub & main buses. Balanced **MONO MAIN OUT** with output level control.

New SR32-4 32 Channel Version Now Available £1995

MACKIE

Mackie Designs USA • Represented in the UK by Key Audio Systems Ltd.
Robjohns Road, Chelmsford, Essex CM1 3AG • 01245 344001 • 01245 344002

Crosstalk

PUMP UP THE VOLUME (AND DOWN AGAIN)

I wonder if you can help? I would like to be able to take a piece of continuous audio, say a long flute note, and apply rhythm to it by varying the volume via MIDI.

I can do this with my Alesis Quadraverb by controlling the effect output with MIDI pitch bend, having created some on/off pulses in a Cubase part. I



can paste several of these together to get a volume pulse over the full length of the flute sound.

By then playing the pitch bend info from my keyboard into Cubase, I can vary the 'groove'. This is easy... but what I want to be able to do is have the pulse determined by the groove playing out of my Boss DR550 and Emu ProCussion drum machines. I presume it can be done via the audio signal from the units, or via the MIDI note info that is playing the drum boxes in Cubase, but this is the area I'm not sure about. I don't have a conventional noise gate or compressor and I think this effect is normally achieved by means of a noise gate's sidechain.

Is there a noise gate that you can control via MIDI, so that the open/close of the gate is determined by MIDI clock info? Guy Jackson
London

Paul White replies: *As you say in your letter, using an externally keyed noise gate is the easiest way to produce the 'chopped' effect you are looking for. MIDI-*

controllable gates are available, for example Drawmer's DS301, which retails at £617 (contact Drawmer on 01924 378669 for details), but if you have a spare audio out from a drum machine, it's just as easy to trigger an ordinary gate with the audio signal, and a lot cheaper too.

If you don't want to buy a gate, it should be possible to achieve a similar result using your Quadraverb, though it may not be quite so straightforward. The Quadraverb, in common with many other current effects units, has provision for real-time parameter control over MIDI, and by selecting the 'Direct Mix Level' as your target parameter, you can use the

Quadraverb as a MIDI-controlled volume device. For gating your audio from a drum pattern, you might be better off using MIDI note velocity as the modulation source, and then putting a suitable rhythm pattern into the drum edit page on Cubase. If you want the sound to gate off between beats, you'll need to manually insert extra notes with very low velocity values after the beats in your designated rhythm, but working to the quantise grid, this should be easy enough.

Of course, MIDI-controlled synth and sampler sounds (as opposed to recorded audio) can be gated on and off simply by using MIDI Controller 7, master volume, so long as your MIDI instruments respond to it. Using a graphical editing approach, it's possible to construct all kinds of rhythms which you can save in a library and then copy and paste whenever you need them. And you're not just limited to volume, you can also do some neat tricks with panning. Alternatively, you may find a convenient way to convert your drum parts to controller data using Cubase's Logical Edit. There are some good examples of these on the first Twiddly Bits disk Licks and Tricks (regularly advertised in SOS) for those who don't want to create their own. □

KEEP THOSE FTP SITES ROLLING IN, FOLKS

I thought I'd add a few more FTP addresses to the growing pile at SOS following Simon Neale's request for sites containing synth sounds [see Crosstalk August, September, and October '95 — Ed].

ftp.reed.edu in /eps oak.oakland.edu in /pub2/eps

These contain .AIFF files, .GKH Ensoniq disk images (for Ensoniq VFX, SD, EPS, ASR, and TS-series instruments, and .INS Ensoniq instrument files.

Yamaha owners might like to try the following address: **ftp-ls7.informatik.uni-dortmund.de in /pub/tx16w** as it contains .TXW Yamaha TX16W wave files.

lotus.UWterloo.ca in /pub/sgroup

offers some .SDK Roland S550/S50/W30 disk images, while

alf.uib.no in /pub/sds and the charmingly-titled **sweaty.palm.cri.nz in sds** have some .SDS MIDI sample sump standard and .SDX sample dump exchange files.

For .BAT Gravis Ultrasound patches, try **archive.epas.utoronto.ca in /pub/pc/ultrasound** and **wuarchive.wustl.edu in /systems/ibmpc/ultrasound**.

Finally, Kurzweil K2000 owners should head for **ftp.uwp.edu in /pub/music/lists/kurzweil, cs utk.edu in /pub/martin/K2000, or bach.nevada.edu in /pub/K2000**

for .KRZ Kurzweil K2000 files. Incidentally, the program for converting the sounds is called *Convert*. It is very useful and outdoes many of the commercial (and expensive) programs — not bad for freeware!

Thanks for such a great and informative magazine!

Ian Wilson
Republic Of South Africa □

THE ART OF REVIEWS

Paul White writes: *In my review of the ART Tube mic preamp (see SOS October '95), I mentioned that I would have liked to see an additional high impedance input specifically for use with instruments such as electric guitars. ART have informed us that the general-purpose jack input on the Tube MP has an input impedance of 840kΩ, which means it will match the majority of passive guitar and bass pickups with no problems. This is one instance where our wishes have been granted without even having to wait for a Mk II model! □*



More and more top producers are discovering the satisfaction that comes from working with Spirit equipment in the studio.

These peoples' reputations depend entirely on conjuring professional masters from raw tracks, so they won't accept anything less than the best when it comes to choosing the tools of their trades.

Here are just some of the Spirit products that are becoming standard issue in big and small studios everywhere.

STUDIO FAVOURITES

SPIRIT



SPIRIT STUDIO

Standing the test of time, Spirit Studio has been used to create hundreds of top singles, albums and soundtracks

- 16, 24 and 32 channel frames
- In line design with up to 72 inputs available at mixdown (32 ch)
- Up to 32 discrete tape sends available
- 8 Bus Group Section and Stereo Master
- 6 Aux Sends
- 4 Stereo Effects Returns
- 4-Band EQ with two swept mid controls
- PFL soloing on all channel & monitor inputs
- All input channels balanced
- Fader Flip facility
- Version available with Fader Automation (Spirit Auto)

ABSOLUTE 2

This professional nearfield monitor system has gained many converts from the far-from-perfect industry standard monitors

- High definition Linear Phase design
- Superb sonic accuracy
- Neutral, balanced sound for accurate monitoring
- Full Magnetic Compensation
- 25mm ferro-fluid cooled soft dome HF driver
- 165mm cone LF driver
- Gold Plated Terminals with Bi-Wiring capacity

FOLIO Si

This stereo input mixer for keyboards provides DAT-quality sound with professional features in a compact, rugged package

- 18 inputs: 8 stereo plus 2 mono
- 3-band EQ on inputs 1 to 14
- 2 high quality mic inputs
- 2 Aux Sends, Aux 1 switchable pre/post fader
- Freestanding and rackmount versions available



ADRIAN UTLEY

Co-producer and co-writer with Portishead

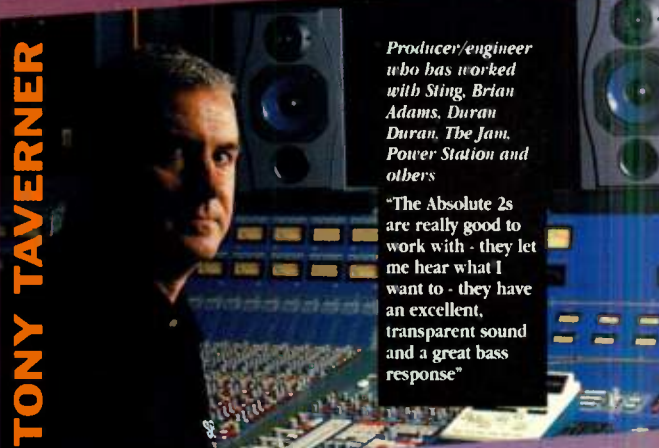
"The Spirit Studio console has a very musical EQ and is extremely clean, essential for preserving the character of the 'vintage' instruments I use. The Absolute 2s have a warm, rounded bottom end and I can listen to them all day without wearing out my ears."



TONY TAVERNER

Producer/engineer who has worked with Sting, Brian Adams, Duran Duran, The Jam, Power Station and others

"The Absolute 2s are really good to work with - they let me hear what I want to - they have an excellent, transparent sound and a great bass response"



JOHN LECKIE

Producer for The Fall, Simple Minds, Magazine, XTC, The Stone Roses, The Posies, Be Bop Deluxe, Dukes of StratospHERE and others

"The Absolute 2s combine a neat bottom end with an attractive, curvaceous top"



FOLIO RAC PAC

This 4-Bus 8U mixing console provides up to 28 inputs at mixdown. It is perfect for recording to digital multitrack and is equally at home in a live setup

- 14 input channels
- 2 stereo inputs
- 10 high quality mic inputs
- 16 Direct Outputs
- 3-Band EQ with swept Mid and HPF on every mono input
- 6 Aux Sends

- 4 Stereo Returns plus 2 Stereo Effects Returns
- 2-Track Tape Return routable to Mix
- Global Phantom powering



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Cranborne Industrial Estate
Cranborne Rd, Potters Bar
Herts EN6 3JN, England.
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Fax: +44 (0)1707 665161



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For free brochures and a booklet written by pro-audio journalist Paul White on how to get the best from your mixer in a variety of situations, simply complete and return the coupon to the address shown. I am interested in: Studio/Auto Absolute 2 Folio Folio Rac Pac

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What application would you use your Spirit product for? _____

What instrument(s) do you play? _____

What magazines do you read? _____

Please tick here if you do not want to be kept on Spirit's mailing list

Shape of THINGS TO COME

By Derek Johnson & Debbie Poyser

SOUND IDEAS FROM TIME & SPACE

Sample CD specialists Time & Space have been appointed UK retailers of the US *Sound Ideas* range of sounds effects CDs. Collections include the Lucasfilm, Hanna-Barbera, Universal and Warner Brothers sets, plus five of *Sound Ideas* own productions, covering a huge variety of sounds. Call for a colour brochure with full details of the range.

And Time & Space can now be contacted via E-Mail; their address in cyberspace is timespace@channel.co.uk.

A Time & Space, PO Box 306, Berkhamsted, Herts HP4 3EP.
T 01442 870681.
F 01442 877266.

Sample CD specialists Time & Space have been appointed UK retailers of the US *Sound Ideas* range of sounds effects CDs. Collections include the Lucasfilm, Hanna-Barbera, Universal and Warner Brothers sets, plus five of *Sound Ideas* own productions, covering a huge variety of sounds. Call for a colour brochure with full details of the range.

IN SESSION WITH DIGIDESIGN

Digidesign have announced the *Session Software 2.0* digital recording, editing and mixing program for the Apple Mac. The package offers between four and 16 tracks of simultaneous playback (depending on hardware used), digital parametric EQ,

on-screen mix automation and frame-accurate synchronisation to QuickTime movies. If run on a Power Mac, *Session Software* needs no additional hardware, though it is compatible with the Audiomeia II I/O card for users of other Macs. Notable features



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

TO YAMAHA: A DAUGHTER (BOARD)

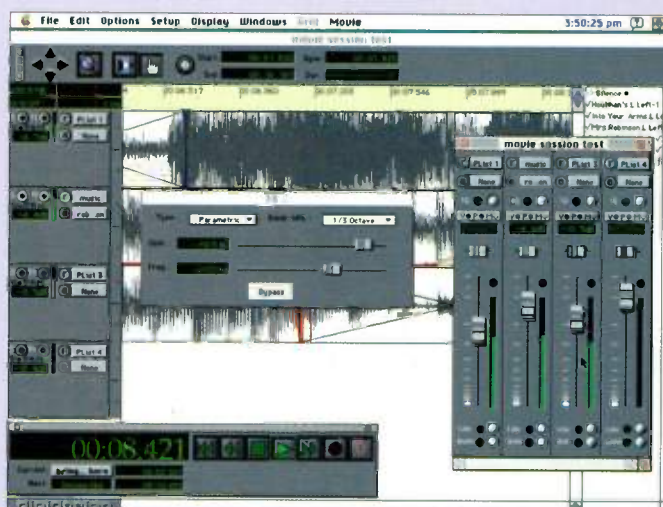
Due to an unfortunate glitch, last month we printed Yamaha's old product information line phone number; try 01908 369269 for a more satisfactory response to all

Yamaha have announced the introduction of the DB50XG PC daughter board. The card takes Yamaha synth technology and squeezes it into a PC card that can easily connect to existing sound cards. At a retail price of £129, the DB50XG offers what basically is an MU50 (see review of this synth module in September's issue): that means 737 fully programmable on-board sounds, 22 drum kits, three signal processors and 18-bit delta sigma DA converters. Not surprisingly, the card is also fully General MIDI, as well as XG, compatible: a CD-ROM containing main XG-format MIDI Files is included with the card.

your hi-tech and recording queries. Note that if you're interested in products from the Media Technology Division — such as the DB50XG daughterboard — you should use the main Yamaha number, shown below. Our apologies to all concerned — particularly the Milton Keynes branch of the well-known building society who have been fielding Yamaha's potential customers since last month!

A Yamaha-Kemble Music Ltd, Sherbourne Drive, Milbrook, Milton Keynes MK7 8BL.

T 01908 366700.
F 01908 368872.



of the program include:

- Background recording and playback of audio.
- Non-destructive recording and overdubbing.
- Non-destructive cutting, copying and pasting of regions.
- On-the-fly editing during playback.
- Editing and spotting to minutes and seconds, bars and beats, SMPTE timecode, or feet and frames.
- Comprehensive viewing and navigation tools, including PowerZoom and PowerScroll.
- Importing and Exporting of multiple file formats, including mono and stereo, 8 and 16-bit, any sample rate from 1-48kHz,

WAV, AIFF, QuickTime audio, Sound Designer II, and Macintosh System 7 sounds.

- OMS 2.0 support for continuous synchronisation with popular MIDI sequencers.

There's a limited special introductory price of £175 including VAT for *Session Software*; you'll have to be quick, though, since it runs only until the end of October, after which the program reverts to its normal price of £350. Also until the end of October, Digidesign are bundling *Session Software* free with all purchases of Audiomeia II cards.

A Digidesign Ltd, 20-28 Kingly Court, London W1R 5LE.

T 0171 494 2949.
F 0171 494 2758.

Until recently, the restoration of old, damaged, or noisy audio recordings was the exclusive province of such high-end noise-removal systems as CEDAR and NoNoise, or part of systems such as Pro Tools, though this useful procedure is gradually becoming more accessible to us mere mortals. Now a PC software program that

SOFT TOUCH RESTORES RECORDINGS

costs just £349 claims to offer similar noise-removal features to products costing considerably more. DART (Digital Audio Restoration Technology) is capable, according to distributors Et Cetera, of removing both so-called 'impulsive' disturbances, such as clicks, pops and record scratches, and 'wide-band' noise such as tape hiss and surface noise. Though the program offers high-quality sound restoration, it's claimed to be easy to use, and has a graphic interface which allows the user not only to record, view, play and renovate the programme material, but also to produce improved results in an interactive process called Retouching.

System requirements for DART are Windows 3.1, 8Mb RAM, and a hard disk; a maths co-processor is recommended for working on large audio files.

A Et Cetera Distribution, Unit 17, Hardmans Business Centre, Rawtenstall, Lancs BB4 6HH.
T 01706 228039.
F 01706 228989.



APHEX TWINS FROM STIRLING

UK distributor Stirling Audio Systems is releasing two new ApheX products. The 661 (£762.57 inc VAT) is a single channel valve version of ApheX's popular Expressor compressor/limiter, which draws on the company's patented Tubessence technology. The 661

provides plenty of control via three compression curves: hard knee, soft-knee and no-knee. Operation can be either fully automatic or manual. The unit's High Frequency eXpander (HFX) allows higher compression ratios without the 'dullness' often associated with heavy

compression, while the Spectral Phase Refractor (SPR) gives "exceptional bass end clarity".

The second release is the ApheX 108, a two-channel automatic compressor featuring ApheX's proprietary Easyrider compression technology. The latter is designed to give accurate

dynamic control without introducing noise and other by-products found in certain other compressors. Price is £269.07 inc VAT.

A Stirling Audio Systems, Kimberley Road, London NW6 7SF.
T 0171 624 6000.
F 0171 372 6370.

SEQUENTIALS OFF THE SHELF

Wine Country Productions, the US-based Sequential Circuits maintenance and spare parts specialists, can now supply classic Sequential instruments in what amounts to showroom condition, fully restored, serviced and upgraded by ex-Sequential technicians. Virtually the full range of Sequential instruments is available, all featuring the latest operating systems and, most attractively, a full 12-month warranty. Instruments available include Prophet 5 (with and without MIDI), Prophet T8, Prophet 10, Prophet 3000 sampler (2Mb or 4Mb), Prophet VS, Prophet 2002 rack sampler, Prophet 2000 keyboard sampler, Prophet 600, Pro 1 monosynth, Multitrak, Sixtrak, Max, Tom,

Drumtraks, Prophet remote keyboard and Polysequencer. Prices vary, so contact Wine Country for details. Also available are ROM and RAM cartridges for the Prophet VS — \$79 and \$99 respectively. Six sets of sounds are available on ROM

cartridge, and you can have a set included on your RAM cart for an extra \$20.

A Wine Country Productions Inc, 1572 Park Crest Ct, Suite 505, San Jose, CA 95118, USA.
T 00 1 408 265 2008.
F 00 1 408 266 6591.

BE A BEHRINGER SINGER

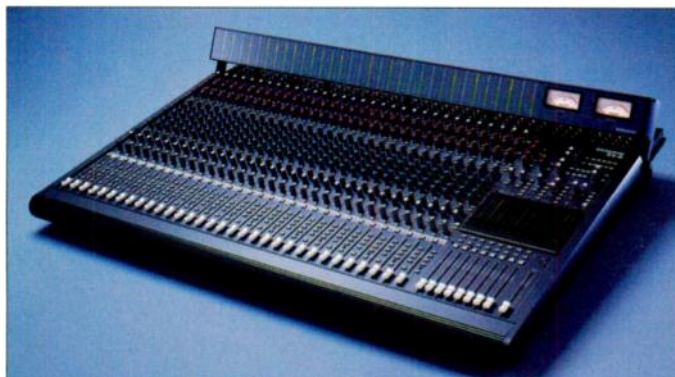
Behringer are well known for their popular line of studio signal processors and their recent move into the mixer market with the Eurodesk (see review in SOS September). Now they've launched a cost-effective supercardioid dynamic mic, the XM2000, which weighs in at just £47. The company claim the new mic is sensitive and offers excellent feedback rejection. In addition, its heavy cast chassis makes it

rugged and provides good electromagnetic shielding; a dual-stage pop filter helps to eliminate breath noise.

The XM2000 comes complete with a shockproof, foam-lined carry case, plus mic clip and thread adapter.

A Behringer UK Ltd, St Vincent House, 59 Woodbridge Road, Guildford, Surrey GU1 4RF.
T 01483 458877.
F 01483 458822.
E 100632,1022@compuserve.com.

MORE MIXER FROM MACKIE



If you liked the look of Mackie's new SR24-4 mixer when it was reviewed in SOS August but need more than the 24 channels it offers, Mackie have been listening in on your dreams. With minimal publicity, they've announced a 32-channel version of the desk, called, logically enough, the SR32-4. The new model offers the same high audio quality and generous headroom of other

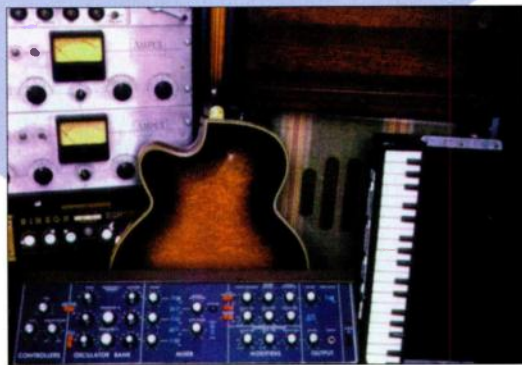
Mackie consoles; it also features eight tape outputs from the 4-bus section, making use with 8-track recorders easier. The specification of the new desk is similar to the SR24-4, and it will retail for a reasonable £1995 including VAT.

A Key Audio Systems Ltd, Unit D, Chelford Court, Robjohns Road, Chelmsford, Essex CM1 3AG.
T 01245 344001.
F 01245 344002.

Shape of THINGS TO COME

AUCTION ACTION FROM VEMIA

Last month we brought you news of the recent VEMIA Vintage Electronic Musical Instruments auction. Now a date has been set for the next auction and the organisers are seeking lots for the sale. Theremins, modular synth systems, clavinetts, '50s and '60s guitars and amps, analogue synths, literature, and valve and classic effects are particularly in demand, but anything interesting and no longer in production is also welcome — VEMIA's recent client survey revealed that 40%



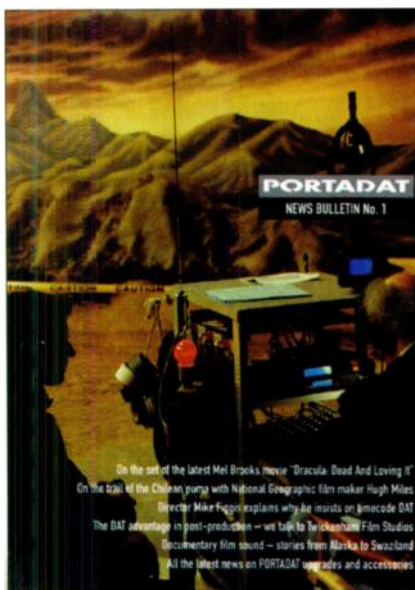
of buyers are interested in more recent gear as well as vintage items. The auction will take place on Sunday November 5th, starting at 1pm, at Oaks and Partners Salerooms, Thorverton, near Exeter, Devon. Deadline for entries is Wednesday, October 18th. Incidentally, the auction coincides with the annual South West Guitar show, being held eight miles away in Exeter, so why not kill two birds with one stone and visit both?

A VEMIA, Star House, Sandford, Crediton,
Devon EX17 4LR, UK.
T +44 (0)1363 774627.
F +44 (0)1363 777872.

PORTADAT: READ ALL ABOUT IT

Dracula: Dead and Loving It, on the trail of the Chilean puma with a National Geographic film maker, to Twickenham Film Studios, whose Dean Humphries discusses the use of DAT in post-production, and brings you the latest news of PortaDAT upgrades and accessories. And that's not all — they've managed to squeeze no less than 12 articles into this little magazine. Best of all, it's free, and HHB are happy for SOS readers to call, fax or E-mail for their copy.

A HHB Communications Ltd, 73-75 Scrubs Lane,
London NW10 6QU.
T 0181 962 5000.
F 0181 962 5050.



Anyone with an interest in location recording could do a lot worse than to send off for the first issue of HHB's new *PortaDAT News Bulletin*, a glossy 15-page magazine that highlights who's using HHB's acclaimed professional portable DAT and what they're doing with it. The mag takes you onto the set of Mel Brooks' latest movie,

STEINBERG & SESSION 8 DEALERS

- ABC Music - Bristol
- ABC Music - Kingston
- ABC Music - Windsor
- Andertons Music - Guildford
- Axis Audio - Stockport
- Digital Village - Barnet
- Eddie Moors - Bournemouth
- KGM Studio Specialists - Wakefield
- Media Spec - East Kilbride
- Millenium - Nottingham
- Music Connections - Birmingham
- Music Connections - Borehamwood
- Music Connections - Bristol
- Music Connections - Chelmsford
- Music Connections - Chelsea
- Music Connections - Southampton
- Music Labs - Euston
- Sound Control - Glasgow
- Sound Control - Manchester
- Sound Control - Newcastle
- Sutekina - London WC2
- The M-Corporation - Ringwood
- Turnkey - London WC2



PC audio tools



Cubase Audio technology provides exactly the right tools for digital recording and editing on any computer platform - Mac, Powermac, Windows PC or falcon.

Now Steinberg offers you the complete professional solution for Windows PC's with the new PC compilation - Cubase Audio for Windows plus Digidesign's Session 8 - at the unbelievable price of **£ 2,585 inc. VAT.**

Key Audio Features:

- 8 tracks of digital hard disk recording
- Audio Editor: the Cubase Audio Editor gives you sample-accurate non-destructive editing. It's easy to get rid of un-wanted audio or even improve timing by moving parts.
- Wave Pool: the Wave Pool includes a number of useful digital processing features including pitch correction, time correction, tape pitcher, reverse, normalize....

- Total Recall EQ & mixing: Mixer Maps are included to give you complete automated control over EQ parameters and level.
- Stereo Cue- and 4 Aux-Sends
- 44.1/48 khz Sample Rates
- 8 analogue Ins and Outs
- S/PDIF digital I/O
- Word Clock (optional hardware required)

And of course Cubase Audio also includes all the features of the industry standard Cubase Sequencer combining the famed user-friendliness of Cubase with leading edge Digital Audio Technology.
Step ahead with Cubase Audio !



Harman Audio
unit 2 Borehamwood Industrial Park
Rowley Lane Borehamwood
Hertfordshire WD6 5PZ
Tel: 0181 207 3050
Fax: 0181 207 4572
A Harman International Company

Steinberg
steps ahead

Shape of THINGS TO COME

Korg have moved house. From the 25th September, you can contact them at:

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

T 01908 857100.

F 01908 857199.

Gremlins struck at the end of our review of Steinberg's *Cubasis Audio* for Windows in SOS October: we inadvertently published an incorrect telephone number for Harman UK, Steinberg's UK distributor. The correct contact details for all your Steinberg queries appear below.

A Harman Audio, Unit 2, Borehamwood Industrial Park, Rowley Lane, Borehamwood, Herts WD6 5PZ.

T 0181 207 5050.

F 0181 207 4572.

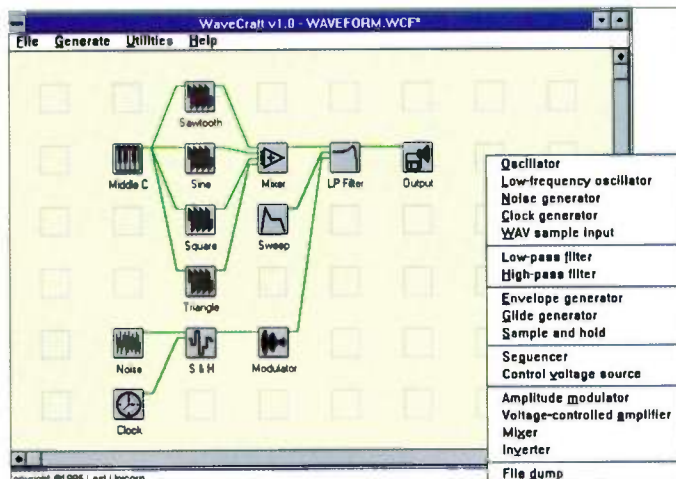
Digidesign have added TDM capability to their *SampleCell II* stereo 16-bit sample playback software for the Mac. The addition of a TDM module allows *SampleCell II* to communicate digitally with Pro Tools III/TDM, for a completely integrated sample playback/hard disk recording system. With TDM, *SampleCell II* users will be able to add useful TDM plug-in digital effects, available both from Digidesign and third-party developers, as well as taking advantage of various other new features.

T Digidesign
0171 494 2949.

Lexicon PCM80 owners will rejoice at the launch of the PCM80 Dual FX card. It transforms the effects box into a dual stereo device and adds another 250 stunning presets. Also released is the Lexicon Nuverb TDM interface card (£374.83 inc VAT).

T Stirling Audio.
0171 624 6000.

F 0171 372 6370.



PC & AMIGA GO SOFT ON SAMPLES

Aural Synthetica is a new sample generation program for the Amiga computer. Modular synth design is used by the software to provide a logical working environment, and 18 oscillators

Workbench 2 or higher and 2Mb of RAM — more RAM and an accelerator are recommended, however.

Not a million miles away operationally, Last Unicorn's *WaveCraft*

plus comprehensive routing and modulation combinations should make for some powerful synthesis possibilities. A dedicated waveform editor allows you to create your own waveforms, and to make life easier for the beginner, there are 12 fixed waveforms and 30 preset basic synth setups with 1346 variations to get you started. Non-beginners will move quickly to the Patch Programmer, where they can have control over every single modulation and routing input and output, with all controls visible in a single window. The final sound can be saved in IFF, AIFF, WAV and SAFF formats.

Audio Synthetica costs £30 plus postage and requires

offers software sound synthesis for Windows-equipped PCs. *WaveCraft* allows you to create analogue-style sound samples simply by connecting together icons for the modules you need. Not only can you create your own sounds from scratch, but *WaveCraft* also allows you to use your own samples as input waveforms — resonant filtering and other analogue effects can be applied to any audio signal. A wide selection of free sounds are supplied, along with the *WaveCraft* patches which created each sound. Samples created are 44.1kHz, 16-bit .WAV format files, suitable for use with most wavetable sound cards, including Creative Labs Sound Blaster AWE32 and Turtle Beach Maui with 512k or more of downloadable memory. *WaveCraft* is available on PC CD-ROM for £89.99.



Tascam's newly introduced DA-P1 professional portable DAT recorder offers a number of interesting features in a compact, lightweight package.

- A built-in limiter compresses sudden increases in level to keep recordings from exceeding available headroom.
- A 'margin' function tracks and displays remaining headroom and indicates a warning when any clipping has occurred during a take.
- XLR mic/line inputs with switchable phantom power are built in, along with comprehensive analogue and digital connections.
- A backlit LCD allows operation in low light situations.

DAT'S PORTABLE

- 44.1kHz, 48kHz and 32kHz sampling rates are supported.
- Up to two hours of operation is possible on a single charge of the Ni-Cad battery pack.

The DA-P1 is supplied with a rechargeable battery, AC adaptor and shoulder strap; an external recharger is available as an option. Tascam's new baby retails for £1499 inc VAT.

A Teac UK Ltd, 5 Marlin House, The Craxley Centre, Watford, Herts WD1 8YA.

T 01923 819630.

F 01923 236290.

A Season Computing, Unit 3, Martello Enterprise Centre, Courtwick Lane, Littlehampton, West Sussex BN17 7PA.

T 01903 850378.

F 01903 733893.

A Last Unicorn Ltd, 72 New Bond Street, London W1Y 9DD.

T 01256 701470.

F 01256 701580.

POWER SOUNDS

The award winning sound quality of Korg has never been more affordable. Now Korg have collected *ONE THOUSAND* additional sounds from around the world, and will supply them free of charge when you buy the X5, X5D, X5DR, X3 or the 05R/W.



- GM Compatibility.
- 16 Part Multitimbral.
- 47 Digital Multi-Effects.
- 16 Track Sequencer. **
- Built in Floppy Disk Drive. **
- Built in Computer Interface. *
- 64 Voice Polyphony (X5D & X5DR.)
- 32 Voice Polyphony (X3, X5 & 05R/W.)

* X5, X5D, X5DR and 05R/W only

** X3 only.

If you would like more information on the X5, X5D, X5DR, 05R/W and X3, Please complete & send to:

**KORG UK LTD., 9 NEWMARKET COURT,
KINGSTON, MILTON KEYNES. MK10 0AV**

Name _____

Address _____

Postcode _____

Simply return the fully completed warranty card and we will send you the sounds. The X5, X5D, X5DR and 05R/W sounds will be in PC Compatible / Atari format and the X3 in X3 format.

KORG

Shape of THINGS TO COME

DEEPLY DP

Ensoniq's DP/4 and 4+ effects processors were received with enthusiasm by both reviewers and prospective buyers on their release. The only stumbling block was the price: though the current DP/4+ offers extreme flexibility, this comes at a cost of almost £1300, arguably out of the reach of bedroom musicians and owners of modest project studios. The new DP/2 could be the answer for those people, as it combines the same sound quality (using two of Ensoniq's custom 24-bit DSP chips) and more than half the power of the DP/4 with a rather more accessible price of £799 inc VAT.

The DP/2 is capable of processing one true stereo input or two discrete mono inputs, in serial or parallel routing, with many feedback

options. It's a true stereo device — every algorithm allows stereo input as well as output — and those algorithms include, as you'd expect, high quality reverbs, delays and modulation effects, numerous guitar effects, and useful studio processors including compression, EQ, ducking and expanding. All the DP/4's algorithms are included, plus new combination effects, to make a total of 600 Presets (half of which are RAM-based for storing user patches). Other features include balanced quarter-inch jack connections, a front panel input, headphone jack, full MIDI support, and the ability to connect up to three footpedals for volume control, tap tempo, moving through presets, and effects parameter modulation. Look out for an SOS review of the DP/2 soon.

A Sound Technology plc,
Leitchworth Point, Leitchworth,
Herts SG6 1ND.
T 01462 480000.
F 01462 480800.

MIDIMAN UK

US manufacturer Midiman has opened its own UK office and warehousing facility to service UK music dealers and its network of European distributors. (Midiman products were formerly distributed in the UK by Key Audio Systems.)

Good news for the impoverished musician is that a revised pricing structure for existing Midiman gear goes hand in hand with the restructuring, and there are a few interesting new products from the company too. These include the tiny Micromixer 18,

an ultra-compact 18-channel mixer which fits into half a 19-inch rack space (£199 inc VAT); the low-cost 6-channel Multimixer 6, for £69 inc VAT; and, for PC musicians, the Portman 2x4 — a 2-in/4-out parallel port PC MIDI interface which provides a welcome 64 MIDI channels for £119 inc VAT.

A Midiman UK,
Hubberts Bridge House,
Hubberts Bridge, Boston,
Lincolnshire, PE20 3QU.
T 01205 290680.
F 01205 290671.

2turnkey complete



• SCSI 2 Hard Drives • DAT Storage • CDR •

All areas of music need different storage solutions whether you have a computer based hard disk audio system, a sampler or mixing console automation. A complete range of CD-ROM, removeable cartridge, rewriteable optical, DAT and hard disk drive systems that are fully Digidesign or sampler compatible.

420Mb Segate Drive **£129**
1Gbyte AV Drive **£280**
128Mb MO Drive **£399**
SCSI CDR 2x speed **£1,249** Plus FREE software



Apple Authorised Reseller

ProTools now supports 32 & 48 tracks of record and playback along with several nifty new features including QuickPunch which allows seamless punch in/out -on-the-fly & automatically created crossfades. Digidesign's new Session Software™ 2.0 is a multitrack audio editing software for the Macintosh which runs on the PowerPC range of Apple computers without any additional hardware. Session software includes 4-16 tracks of simultaneous audio playback, 2 bands of real-time parametric EQ, automation of volume and pan. Although the retail price is £350 it's your last chance to take up Digidesign's offer of buying it for £179 or getting it FREE with the purchase of an AudioMedia II card.

MIDI Package

- Performa 630 8/250 & CD-ROM
- 14" Performa Plus Display & keyb'd
- Cubase/Logic or Vision & PianisWorks

£1,199

Session 8 Package

- 7100/80 16/350 c/w keyb'd
- 15" MultiSync Display
- Session 8 Core & 882 Interface
- 1Gbyte AV Hard Disk

£4,295

Audio Media Package

- 7100/80 8/350 c/w keyb'd
- 14" Performa Plus Display
- AudioMedia II & Sound Designer
- 1Gbyte AV Hard Disk

£2,895

ProTools III Package

- 7100/80 16/350 c/w keyb'd
- 17" MultiSync Display
- ProTools Core & 882 Interface
- 2Gbyte Barracuda Hard Disk

£7,895

A SELECTION OF EX-DEMONSTRATION, USED AND NEW ITEMS. (All prices exclude VAT)

Tape	
Alesis ADAT	£1,830
Fostex RD8 new	£2,550
Tascam 122Mk II	£ 425
Revox B77	£ 385
Tascam MSR16 dbx	£ 3,400
Tascam DAB8	£POA

Consoles

Soundcraft 1200	£1,999
Soundcraft 1200	£POA
Soundcraft 1200	£POA
Soundcraft 1200	£POA
32ch DC2000	£11,000

Direct-to-Disk

Digidesign ProTools	£ 2,978
D design AudioMedia II	£ 680
Akai DR8 with 1919	£2,250
Phillips 2x CDR522	£ 1,701

Samplers / Synths

Akai CS3000x	£ 1,871
Emu E188p	£ 1,386
Peavy DPMCB	£ 1,102

adj (1927.) : installed and ready to operate

Akai's professional samplers now have XL tagged on the end. As a result the **S3000XL** is now **£1,530** & the **S3200XL** **£2,978** which is unbeatable value for the features. Both take SIMMS come with the Akai's MESA sample editing software for the Macintosh. The S3000XL comes as standard with SCSI & digital connections & the S3200 has the new **EB16** multi-effects board, 'a true 4 channel fx processor' providing a range of standard fx, up to six simultaneously.

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



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

Spirit 24 Studio & ADAT	£3,400
Mackie 24/8 & DA88	£POA
Soundcraft DC2000	£11,000
Soundcraft Sapphire 24	£5,999
Yamaha O2R	£5,999



The **Waldorf Wave** is the programmer's synthesizer with an unmatched sound quality. The Wave's new operating system update includes transport controls for any configurable MIDI sequencer and new sets of Performances are soon to be released.

New in stock are **hardware editors** for the **MicroWave** and **Oberheim Matrix 1000** and are a must for any owner of one of these synths. Both have 'knob control' of all the important parameter (i.e. Filter Cutoff/Res, ADSR) all housed in a sexy little box with wood end cheeks!

Waldorf's new **Miniworks Analogue Filter** makes it now possible to address the legendary filter of the MicroWave with any audio signal, whether from a sample, mic or guitar. A resonant 24dB low pass filter, ADSR envelope curves. Via a sequence, all settings can be operated in real-time a MIDI controller.

NEW
MicroWave & Matrix Editors
in stock

Waldorf MicroWave V.2 synth	£1,099
Waldorf Wave synthesizer	£5,350
Waldorf 24db MiniWorks Filter	£199
Gekko Chords & Trigger	£59
MicroWave Hardware Editor	£315
Matrix 1000 Hardware Editor	£315
MicroWave Signature ROM Cards	£49
MicroWave Bass / PPG ROM Cards	£35

Waldorf V2000	£1,445
Roland JV1090	£930
Roland MK570	£691
Microphones	
Manley Valve Mic	£999
Manley Reference Valve Mic	£1,499
Langevin CR3A M/W	£115
Neuman KM96	£POA
Neuman TLM103	£POA
Audio Technica 4033	£POA

DAT	
Sony DTC-600	£416
Sony DTC-60	£510
Tascam DA-30 mk. II	£950
Sony PCM2300	£790
Computers	
OpCode Studio 5	£830
MIDI MTP II	£POA
JL Computer CS1	£425

Outboard	
Manley J-111c EQ NEW	£1,361
Manley Lim new	£1,875
Langevin micpre-EQ	£1,099
Langevin dual E/O Lim	£1,148
Drawmer DS201	£254
Roland S3E330	£487
Drawmer DF320	£283
Sony MPS new	£367

CALL	
Lawicon PCM100	£1,800
Lawicon LXP15 Mk II	£POA
Maschinenbau GML EQ	£POA
SSL G383-X new	£2,382
SPL Vitalizer Stereo	£498
Behringer Compressor	£229
Analog	
Damp Buss Valve	£212
Prigat VS	£1,191
Oberheim Matrix 1000	£315

Manley Laboratories

Langevin
IN CO-OPERATION WITH MARK ISAUDIO

David Manley's vacuum tube designs use only the highest quality components. He is the only authorised user of the original Western Electric passive EQ circuitry found in the original Pultecs. Both the EQP1 and Mid Frequency EQ monoblocks use this classic design for an equally classic sound. The Langevin range of discrete electronic outboard use the same Pultec designs and built to the same military grade

Langevin CR3A Mic	£295
Langevin EQP1 Pultec	£949
Langevin Dual Mic Preamp	£995
Manley Baby Valve Mic	£999
Manley Ref Valve Mic	£1,895
Manley Valve Pultec EQ	£1,499
Manley EL01 Opto Limiter	£1,499
Manley Gold Ref Valve Mic	£3,895
Call for a catalogue	

All prices exclude VAT E&OE

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Turnkey Studio Systems.
14 Flitcroft St.
LONDON. WC2H 0DT

Shape of THINGS TO COME

World-famous producer and artist Alan Parsons has embarked on his first world tour, and his chosen mics are from Audio Technica. Parsons has opted for the versatile 4000 series of mics for the tour, saying "The 4000 series not only works in the studio but works on the road as well."

T Audio Technica
0113 277 1441.

Specialist radio-mic hire company Handheld Audio have supplied a multi-channel AKG WMS 900 UHF radio mic system for the current Wet Wet Wet world tour. Two channels will handle Marti Pellow's lead vocals, using AKG's Tri-Power C5900 head. Handheld's Mick Sheperd comments: "We're very impressed with the low noise, the sound quality, and in particular the outstanding reliability of the AKG system."

T Harman Audio
0181 207 5050.

The BBE Sonic Maximiser is appearing in the lists of favoured gear of various star names in the music industry: Bon Jovi's guitarist Ritchie Sambora, Megadeth's Dave Mustaine, Def Leppard's Phil Collen and Vivian Campbell, Phil Collins, Paul McCartney, Billy Joel and Eric Clapton are just a few famous users of BBE's psychoacoustic enhancer.

T Music & Audio
Distribution
0181 452 1009.

The 1995 London Rock & Pop Fair will take place at the Wembley Conference and Exhibition Centre on the 2nd and 3rd of December. Backed by Vox magazine and Bonhams Auctioneers, the show offers "the largest selection of records, CDs and memorabilia ever assembled under one roof", plus a Rock n' Pop auction.

SQUARED DEAL FROM SPIRIT



The Spirit console range just keeps on growing, with the release of the Spirit Live 3² (apparently, it's pronounced "3 mark 2", to save embarrassment down at your friendly local hi-tech emporium...). Available in 8-, 12-, 16- and 24-channel sizes, the new desks have a combination of mono and stereo inputs offering a maximum of 32 inputs (for the 24-channel frame). Features include:

- New UltraMic Plus preamp, with gain ranging from -6 to +60dB.
- Additional mono bus — three busses in total.
- 4-band EQ with two swept mid bands on mono inputs.
- 18dB per octave high-pass filter.

- Four aux sends.
 - Two stereo returns.
 - 48V phantom power, individually switchable on all mono channels.
 - Eight-channel expander version for all frame sizes.
- VAT-inclusive prices for these comprehensively-specified desks are as follows: 8-channel, £894; 12-channel, £1209; 16-channel, £1475; 24-channel, £2153; 8-channel expander module £704. Prices include VAT

Spirit are also venturing into broadcast music, with their recent announcement that they are sponsoring interactive cable music channel 'The Box'. The format of this unique channel allows viewers to choose from a menu of music videos and short programmes, make a selection with a phone call, then sit back and watch.

The channel reaches 800,000 homes in the UK (that's over 2 million viewers) and receives more than 200,000 calls a month.

Spirit is sponsoring *Box Talk*, an interview programme that allows prominent artists to talk about music; recent interviewees have included Soul II Soul, China Black, Moby and Madonna. The show will be preceded by a Spirit trailer, and there will be monthly competitions with Spirit consoles, mics and speakers as prizes.

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

T 01707 665000.

F 01707 660482.

Samson's MPL1640 rackmount mixer is now available in the UK. Offering 16 balanced inputs, balanced main stereo out plus secondary stereo bus, the £599 MPL1640

DELIGHTFUL SAMSON

seems to be priced attractively. In addition, the desk has three auxiliary sends, three stereo (or six mono) returns, 48V phantom power, 12 channel insert points and three-band EQ, PFL and mute for each input. The 8U desk also features a rotating jack field for easy access.

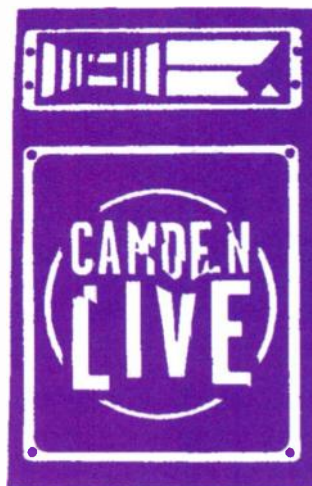
A Sound Technology,
Letchworth Point,
Letchworth, Herts SG6 1ND.

T 01462 480000.

F 01462 480800.

LIVE IN CAMDEN!

Camden Live is nine days of music-related activities supported by BBC Radio 1 and Camden Council, along with the



Musicians' Union and the BPI. Starting on October 27, there will be band showcases, seminars and photographic exhibitions at a variety of venues, including the Underworld and Dingwalls. Radio 1 will be pitching in with live broadcasts as part of Steve Lamacq and Jo Whitley's Evening Session, Pete Tong's dance spot and the John Peel Show.

In addition, there will be open studio sessions, where studios in Camden will feature demos from top producers, remixers, engineers and musicians. Media Expo 95, presented in association with Syndicate Publications, is two days of media exhibitions aimed at 14-25 year olds, allowing young people to get an overview of the different media industries and training options.

T Camden Underworld
0171 482 1932.

AN ANALOGUE SOLUTION

Analogue Solutions is a new company specialising in the retrofitting of pre-MIDI synths to make them more controllable by today's MIDI-to-CV convertors. Not only can CV and gate sockets can be added to instruments that lack them (Roland's TB303 and Korg's Poly 61, for example), but additional CV sockets can be added to most instruments, giving them routing and interface possibilities approaching those of fully modular instruments — CV outputs can also be added in many cases. Analogue Solutions also buy, sell and repair analogue synths and accessories.

A Analogue Solutions, 29 Horton Hill,
Epsom, Surrey KT19 8SS.
T 01372 745494.
F 01372 812226.

A CD RECORDER YOU CAN AFFORD?

Spotting in a recent issue of *New Scientist* is news of the imminent release of a consumer CD recorder. Although available for professionals — at pro prices — and serious computer users, recordable CD has never been affordable for the masses. A new machine from Philips, due to retail for around £1300, changes that, and prices should drop as more manufacturers enter the market; Marantz's long-term target price for a consumer CD recorder is said to be under £500.

As with the professional machines, the consumer units are write-once devices. Recordings can be made from any source, but a number of features have been incorporated to deter piracy, or at least to

make piracy detectable — these have been implemented as a result of negotiations with the recording industry. First of all, SCMS (Serial

Copy Management System), as found in most consumer digital recording products, is present, and inhibits digital copies past the first generation. In addition, each new recorder will have its own unique identity number that is transferred to disc during a recording: pirate recordings that turn up with a given machine's number will be traceable back to the owner. Lastly, blank discs are limited in length to 60 minutes, which makes impossible the direct cloning of standard CDs of more than that length; the consumer machines will automatically reject professional blank discs that have the full 74-minute capacity. Pioneer's 60-minute blanks will initially cost £25, although this price should drop before too long.

Mark Of The Unicorn are making more of their innovative software available to users of the PC-compatible computer platform, with the release of the *Unisyn* universal editor/librarian and the *Freestyle* sequencing package for Windows.

Unisyn Windows provides control for no less than 215 popular MIDI synths and other MIDI devices; it offers integrated editing, librarian and database features to help users create, store and manage their sounds and other custom MIDI settings. Additional features include:

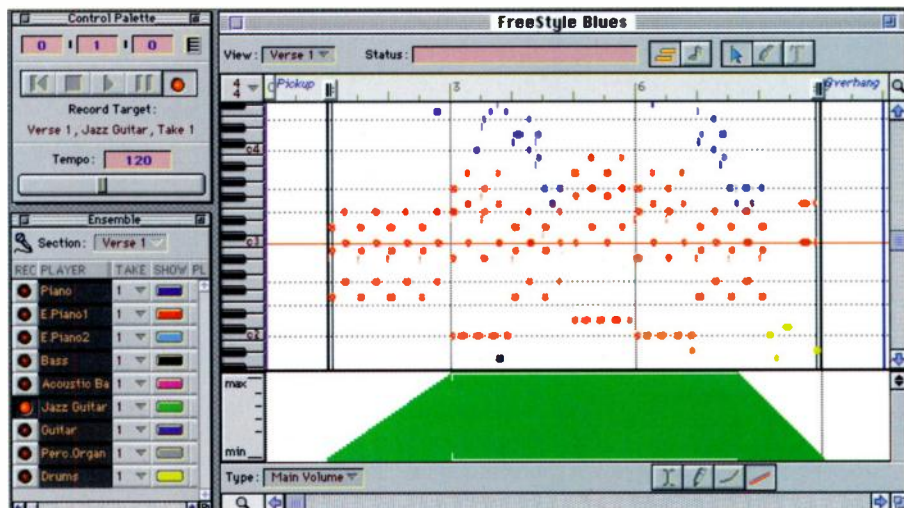
- A device 'Profile' development system, to enable users to quickly create their own support for new instruments.
- 'Performance' snapshots that can save whole studio configurations with a single command.
- Drag and drop interface, including Copy, Swap and Move modes, for easy assembly of custom sound banks.
- Extensive, device-specific on-line help.
- Help with patch creation in the form of a Randomise command (to generate new and hybrid sounds), and a Blend & Mingle command (to 'morph' sounds from one to another).

PC GETS HORNY WITH MOTU

- Duplicate patch checking to identify identical patches; patch checking to find differences between patches.
- Support for multi-cable MIDI interfaces, for greater flexibility when working with multiple devices.

MOTU's *Freestyle* sequencer was reviewed back in the January '95 issue of *SOS*, when it was available only for the Apple Mac, so interested parties should check out that review for full details, but briefly, the package offers:

- A unique, 'Trackless' approach, designed by MOTU to better fit in with the needs of the songwriter; based around Ensembles, Players, Takes, Sections and Arrangements, *Freestyle*



aims to let the musician work in the musical frame of reference he/she is accustomed to, rather than with tape-machine style operating procedures.

- Real-time transcription of performances into standard musical notation, with display in a WYSIWYG page view for editing and printing.
- 'Straighten Swing' option, to correctly notate

- 'swung' performances with straight rhythms.
- Automatic MIDI channel and device assignments.
- Graphic edit, notation edit, and arrangement windows.
- A 'Riff Metronome' that allows users to choose any standard MIDI file as a rhythmic pulse; free set of DrumTrax metronome riffs created by professional drummers in a variety of styles.
- Intelligent Auto-Loop recording, which removes the need to define loop length in advance. Pick-up notes are automatically duplicated at the end of loops.

MOTU have also released the first waveform

editing software for the Akai DR4d hard disk recorder. *WaveEdit* gives DR4d users a graphic front end for region editing and individual waveform editing which is not available from the front panel of the DR4d.

The program lets users rearrange sections with standard Macintosh cut, copy and paste commands, and allows the creation of fade-ins and fade-outs, a function that's not possible with the DR4d alone. Individual clicks and pops can be removed with *WaveEdit*'s single sample redrawing capabilities, and tracks can be normalised and gain adjusted by plus or minus 3dB. The software needs minimal hard disk space and RAM, as the audio data stays resident on the DR4d. *Sound Designer* format files can be opened and sent to the DR4d, and DR4d recordings can be saved as *Sound Designer* files. To use *WaveEdit*, your DR4d (or DR4ds!) must be equipped with the optional IBIIS SCSI interface.

A MusicTrack, PO Box 4, Arlesey, Bedfordshire
SG15 6AA.
T 01462 733310.
F 01462 733390.
E 100415,2665@compuserve.com

Shape of THINGS TO COME

Vintage synth and studio equipment specialists DIN Communications can now offer Kurzweil spares, repairs or upgrades, courtesy of Kurzweil specialist Ali Baxter, who recently joined the company from his previous position as Kurzweil technician at UK distributors Washburn.

T DIN Communications
0181 742 8425.

Reproduced Sound is a residential weekend event organised by the Institute of Acoustics and aimed at anyone in the sound business. On the agenda for 16th-19th November are technical lecture and discussion sessions on Audio Synthesis, Aural Enhancement of Performance Spaces, Loudspeaker Development, Standards & Codes of Practice, and Recent Developments, just some of the topics to be covered. Also scheduled is a training course in Acoustics for Sound Engineers. The event takes place at the Hydro Hotel in Windermere and is organised in collaboration with professional bodies such as the APRS, the AES, and PLASA. Apply to the address below for full details.

A Institute of Acoustics,
Agriculture House, 5
Holywell Hill, St Albans,
Herts AL1 1EU.
T 01727 848195.
F 01727 850553.

Philips have introduced a new 16-bit PC sound card (the PCA 705B) and an optional wavetable daughterboard, called the PCA50WT. The PCA 705B offers 16-bit digital recording and playback, built-in CD-ROM interface and comes with Philips Music System for Windows software. The wavetable board provides a 2Mb sample set for PCM sample playback synthesis, which is ideal for the playback of standard MIDI Files.

T Philips
0181 689 4444.



SOUND TO THE MAX, NOISE TO THE MIN

BBE have launched a Sonic Maximiser with a difference. The 362NR marries BBE's respected sound enhancement technology with noise reduction, to produce a unit that has obvious studio applications: home recording, equipment racks of all kinds, and in tape copying, where the noise reduction can improve noisy source material while

the Maximiser adds clarity and sparkle. The new unit retails for £336 including VAT. Watch out for an SOS review coming soon.

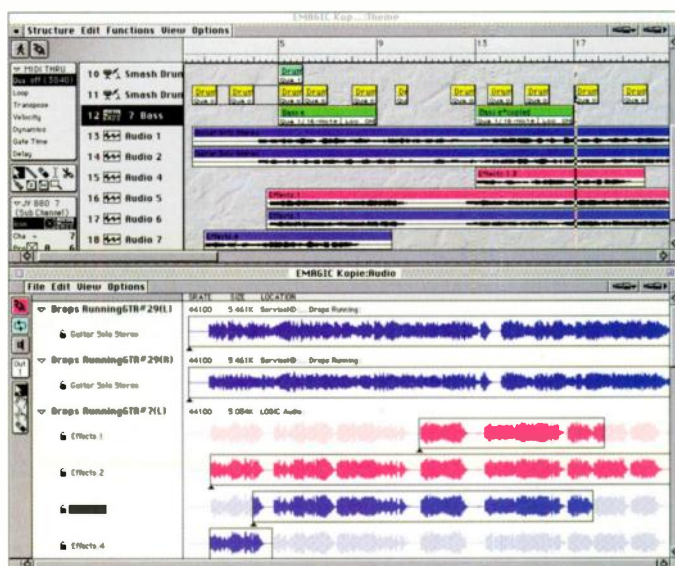
A Music & Audio Distribution, 10 Station Parade, Willesden Green, London NW2 4NH.

T 0181 452 1009.

F 0181 452 9019.

Emagic's *Logic* and *Logic Audio* version 2.5 for the Mac are now shipping; both are available as updates to registered users or as complete new packages. New features include:

- **Logic Audio:** Noise Reduction, Spike Removal and Digital Audio Quantisation added to the program's list of audio processing facilities.
- **Logic:** now includes Markers, Hyper Draw, and a new 'Touch Tracks' function which allows you to assign any number of



LOGIC 2.5 SHIPPING FORECAST!

sequences to keys on a MIDI keyboard; score features are enhanced with the introduction of new layout tools, importation of score styles, and more.

Both programs now come with brand new manuals complete with working examples and cross-referenced index. Prices are as follows: *Logic* 2.5 Mac, £399; *Logic Audio* Mac Module, £299; full *Logic Audio* Mac package, £649.

In addition, *Logic's* Extension Series allows users to customise and expand their system by adding product-specific features or support for hardware or software from other

manufacturers.

- The AV Extension (£75) enables record and playback of 6-12 (or more) audio tracks, depending on your system's configuration. Recording and Playback of audio tracks is via the built-in AD/DA converters of Apple AV computers such as the PowerPC 6100, 7100, 8100 or 840AV with 16-bit quality. The initial version of the AV Extension will limit audio recording to computers with 16-bit converters; however, playback of tracks is possible on all Macs supporting Sound Manager 3.0.
- The CBX Extension (£75)

supports Yamaha's CBX-D3 and CBX-D5 digital recorders and allows four tracks of hard disk audio recording per CBX unit. All DSP functions of the connected CBXs are fully supported and can be automated. CBX audio tracks can also be used alongside Digidesign (DAE) or Mac (AV) audio tracks simultaneously.

- The TDM Extension (£149) supports Digidesign's Pro Tools III and allows Logic support of up to 48 tracks of digital audio, depending on Digidesign hardware; it may be run in combination with all the other extensions.

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WRH

Shape of THINGS TO COME

When it comes to new 'unofficial' products, you can often deduce more from what manufacturers don't say than from what they do. We recently asked Akai about their future plans, and from what they didn't say, it would appear that a vintage-style synth module is high on the probability list. At no time did Akai suggest these modules would be 32-voice, 16-part multitimbral devices with control over level, pan or effects send

Apple Computer have announced that they are official sponsors for the 1995 MTV Europe Music Awards to be held on November 23 in Paris — they are the only computer manufacturer amongst the co-sponsors of the awards.

Producer James Reynolds, who has worked with the Pet Shop Boys, The Grid, The Shamen, Cabaret Voltaire and Nine Inch Nails, has recently equipped his private studio (run with Micky Whelan of the Beatmasters) with a new Spirit 32 Auto and a set of Spirit Absolute 2 monitors. He's pleased with the desk's clean sound and the monitors' "great bass response".

T Soundcraft
01707 665000.

A Soundtracs Solitaire 32VCA console was installed in July by Larking Audio for B&H Sound Services of Peterborough. Since then, the desk has seen action on over 20 productions, including three location albums.

T Soundtracs
0181 388 5000..

NEW AKAI MODULES? "NO COMMENT"

level, nor would they provide details on their multi-mode, resonant filtering systems, but when asked to confirm that there would be two banks of sounds giving a total of 256 patches, they did manage a decisive "No comment!". Further silences greeted questions on the all-synth waveforms taken from classic instruments and drum machines, but a limited number of dealers report having heard a prototype of just such a machine and a tentative selling price of £299 inc VAT has been mentioned. If such a device were to exist, it

would almost certainly be editable via SysEx and include a basic reverb section.

It has also failed to come to our attention that the — let's call it the SG01V for sake of argument — could well be the first of a series which will include GM and piano modules. Obviously, we can't predict a release date for a product that officially doesn't exist, but we'll bring you the facts as soon as there are any.

We wouldn't dream of suggesting you ring Akai on 0181 897 6388 to confirm any of this non-existent information either.

NEW BODDY OF WORK

Those of you who don't know of Ian Boddy through his prolific output of electronic music may well have come across him in his role as product specialist with Akai UK. Rather than release another solo album, Ian has now teamed up with Andy Pickford (interviewed in *SOS* July 95) and together they've written and recorded *Symbiont*. The album signals a departure from familiar territory for both artists, straying into ambient/dance areas, though you may be surprised to learn that much of the music was recorded in real time rather than sequenced. The album also contains parts written with the aid of an analogue sequencer: these were recorded to DAT, then transferred to an Akai DR4 hard disk recorder so that they could be synchronised with existing material. If you'd like to get hold of a copy of the album, contact Ian Boddy at the address below. Alternatively, national distribution is by Pinnacle. *Paul White*

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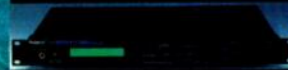
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Korg Trinity

Music Workstations

Hot on the heels of their astonishing new Prophecy monophonic synthesizer, Korg are already near completing work on their next range of workstations, entitled Trinity. GORDON REID was allowed a sneak preview of the next generation...

Back in 1988, digital synthesis, digital effects, and MIDI sequencing had all been around for a few years; it was just that short of mortgaging your house for a Synclavier, you couldn't buy them in a single box. But then Korg, a company that for five years had no answer to the dominance of the Yamaha DX7 and Roland D50, released their M1 keyboard. In doing so, they created the 'workstation' concept and leapt to the top of the keyboard premier league. You could argue that they've stayed there

waiting for the next leap forward in cheap digital signal processing. Whatever the reason, the company has now defined the next generation of the workstation concept — and despite the price, I think you're going to love it. The Trinity range will comprise four keyboards: the basic Trinity, the Trinity Plus, the Trinity Pro, and the top-of-the-range Trinity ProX. There are no fewer than four ways in which the Trinity series leaps way beyond anything else on the market: its user interface, effects, hard disk recording option, and Prophecy expansion board. So, let's look at what makes it so special...

THE USER INTERFACE

In terms of both its physical and conceptual layouts, the Trinity closely echoes the 'T' and '01' series. There are Programs, Combis and a sequencer, plus the usual global and disk options. Indeed, if you've used one of Korg's earlier workstations, and you're happy to stick with Korg's tried and trusted methods of parameter selection and editing, you're going to be up and running on a Trinity within minutes.

One of the real breakthroughs is the large, touch-sensitive screen. Simply touch a parameter name or the icons for a fader or

absolutely brilliant.

You won't believe the difference that this makes... it's so intuitive and straightforward that it rapidly feels as if you've owned the Trinity for years. Indeed, having played with the Trinity for just a few hours, I now get frustrated with every other synth I touch, because I poke my finger at the screen and nothing happens!

THE EFFECTS

Although the touch screen is innovative and useful, it is also, in the final analysis, a luxury. On the other hand, the new effects section is what every workstation has been crying out for. The structure is quite unlike anything Korg have ever produced before, and it finally makes true multitimbrality a reality.

"Hold on," I hear you say, "haven't we had multitimbral synths for nearly a decade?" Well, no — and the limitation has always been in the effects section. There was no instrument prior to the Trinity on which you could combine a flanged and chorused guitar patch with an overdriven, Leslie'd organ, a heavily gated snare drum, a piano with concert hall reverb, and a phased string ensemble. Whilst each sound was possible in isolation, a Combi (or Performance, or whatever the manufacturer called it) was limited to just



ever since. Modules notwithstanding, the M1 was followed by the T3, T2, and T1, which themselves begat the 01/W, 01/W Pro and 01/W Pro X. The other manufacturers strove mightily to catch up with Korg, and sometimes came up with excellent keyboard workstations, such as the Roland JV1000. Korg responded by moving... backwards. The 'X' series has been commercially successful, but no one can pretend that it represents the Next Big Thing.

Well, maybe Korg's engineers were just

knob, and then edit using the data entry fader, the up/down buttons, the 10-key keypad, or the spinwheel. Alternatively (and this is the *really* cool way to go about matters) leave your finger resting on the screen for a few moments, and a large-scale representation of the control appears. This can then be moved up and down or rotated by just dragging your finger lightly across the screen. You can even re-size windows and slide things around to see what's underneath. And voice selection by touch is

two effects, and patches could only be directed to the effects busses. The Trinity changes all that. There are eight 'Insert' effects which can be included within any program and, entirely independent of these, there are two 'Master' effects busses for the grouped outputs.

You can assign the number of Insert effects you apply to each Program, as long as you don't exceed four per program or eight in total. There are 28 mono (size 1) effects, 51 stereo (size 2) effects, and 18 of

the more complex size 4s, for a remarkable total of 97. And first impressions suggest that they're going to be great. For example, there's no obvious granularity as the reverbs decay, the choruses are deep and swirly, the EQs are powerful and flexible, and the remarkably realistic Leslie is as convincing as the one on Korg's excellent G4 rotary speaker module (reviewed in September 1994's SOS).

Then there are the Master Effects, grouped into two sections: one with seven reverbs and delay effects, the other a modulation section with flanger, phaser, multi-tap, ensemble, and chorus. If you

THE PROPHECY EXPANSION BOARD

Several of the Trinity models will include the sound generator board from a Korg Prophecy — the mind-bogglingly powerful physical modelling monosynth (see review in last month's SOS) that offers nine distinct methods of synthesis. Supplied with the Trinity Plus, Pro Plus, and Pro X, the Prophecy board will produce sounds that you'll be able to include within Combi, and which will have access to all the effects busses. Using the expansion will differ from the original keyboard in only three areas. Firstly, the dedicated Prophecy effects will be lost, although whether this will prove to be a limitation or an enhancement remains to be seen. Secondly, the Trinity lacks the 'log' controller and programmable knobs of the Prophecy synth. And, finally, there's the price. Hardly expensive in the first place, the Prophecy retails for £995. Included within a Trinity, the price will be a mere £300...

include the master EQs, that's a final total of 110 effects. What's more, in Combi and sequencer modes, you can group the audio channels onto eight effects busses, wringing the greatest flexibility and power from the available facilities. While some of this is complex, nothing is actually difficult, although there's certainly a lot of it. And, while the Trinity is not perfect (in the sense that it has two effects for each of the 16 channels) it's a huge step forward. Long live DSP!

THE HARD DISK RECORDER

Much has been made of the flexibility of the latest integrated sequencing/hard disk recording packages, not least within these pages. While the power of such systems cannot be denied, there is also no avoiding the fact that you require a lot of equipment — sound sources, effects units, the recording package, a well-specified hard disk and expensive input/output hardware.

Now consider a single instrument that integrates all of these functions. If you can get non-sequenced sounds such as guitars and vocals onto the instrument's hard disk, you have the basis of a

complete recording system. If your effects and signal routing are flexible enough, CD pre-mastering will need little more than a DAT machine and some talent.

Yep, *quelle surprise* — we're talking about the Trinity again. The hard disk option (expected early in 1996) will offer four tracks of hard disk recording and editing, analogue and S/PDIF digital inputs and outputs, electrical and optical ADAT interfaces, and a SCSI expansion port. Right now, nobody appears to be sure whether the basic SCSI drive, offering 4 x 30 minutes of recording, will reside inside the Trinity, but it seems likely. Either way, the editor (being written by the guys who developed the £23,000 Korg SoundLink hard disk recording system) will be fully integrated with and synchronised to the 60,000 event, 16-part, 192 ppqn sequencer. Tracks on disk will be treated as MIDI sequences, and will have access to all the Trinity's insert effects, master effects, and groups.

YOU WANT MORE? CAN DO...

Although I wrote this preview after playing with an unfinished Trinity for a few hours, the new tone generator chip was carved in stone (literally, I suppose) and the PCM data was already finalised. Surprisingly, the PCMs are completely new 16-bit, 48kHz samples occupying 24Mb of ROM. However, since 2:1 data compression has been used, these are equivalent to 48Mb of samples held in conventional RAM.

The PCM data includes well over 1,000 individual samples comprising 374 multisamples. Consequently, there's not enough room in the 256-program RAM to utilise all the samples. Indeed, more than 100 PCMs are lying unloved in the recesses of the Trinity's memory, just waiting to be discovered. Although a detailed review of the sound generation and editing will have to wait, I'm already satisfied that this is Korg's best-sounding PCM synth yet — which is hardly surprising, as it also features both of the Prophecy's 24dB/octave resonant filters. Even without the 01/W's waveshaping, it's clear, bright, and snappy, and in the sonic department, it certainly provides long-awaited competition for Roland's sparkling 'JV' series.

That's *still* not all. There's bags of expansion potential: a 8Mb flash RAM will load Akai samples as well as Korg PCMs, and offers an extra 256 program locations. Obviously, the number of additional samples will depend upon the length of the sounds being loaded, but all such sounds will be treated as internal PCMs to which filtering, insert effects and master effects can be applied.

There's also a massive internal library of 258 drum PCMs. These can be inserted into 12 programmable 'kits', each of which can have up to four effects applied to it. Each

PROBLEMS?

Of course, nothing in life is perfect, not even a Trinity. The choice of 48kHz sampling for the disk editor seems a tad daft, particularly since most users will be working towards CD pre-mastering rather than audio post. And the analogue inputs don't act like a Wavestation's, so you can't access the effects directly (although you might be able to monitor the hard disk 'record' inputs and spin those through the effects — stay tuned). Furthermore, there are only four outputs. Korg could correct the software problems because the operating system is held in flash RAM, which can be re-loaded at any time. The hardware limitations are another matter, and we'll investigate them more fully next time.

drum has its own panning and send to the filter, plus a velocity switch that allows you to switch between two percussion sounds on the same note. Roland R8 users have been reaping the benefits of this idea for years — it's good to see a workstation taking it on.

"Korg have now defined the next generation of the workstation concept — and despite the price, I think you're going to love it."

THE END OF THE BEGINNING

The first shipment of Trinities (Trinity?) is due at the end of October, and at £2,395 for the basic model, and a projected £2,700 for the Trinity Plus, they're not going to hang around for long. Naturally, SOS will bring you a full review as soon as a Trinity finds its way into our hands. Until then, keep salivating!



FURTHER INFORMATION

- £ For Trinity prices, see the box below.
- A Korg UK, 9 Newmarket Court, Kingston, Milton Keynes MK10 0AU.
- T 01908 857100.
- F 01908 857199.

THE FOUR TRINITIES: PROJECTED PRICES

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Trinity Plus	£2,700
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Beyerdynamic MCE83

Back-Electret Microphone

PAUL WHITE has been itching to get his hands on this mic for weeks. Was it worth the wait?

Over the past few years, the revolution in recording quality has brought about a new awareness of the importance of microphones — plugging an indifferent mic into your digital recorder is as pointless as using a cheap lens with your top-end Nikon camera. The microphone is at the sharp end of the signal chain, and if you don't get a good sound at source, it's unlikely you'll be able to compensate later using EQ and effects.

Good capacitor mics tend to be costly items, but we're now in the fortunate situation where it's possible to spend a lot less money on a back-electret model, which

phantom power is there merely to run the FET preamp, and any phantom power source between 12V and 48V will work. The MCE83 is fairly successful as a vocal mic as long as a pop shield is used, but it is designed with the miking of instruments in mind — a gently rising frequency response provides a couple of dBs of lift at 10kHz, which helps produce a bright, detailed sound. Its frequency response is comparable to that of a conventional capacitor mic, and extends from 40Hz to 20kHz with very little deviation. As the mic has a cardioid pickup pattern, it also has a proximity effect, which results in the bass end being boosted when the mic is used at close distances. A maximum boost of around 12dB at 70Hz occurs when the mic is used at a distance of 2cm or less, whereas a boost of a little more than half this amount results from use at 10cm. The proximity effect is a useful tool for warming up vocals without the need for EQ, but the singer needs to be experienced in using the

effect creatively. If the effect is not wanted, it's usually best to position a mesh pop shield around 15cm from the mic to prevent the singer from getting too close.

Back-electret mics vary considerably in their sensitivity, and this particular model gives an output of 3.2mV/Pa, making it just slightly more sensitive than most dynamic mics, but significantly less sensitive than most true capacitor models. One benefit of this slightly lower sensitivity is that the mic can handle SPLs of up to 138dB without requiring a pad, and

indeed, the mic has no pad or high-pass filter switches built in. This tolerance to high levels makes the Beyer MCE83 suitable for close-miking brass instruments, electric guitars, and percussion, as well as for miking quieter acoustic instruments, such as guitar.

IN USE

In use, the MCE83 delivers a very clean, neutral tonality, which is noticeably different to the thick, coloured sound of some large-diaphragm, capacitor mics. However, it doesn't sound in any way thin or wimpy, and could be quite flattering to some vocalists, although popping is almost guaranteed unless

BEYERDYNAMIC MCE83 £234

PROS

- Open, accurate sound.
- Excellent build quality.
- Suitable for most applications.
- Can stand very high SPLs.
- Zip-up soft case and stand mounting clip included.

CONS

- Restricted sensitivity makes it less suitable for working at a distance, especially if the sound source is quiet.

SUMMARY

A very attractively priced and technically competent all-rounder.

you use a pop shield (in my case, a 55p chip pan splash guard from Woolies!). Although the mic has a relatively low sensitivity when compared with true capacitor models (and with some other back-electrets), I found I could still capture reasonably quiet, delicate sounds without noise ever becoming a problem. For example, there was quite enough sensitivity for recording a steel-strung acoustic guitar, and even when I tried recording a selection of miniature oriental bells, there was absolutely no problem.

CONCLUSION

The Beyer MCE83 is an extremely well-built microphone, and performs perfectly within the confines of its specifications. The only weak spot is its relatively low sensitivity, but as explained, this doesn't seem to be a problem for studio work, where just about everything is close-miked, and it does mean the mic can deal with very loud sounds without flinching. The only time you'll probably need to look elsewhere is when doing a location recording that involves working with acoustic instruments at a distance.

In the studio, the MCE83 is a good all-rounder and is just as happy capturing vocals as it is sitting above a drum kit. A pair would make very cost-effective overheads, and be a welcome addition to even the most well-stocked mic cupboard. **SOS**



will stand comparison with a true capacitor mic. The AKG C1000 is an example of a back-electret mic that's become a studio standard, and new models are coming along all the time. Beyer's latest offering in this field is the MCE83 — a general-purpose, cardioid pattern mic, designed for phantom power operation only.

FEATURES AND SPEC

The Beyer MCE83 is a classic, end-entry, pressure gradient design, using a capsule that appears to be around 10mm in diameter. As the capsule is a back-electret design, it doesn't require a polarising voltage — the

FURTHER INFORMATION

- £ £233.83 inc VAT
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Marion Systems Pro

Synth Module

Following on from last year's modular MSR2 synth, Marion Systems' new stand-alone Pro Synth seeks to capture the analogue sounds of yesteryear in module format, without recourse to sample-based synthesis techniques. PAUL NAGLE lends an ear.

The Marion Systems Pro Synth is the latest in a series of modern instruments attempting to recapture the sound of analogue monosynths, but without their inherent tuning problems and unreliability. Housed in a 1U rackmount, and proudly bearing the name of its creator Tom Oberheim, the Pro Synth is physically far removed from the massive, knob-laden monsters of yore.

So how far does it succeed in recapturing the glories of bygone days? Well, on paper at least, it should be able to do the business, following the traditional architecture of two oscillators, noise source, filter and amplifier sections, and with a very wide selection of internal modulation and patch routings.

OVERVIEW

The Pro Synth is 8-voice polyphonic with just a stereo output pair, no headphone socket, no effects, and no sampled waveforms. A simple multitimbral implementation allows up to eight different sounds to be driven from their respective MIDI channels — a feature that would have been infinitely more useful if individual outputs had been provided.

There are 200 preset factory sounds, the best of which are brass and horn emulations, with organs, bass, and lead following behind. Strings are a little on the weak side, and a few 'funky clav'-type patches, woodwind, and token sound effects are the only other notables. I didn't come across any real stunners, and many were stamped with a 'sameness' that was surprising, given the synth's pedigree. Marion have taken the sensible step of leaving the 200 user-programmable locations blank, so you can get right down to creating new sounds without fear of losing anything valuable. One hundred user layers complete the available memory slots, and allow the creation of velocity or keyboard splits and layers. You also have the ability to stack and detune up to four voices — this is how you create some of the synth's biggest sounds. Patches can be selected via a program map or by using MIDI bank select: voices do not cut off as new program changes are received.

FILTERS AND OSCILLATORS

At the heart of the synth is the analogue component of the expandable Marion MSR2,

THE CURSE OF THE WALL WART

Although every reviewer complains when they encounter external power supplies, the one supplied with the Pro Synth is the nastiest and flimsiest I have seen for some time. How many legendary instruments can you think of that resorted to such obvious corner-cutting?

described in December 1994's *SOS*. Basically, this features Marion's High Resolution Oscillators, and a switchable 2- or 4-pole analogue-style low-pass filter, which (in 4-pole mode only) is capable of self-oscillation with the resonance cranked up. This sounds a little tame when compared to the wild filters on synths of old, but by today's standards it is quite respectable, producing wide sweeps and burbles, and injecting much of the life into the more successful of the Marion's sounds. The oscillators generate variable pulse and sawtooth waves, but to my ears at least, they are bland, and lack the richness usually associated with classic analogue. Even when the oscillators are detuned against one another, the raw sound is static, and this prevents all attempts to create something unique. This is not to say that the Pro Synth sounds bad — it actually compares pretty well against the current batch of sample-based machines when it comes to analogue impersonations — it just doesn't sound so impressive when compared to a real Moog, Jupiter or even (Oberheim) Matrix, notwithstanding tuning problems. The



Synth

MARION SYSTEMS PRO SYNTH £699

PROS

- Analogue-style sounds in a convenient rackmount package.
- Easy to edit.

CONS

- Flimsy external power supply.
- Not enough real guts.
- No individual outputs.
- Only 8-voice polyphony.

SUMMARY

A difficult instrument to sum up: on the one hand it has great programming potential, with a wide variety of internal patch routings, yet on the other, its basic sound impersonates analogue, but achieves only a limited success. Bathed in effects and sitting in a mix, it may be close enough for many situations, but make sure you try before buying.

envelopes don't have the bite of my old Moog either — the decay is annoyingly flabby and apathetic. If you're looking for cutting sequenced bass patterns, then look elsewhere.

CONCLUSION

What the Pro Synth does best is zappy brass sounds and whangy filter sweeps, with bass and lead fairly passable too. If this represents the bulk of your analogue requirements, it could be the synth for you. The addition of a unison mode gives a welcome boost to the power, as does variable portamento. Perhaps its greatest strength is the number of modulation sources, which allow for a very wide range of internal patching. The ability to trigger the envelopes independently of any note information is also useful, making it possible to mimic synths such as the Korg Poly 800, which had a single filter for all voices.

Ultimately, though, it's the basic sounds that matter, and I'm afraid the Pro Synth just didn't convince me — but with its many programming options, ease of use, and analogue sounds, maybe it is just what you've been looking for.



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Soundtracs Topaz

Stereo Recording Mixer

PAUL WHITE looks over the smallest mixer in Soundtracs' new Topaz range.

Just as Soundcraft set up Spirit to fight their corner in the home recording and semi-pro live sound markets, Soundtracs appear to be doing much the same thing with their Topaz range of mixers. The Topaz Mini,

plus insert points, while the stereo channels are equipped with basic 2-band EQ (operating at 10kHz, and 70Hz). The stereo channels have no insert points, and there are no master stereo inserts (although on a mixer of this type, it's rarely a problem). All EQ bands offer the expected 15dB of cut or boost, and because there's no EQ bypass switch, the controls are all centre-detented for easy zeroing.

Like most of its competitors, the Topaz Mini has two aux sends per channel. Aux 1

has a Pan and Level control as well as a Solo button.

As with many small mixers, all the mix levels are set using rotary controls rather than faders, the master output level being adjusted by a single stereo pot. Having two stereo returns means that you don't have to tie up any of the input channels in order to add effects, and for basic recording applications, there's a 2-track In and Out on phonos. When the Tape button is depressed, the 2-track is fed into the main mix via the Aux 2 level control, but rather than the tape return replacing the existing mix, it adds to it. Although this provides an easy way to add a taped recording, or other stereo source, to the main mix, you have to be careful to ensure the Tape button is up while recording, or you'll run into feedback problems.

Since this mixer doesn't have a separate main stereo output, or control room/monitor output, any monitoring of solo'd signals has to be done using the headphone output. In addition to the eight input channels, the two aux sends may also be solo'd, and the system works on the PFL principle, which means that the solo level is independent of the channel level control setting. As is common practice, the solo'd signal also comes up on the main meters, which provides a simple and accurate way of optimising the input gain settings. A large, bright red LED lets you know when one or more Solo buttons are down, and there are also Power On, and Phantom Power On LEDs.

The main outputs, and the mono line inputs are electronically balanced, with the wiring information conveniently screened on the rear of the mixer case. Although the aux sends aren't actually balanced, they are pseudo-balanced using a compensated grounding system — so, when used with



reviewed here, is the smallest mixer in the range, and is obviously aiming for a share of the action currently enjoyed by Mackie's 1202 and the smaller Spirit mixers, as well as the countless Mackie wannabees already out there jostling for their share of the action.

CONTROLS

Housed in a fairly plain but undeniably robust chassis, the free-standing Topaz Mini (rackmount option available) operates from an external power supply. Four mono mic/line channels are provided, plus a further four stereo line only channels. All the mono channels have fixed-frequency, 3-band EQ (working at 10kHz, 1kHz, and

can be switched globally from pre-fade to post-fade operation, enabling it to be used either for setting up a monitor mix, or as an effects send, and Aux 2 is a dedicated post-fade send, which would normally be used as an effects feed. There are no aux send master level controls, so you have to rely on the input gain controls of your effects devices — again, a strategy adopted by manufacturers of similar mixers.

While the mono channels have a fully adjustable input gain control, the stereo channels are simply fitted with switches, so that they can be optimised to -10dBV or +4dBu operation. Phantom power may be switched onto all the mic inputs via a switch in the master section, and every channel

TOPAZ MINI £323

PROS

- Clean, quiet audio path.
- Solid construction.
- Versatile.

CONS

- External PSU isn't always convenient.

SUMMARY

A very simple, yet technically proficient mixer with many applications in live recording, hard disk recording, and general studio applications.

Mini

BRIEF SPEC

EIN	-128dBu
Distortion	Better than 0.007% at 1kHz (line)
Channel Crosstalk	Better than 85dB
Frequency Response	20Hz to 30kHz +/- 1dB
Output Levels	+26dB (balanced masters), Aux outputs +21dBu (ground compensated)
Dimensions	329 x 322 (482 with rackmount option) x 85mm
Weight	4.15Kg

balanced connectors, there is a benefit in reducing the risk of ground loop hum. The PSU connects to the mixer via a locking DIN-type connector, and a rocker power switch is located on the rear panel.

PERFORMANCE

Technically, the mixer performs very well, its limited number of channels and short signal path contributing towards its low noise, distortion, and crosstalk figures. The controls have a reasonable feel to them, and don't wobble, courtesy of a moulded nylon bush that provides a bearing surface between the potentiometer shaft, and the hole in the front panel metalwork. Everything works quite intuitively, although you have to be aware that there is no mic/line switching, so both mic and line inputs are active. The only minor quibble on a practical level is that the embossed metal feet on the bottom panel don't offer the same degree of grip, or protection from scratching, that rubber feet would.

About the only subjective area of this little mixer's performance is the EQ section, and as I rather expected from the specifications, the high and low shelving controls work pretty much as you would want them to — they are more than adequate for general warming and brightening, and they have at least twice as much range as you're ever likely to need. The mid-range control, on the other hand, is preset at 1kHz, which is quite an unpleasant-sounding part of the audio band. In practice, this makes mid cut exceptionally useful for cutting out boxiness or mid-range harshness, but by the same token, there are very few situations where it makes a useful contribution used in boost mode. According to Soundtracs, they did a blind test with several of their engineers to decide what mid-range frequency was most useful, and they nearly all ended up choosing frequencies of around 1kHz, so if you have to have a fixed, rather than swept control, perhaps this isn't such a bad compromise.

The noise performance is as good on a subjective level as it is on paper, and the sound has a clean and transparent quality to it. Having said that, the frequency response, which is 1dB down at 30kHz, might have usefully been extended to 40 or 50kHz. On balance though, this is a well designed, well engineered little mixer, with a variety of uses — which is just as well, considering the crowded marketplace it's entering.

SOS

FURTHER INFORMATION

- £** £323.13 inc VAT.
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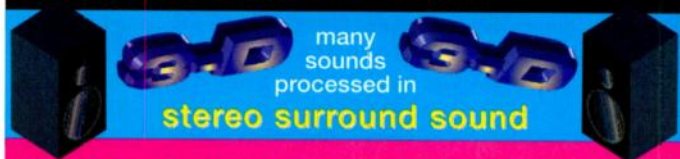
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LA Audio MX2

Mic Preamp

PAUL WHITE tries to establish whether a separate mic preamp really does make a difference, using the MX2, the latest in the LA Audio Lite range of signal processors.

When every mixer you buy comes with built-in mic preamps, you might wonder why you should fork out around £250 for just two mic amps in a box, especially when the ones available in even some of the cheaper mixers tend to be pretty good these days. There are occasions on which you might need a couple of high-performance mic amps without having to cart around the rest of the mixer — live stereo recording is one obvious example — but the subjective sound of equipment like mic preamps also plays a large part in deciding which to use. LA Audio's MX2 is based around a transformer circuit, and a great many recording engineers still prefer the sound of transformers. Like valves, transformers tend to introduce that indefinable something to the sound, making it seem warmer and more transparent, and they also help simplify the design of a mic amp that behaves well at all gain settings, rather than just at the extremes.

FEATURES

The MX2 offers absolutely conventional facilities insofar as each channel has

switchable phantom power, a 20dB pad, and a phase switch, but there's also a sweepable 12dB/octave, low-cut filter that can be set anywhere between 25Hz and 250Hz to remove unwanted LF signal. This is particularly useful when recording vocals, as many environments suffer sound leakage at very low frequencies, and as these frequencies are well below the fundamental of human speech, they can safely be removed without affecting the vocal tone.

An Input Gain control provides up to 60dB of mic gain, and a clip LED is fitted to warn of impending clipping on signal peaks. A further gain control sets the output level from the mic amp, and an 8-section LED level meter gives a useful indication of how much signal is present at the output. Both the Phase and Phantom Power buttons are accompanied by green status LEDs, and the main outputs, which are fully balanced, are doubled up on both TSR jacks and XLRs for convenience. The mic inputs are conventional XLRs.

Power is provided via an IEC mains lead, and the whole package is housed in a substantial, 1U steel rack case, tastefully finished in LA's deep green livery. Internally, all the circuitry for both channels is mounted on one large circuit board, and both the standard of construction and components is very high. Extensive use is made of ICs, both in the audio path and for metering, and the output stage is electronically balanced — although the designers have resisted the temptation to include M&S decoding, which I would have found useful.

IMPRESSIONS

As expected, the unit delivers a clean and apparently honest sound, with no obvious vices, plenty of headroom, and predictable operation. The slightly rubbery feel to the control knobs makes them easy to use, and the

LA AUDIO MX2 £249

PROS

- Good audio performance.
- Clean, intuitive styling.
- Includes filter and output level controls.

CONS

- No M&S (Middle & Side) decoding.

SUMMARY

A well-designed, versatile mic preamp for both studio and mobile applications. The inclusion of a filter and an output level control makes the MX2 particularly suitable for 'minimum signal path' recording.

uncluttered front panel keeps operation very simple. I also like the facility of having a variable low-cut filter, rather than the more common in/out roll-off below 100Hz or so. There's no apparent coloration from the transformers at all, but the sound is well-balanced and uncongested, with a pleasant openness at the top end, suggesting that the transformers might be making a benign psychoacoustic contribution. Transformer nonlinearities can make subtle modifications to the harmonic structure of a sound, as well as affecting the phase relationships between the different components that make it up, and providing these effects are subtle, the result can make the sound appear even cleaner than it really is. Again, this isn't unlike the mechanism behind the tonality of valves.

Given that this is a transformer-coupled design, and that transformers aren't the cheapest of components, the asking price for this mic amp starts to look more realistic — indeed, you can pay a lot more than this for a mic amp that doesn't really perform very much better. As an Output Gain control is provided, it's possible to use the MX2 for recording directly to tape without having to go through a mixer, and by keeping the signal path short in this way, significant improvements in sound and background hiss can be achieved. On balance, this is a well designed, very simple product that allows the user on a budget to experiment with esoteric recording methods, without having to pay esoteric prices.

SOS

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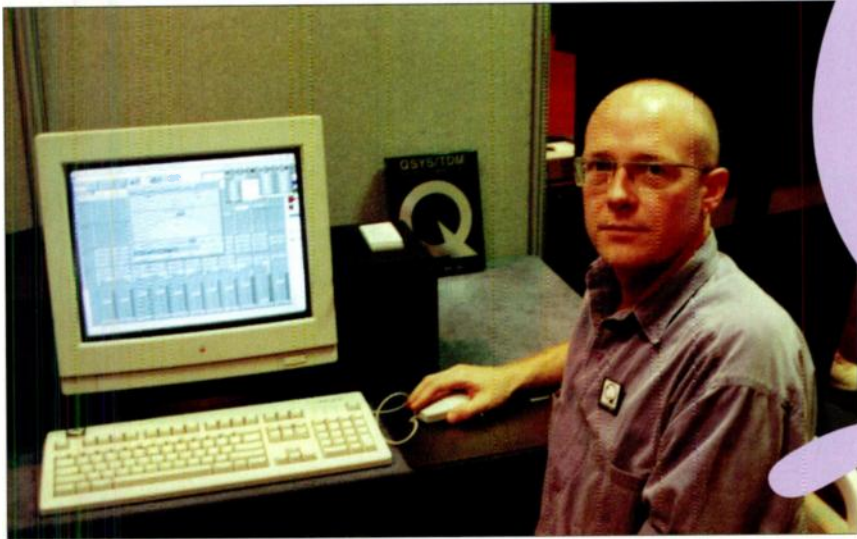
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SCOTT WILLING OF Q SOUND LABS

Canadian company QSound Labs were among the third-party TDM developers present at Digiworld, the recent Digidesign-hosted event in London. PAUL WHITE chatted to QSound's head of technical support, Scott Willing, about the latest developments in their 3D processing technology.

Over the past few years, it has become technically feasible to build sound processing systems capable of extending the stereo soundstage beyond the confines of the two loudspeakers used to reproduce conventional stereo. Although this has always been possible using multi-speaker setups such as those used in cinemas, there's obviously a great attraction in being able to recreate wide spatial effects through any normal stereo speaker system. Although a number of manufacturers are working in this field, the two most prominent systems are Roland's RSS and QSound, manufactured by Canadian company QSound Labs.

At the recent Digiworld event, hosted by Digidesign and attended by many of their third-party developers, I was fortunate enough to have the opportunity to discuss the QSound approach to spatial processing with Scott Willing, who is in charge of technical support for the company's software development group. Scott began by telling me something about the QSound method of 3D sound creation.

3D FROM STEREO: THE THEORY

When you first encounter a 3D system like RSS or QSound, it's difficult to comprehend how such a wide soundstage can be produced from just two speakers — until you realise that we perceive a complete 360 degree soundstage in real life, using just two ears. The mechanics of stereo hearing have been discussed in SOS on many occasions (most recently in the article on 3D Mixing in November '94's SOS), but it's worth recapping briefly on how our ears and brains extract directional information from the sounds we hear.

As audio travels at a finite velocity, any sounds arriving predominantly from one side of the listener will reach one ear before the other. The head acts as an obstruction between the sound source and the furthest ear, so when the sound reaches this ear, it is lower in amplitude and spectrally altered. As the sound source moves, the interaural delays, spectral filtering, and amplitude difference will change, so in theory, if you can reproduce these auditory clues electronically, you can create the same 3D effects for stereo sound.

DUMMY HEAD THEORY — AND THE Q SOUND APPROACH

"The classic research into spatial hearing is based on what I refer to as the *dummy head* theory. Basically, you make recordings using an acoustic replica of a real head and then analyse these recordings to see what actually happens to sound received at the ears. As you say [see the '3D from Stereo' box], if sound is located to one side of the head, there are time arrival differences at the two ears. There's also something called the head-related transfer function, which encompasses a couple of concepts, including the fact that the ears receive differently filtered versions of the sound. If you base a localisation synthesis technology on these principles, you can certainly get somewhere, but it's primarily only useful for binaural applications where you're listening over headphones. That's because you are doing an analysis of what happens at the ears, so you have to take those signals and reproduce them back at the ears."

In a loudspeaker-based system, both ears hear sound from both speakers, which is obviously quite unlike the headphone situation where there is very little crosstalk between channels. How can you compensate for this?

"One of the approaches has been to take binaural synthesis, and then attempt to translate this to loudspeaker listening by using crosstalk cancellation. This attempts to cancel the left channel information as it arrives at the right ear and vice versa, but this approach is fraught with side-effects, particularly from a high-fidelity standpoint. You can certainly achieve out-of-speaker localisation using crosstalk cancellation, but in essence, you're adding more out-of-phase components, which tends to be a bit brutal in terms of the timbral variation that takes place.

"Some scientists have been upset by the

Mum – there's 455 missing!



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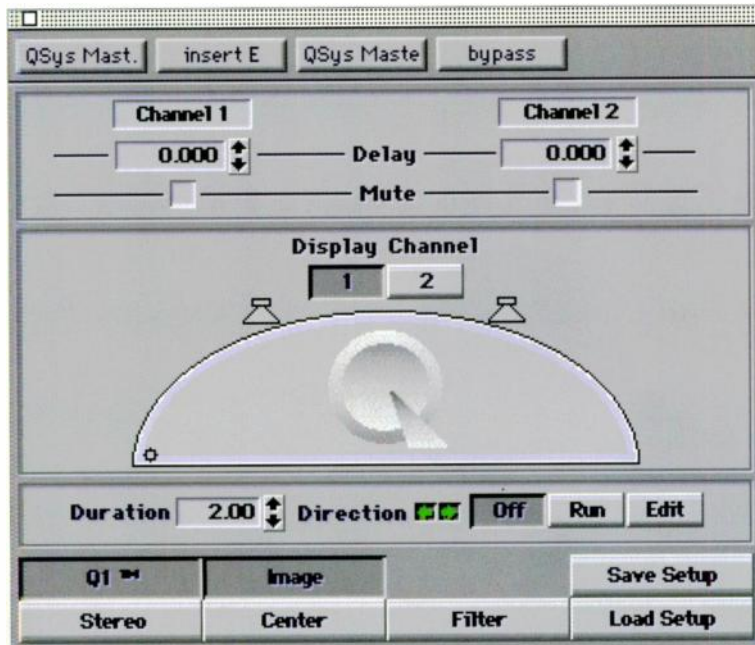
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The master control screen mixer from QSound's QSys TDM plug-in.

- empirical nature of QSound's research, but we feel we used a better model — we included the human brain and hearing system as part of the test loop. The QSound game plan was to create localisation for human beings listening to two speakers, so we actually *put* human beings in front of speakers, took the basics of what was known about localisation, and then tested people with various sine burst and broadband signals to see how they actually perceived things. Over the course of the oft-quoted half a million listening tests, a huge database was compiled that documented the subjective results of various input signals, phase relationships and the like on human listeners.

"One of the things that sets QSound apart is the enormous amount of work that went into the process of boiling down this huge database. A couple of people at Q have developed substantial skills — I would think unique in the world — in refinement and

optimisation. We're talking about professionals with well-trained ears, listening and tweaking in a lengthy and mind-numbing interactive search for perfection. I'm not sure why they're still sane, but at the end of the day, I feel QSound does a better job of keeping all the frequency components of a localised signal in the same place. The benefits for high-fidelity reproduction are obvious, but it also means that band-limiting has little effect on the perceived placement. This is good news for guys working in multimedia — band-limiting happens a lot there due to the low sample rates and cheap speakers used."

Were there any surprises in that some parameters were more important than you thought they might be?

"QSound is ultimately a filtering algorithm, and I find it surprising that the amplitude component is so important, as compared to just phase and delay. Rather than take the dummy head model and apply crosstalk cancellation, we used our database of processing versus perceived effect and created a system that put that theory into practice.

"We're now optimising our algorithms for different horsepower platforms, so that we can provide integrated software solutions for people working in multimedia. We can also optimise or reach an effective compromise for various geometries — if somebody makes a little toy with speakers just eight inches apart, we can still get 180-degree sound placement."

THAT RISING FEELING: ELEVATION AND REAR PLACEMENT

You're still manipulating time, amplitude, and frequency response — so is the main difference between your system and something like Roland's RSS system simply that they use crosstalk cancellation and you don't?

"Essentially, yes, although we like to think that our techniques provide the most natural-sounding localisation algorithms available. We also separate ourselves from some of our competitors in the sense that we don't claim to do things that we can't achieve reliably."

THE LOW-END THEORY: QXPANDER

You were saying that you had to come up with different versions of your algorithms to make use of the available computing power. Does that mean that your low-cost QXpander software is somehow less powerful than your top-end systems, or do you use the same algorithms?

"The underlying placement algorithms are identical, but it's important to make the distinction between the optimisations we do to make QSound work on very low horsepower platforms like PCs with soundcards, and the differences between Q1 [the mono-in, stereo-out processor] and QXpander [stereo-in/stereo-out], which is more of a signal processing and architecture difference. QXpander is really for processing stereo mixes — it enables you to get some QSound enhancement into a mix where the individual tracks are not available for processing. In that sense, it is more of a mastering tool.

"However, a lot of people are using QXpander for

processing stereo submixes, which are then added back to a multitrack mix. The main difference is that QXpander contains a pre-processor, which helps to keep the mono information from being destroyed by stereo expansion. One of the drawbacks to most stereo expansion algorithms is that you end up with a softening of the centre-stage sound, and maybe a loss of low end. QXpander already addresses those things by including a separate control for the centre signal — when fully up, this keeps all the mono components from being processed. There's also a low-frequency parametric EQ to compensate for any bass loss suffered when using lower settings of the centre control, and a dynamic compensator which effectively adjusts the centre parameter in real time, allowing you to apply more processing on those parts of the track where there is little or no critical centre information.

"Another feature will soon be included in all our

products, including QXpander 2.0 which is out in a couple of months, and that's designed to further improve the mono compatibility of the system. Quite simply, it's a high-pass filter available before the QSound process, so if you exclude some of the low end from the placement algorithm, you still get quite effective localisation, while retaining very good mono compatibility. We give the user the ability to adjust this to suit the material being worked on."

Does this work because most of the spatial 'glitter' in a track happens at mid and high frequencies?

"That's true, although if you're not concerned about mono compatibility, QSound is capable of placing low-frequency sounds down to about 100Hz. You can paste a kick drum to the wall quite convincingly. On Julian Lennon's last album, *Help Yourself*, there's a track called 'Would You' which has an 808 kick drum right out to one side."

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► **Does this include things like putting sounds behind the listener?**

“Yes. There’s a lot of psychology involved in both elevation and rear-placement. Take sounds in motion, for example — if you do a pan from one side to the other and make it continuous, there are lots of people who will get the impression that the sound went all the way around, especially if you dip the level every other pass. There are tricks you can do to extend the usefulness of our basic technology, but we don’t have a knob that says ‘Rear’ on it. Similarly, we don’t have any elevation algorithms

the listener eventually comes to perceive the cue as representing elevation, even if it’s initially perceived as filtering. There’s an awful lot of psychology involved. For example, if you produce helicopter sounds, or angelic vocals with some nice reverb on them, these things tend to be perceived as being higher up. There’s a thunder roll on Roger Waters’ *Amused To Death* album, and when I’m sitting in my living room, it crawls across the ceiling as far as I’m concerned.”

What are the problems in putting a sound behind the listener? Is it because we use unconscious head movements to localise sounds coming from behind? If this isn’t the case, it’s difficult to understand how we differentiate between a sound that’s directly in front and one that’s directly behind, because in both instances, the sound arrives at both ears at the same time.

“For front-to-back differentiation, humans do tend to rely on moving the head after the sound is initially heard. It’s interesting that with headphones, it’s actually fairly easy to do rear placement, but very difficult to convincingly put something out in front. It certainly helps if the sound source is in motion when using speakers, and we’ve had experience in our research of being

able to place limited ranges of frequencies directly behind, but it’s not something we’ve been able to refine to the point where we’d feel comfortable putting it into a commercial product.

“One of the things that fascinates me about QSound is that if you place a sound outside the normal stereo field, you can turn your head and look at it: you’d expect that as soon as you moved your head the image would collapse, but in fact, it’s quite stable.”

DEVELOPMENT AND MARKETING

You started off with a very secretive piece of hardware which could only be rented, rather like Aphex did with their Aural Exciter, but now you have low-cost, software-based implementations of your systems that almost anyone can use. How has your marketing game plan evolved since the first working system?

“The hardware box has advanced from the early days — we referred to the two originals as the refrigerator set. Now the hardware is a lot smaller, but it has fundamentally the same architecture based around a PC fitted with our own DSP cards. That has full automation with joystick control, and can be configured as eight channels automated via SMPTE, MTC, or direct MIDI control. People perceive the degree of stereo placement differently, but for most, we get around

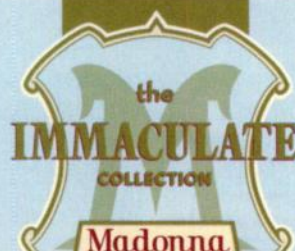
Sting *The Soul Cages*



Q SOUND IN USE

“QSound works exceptionally well for spreading out reverb without upsetting the rest of the mix — it can really put the room ambience out in the room. I still really enjoy the Sting *Soul Cages* album, specifically for the use of QSound on reverb and delay, whereas the Madonna *Immaculate Collection* album uses it to spread incidental percussion. The system was also used on the recent Pink Floyd *Pulse* album to create a really big feel for a live record. Crowd sounds aren’t often a large part of live albums in terms of technicalities, but on this album, you actually feel like you’re sitting in the crowd. James Guthrie, who mixed that album, is really an expert at that sort of thing.

“Roger Waters has taken the science of using QSound for sound effects to a high art, and *Amused To Death* has all kinds of things like TVs off to one side and dripping taps. It’s definitely an album to check out if you want to see what our system is capable of. There’s a phone that rings on that record — it doesn’t even sound like my phone, but I get up to answer it every time!”



in any of our currently released products, because elevation is actually easier to achieve for headphone listening. We do have headphone algorithms that will be finding their way into

commercial products in the near future. The bottom line with elevation algorithms is that just about everything I’ve heard that attempts to recreate elevation effects sounds filtered. In the real world, you’re not conscious of elevated sounds being different.

“There are good arguments that if you provide a consistent cue in an interactive environment such as a game, and link the cue to a visual effect,

180 degrees of positioning. I prefer to use the phrase 'well beyond the normal speaker field'.

"With software plug-ins such as we have for Digidesign's Pro Tools hardware, the goal is to have QSound migrate to as many appropriate platforms as possible, and to make it far more accessible economically. I'd like to be able to offer a 2000-dollar, 2U hardware-based QSound system, but at the moment, the best way we see of making the technology available is through software plug-ins.

"QSys TDM is a 4-channel version of the Q System. The initial release lacks just one thing the Q System offers, and that's automation. Digidesign is not currently supporting automation within plug-ins, and apparently it's going to require a rewrite of their automation system, but they have plans to introduce it some time next year. Depending on how many hoops you want to jump through, there are workarounds for automation. The simplest is to take a stereo output from the TDM module and print it to a couple of tape tracks — but then that's nobody's idea of true automation."

Will the software systems really allow us to do the same thing as their hardware counterparts?

"The algorithms used in our plug-ins are exactly the same as in our hardware systems. We have done some serious optimisation for very low-

power systems such as budget PC soundcards, but the plug-ins for use with Digidesign are mathematically identical to the hardware. What's more, because software can be upgraded far more easily than hardware, the software systems have some new features that haven't found their way into the hardware boxes just yet.

"Although we are building more hardware systems, we see the future as being mainly in software, and we have still to develop a system for a serious PC platform. It's hard to determine what sales figures for the various platforms are, but we're looking to support the most popular platforms first. Ultimately, we'd like QSound to be available to everyone, regardless of their operating environment."

I guess the games and multimedia markets have given you far greater potential for expansion than the mainstream music market?

"Yes, the multimedia market far exceeds the music business, but one interesting thing is that as multimedia developers become more sophisticated, they are starting to use the same sort of tools that we associate with professional audio. For example, a number of visitors to Digiworld have been multimedia developers — and this is ostensibly a pro audio show! There's a lot of overlap, and the developments we do in one area usually find their way into the others."

SOS

"Roger Waters' Amused To Death album is definitely one to check out if you want to see what our system is capable of. There's a phone that rings on that record — it doesn't even sound like my phone, but I get up to answer it every time!"

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The DIGIDESIGN SAMPLECELL II PC Hard Cell?

The SampleCell II PC card can turn your humble PC into a fully-featured, 32-voice sample replay unit with eight individual outputs. BRIAN HEYWOOD investigates.

Despite the advent of new synthesis technologies like physical modelling, a sampler still represents the quickest means of recreating a realistic instrument sound. This is especially true when you consider the large amounts of commercial sound samples and breakbeats available. The traditional way of obtaining professional quality sampled sounds would be to purchase a stand-alone module (eg. Akai S1000,

Emu Esi32, Roland S760 etc), load the sounds from CD, and then use the sampler's front panel controls to create a multi-sampled instrument. You then trigger the sampler from your MIDI sequencer to produce your musical masterpiece.

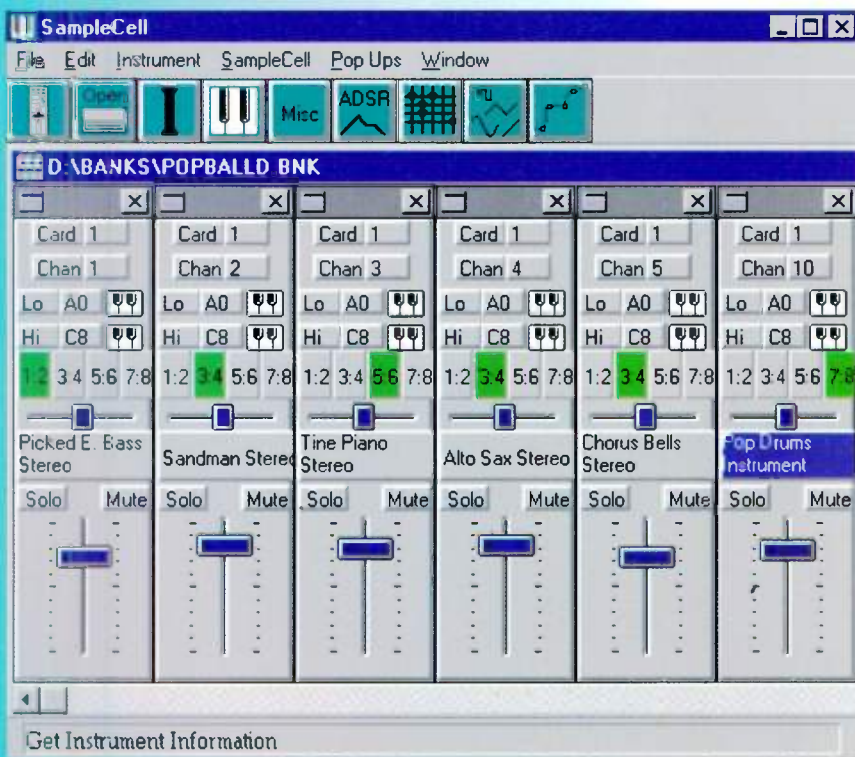
Another approach would be to use a Windows MPC soundcard that has a RAM-based wavetable synthesizer (like the Turtle Beach Maui or Creative Labs AWE32 card) to give you a sampler inside your PC. On the face of it, this looks like a very attractive option, as it is bound to be cheaper than a stand-alone unit. For a start, you are not paying for items such as the power supply and the case, and you get a much improved editing interface. This editing interface is important, since before you can use the raw sound data you must create a sampler 'program' which relates the individual sample sounds to a MIDI note, or range of notes. The soundcard/sampler then just appears as another MIDI device to your sequencer, which would be used in the same way as an external sampler.

However, there are problems with the PC soundcard approach; the sound quality of most cards is not up to the standard required by today's musician, and MPC soundcards are almost invariably limited to a single stereo audio output. This last point is a real killer in a studio situation, since it means you cannot individually EQ or process the soundcard instruments so that they fit in with the mix. Consider a fairly simple situation where you are using the sampler as a glorified drum machine. What happens if you want to beef up the bass drum? On any decent stand-alone sampler this signal would appear on a separate output, allowing you to use your mixer's EQ and your funky outboard effects processors to sort out the problem. On a PC soundcard you would need to adjust the original sample, since it is buried in the stereo mix.

ENTER SAMPLECELL II PC...

Digidesign's solution to the problem is to provide a sample replay card that has eight individual outputs, thus giving you the audio flexibility of a stand-alone sampler along with the substantial advantages of an integrated sample editing package. The computer's user interface — namely a nice big screen display and the keyboard/mouse input combination — is far superior in terms of usability than the front panel controls found on stand-alone samplers, even if the editing facilities are broadly comparable. Although you can buy computer-based sample editors — *SampleVision*, for instance — these tend to be limited to basic sample editing, leaving you to create the overall program using the sampler's front panel controls.

One thing that should be made clear from the outset is that SampleCell II is a sample *replay* card — you can't use it to sample your own sounds. However, since SampleCell can use standard Windows .WAV files to create its instruments, you can use any decent 16-bit MPC soundcard (say, a Turtle Beach Tahiti) to record the raw sample data. An even better approach is to buy a soundcard that has an S/PDIF interface (like the CardD from Digital Audio Labs) and transfer the audio from your CD player or DAT machine entirely in the digital domain.



HARD FACTS

SampleCell II PC is a fairly impressive piece of sample technology, offering 32-note polyphony and up to 32 megabytes of sample memory (RAM) all crammed onto a full-length, 16-bit ISA card. This RAM — which needs to be 4Mb Apple Macintosh-type 30-pin SIMMs (Single In-line Memory Module) — needs to be loaded onto the card before it is installed in the PC. One important point for users of DX2, DX4 and Pentium PCs is that these models usually have a fan fitted to the processor chip. Since the processor is usually situated underneath where the expansion cards overhang the motherboard, this fan can reduce the number of full length slots available in the PC. So, before you consider buying a SampleCell II (or any full-length card), it'd be a good idea to check that you have a free 16-bit slot that doesn't foul the processor fan, by taking the top off your PC and looking inside.

The SampleCell II card comes without any RAM, which means that you have to buy some SIMMs separately before you can use the card. Digidesign will not supply the RAM, claiming that they are not in the business of selling memory, and that you can probably buy the SIMMs on the open market at a lower price than they could ever hope to achieve. This last point is probably true, but I find the whole business rather curious, for a number of reasons. Firstly, it seems strange that Digidesign are content to sell a product that will not work out of the box, requiring (possibly non-technically minded) users to install delicate electronic components into the card. It is interesting to note that Digidesign UK were not keen to let me install the RAM myself, rather insisting on sending someone to pick up the card, so that their technical staff could install the RAM and deliver the card back to me. If Digidesign don't trust me — a fairly technical bear — to install the RAM, what chance does someone have who has no technical background?

Also, the insistence on the use of *Macintosh* RAM means that even experienced PC users are immediately in deep water when it comes to finding suppliers of such RAM. When I was checking prices, the simple question 'What kind of Mac memory is required?' left me more or less stumped. This may leave hardened Mac users rolling in the aisles with laughter, but I would have reservations about trusting the salesperson to get it right, especially as they are unlikely to know much (if anything) about the SampleCell card. I would have thought the SampleCell designers could have allowed the use of PC SIMMs; after all, the Turtle Beach Tropez card can take a variety of SIMMs types, even a mixture of capacities. This may seem to be a fairly trivial concern, but most hardware problems occur during the installation and increasing the complication factor is not a recipe for happy customers. I would have thought that Digidesign could at least have provided the option of purchasing their card with the minimum memory configuration pre-installed. I wonder what the reaction would be if Akai or Roland released a sample playback module with no memory?

INSTALLATION

Having sorted out the memory issue, the installation into a 486SX/33 PC went very smoothly with the default settings working first time. Unlike nearly all



The SampleCell II PC card comes with a comprehensive editor and MIDI device driver for Windows.

other types of soundcard, SampleCell II doesn't need to use a PC interrupt line (ie. IRQ), which simplifies the installation process considerably. The only hardware setting you need to worry about is the I/O address, which defaults to 34F — a fairly uncommon value, so it shouldn't clash with anything else you may have installed in your PC. The PC used for the review already contained a Gravis Ultrasound card (which also emulates a SoundBlaster) and a Future Domain SCSI card, neither of which clashed with the SampleCell card.

The software comes on a single floppy and uses the familiar Windows Setup routine to load the SampleCell control panel and the MIDI device driver that allows the card to be used with any Windows sequencer. There are also two extra floppies, containing a couple of sampled instruments (violins, drums) that allow you to test the installation and generally get started. Digidesign strongly advise that the PC is fitted with a CD-ROM drive, so that you can use the library of instrument samples provided on the two CD-ROMs which are bundled with the card. The CD-ROM in question doesn't need to be particularly fast, since it's just used as a mass storage medium, with the samples always being loaded into SampleCell's RAM memory before use.

The final part of the installation process is the connection of the card into your audio system. Since SampleCell II has eight individual audio outputs, most users will connect it to a mixing desk of some kind. The audio outputs are taken out of the card's mounting bracket via four stereo 6.5mm jack sockets,

SAMPLECELL II PC E1210 (NO RAM)

PROS

- 8 individual outputs.
- CD quality sound (16-bit, 44.1kHz).
- Bundled instrument library CDs.
- Up to 32Mb of sample memory.
- Uses WAV format samples.
- Excellent software support.

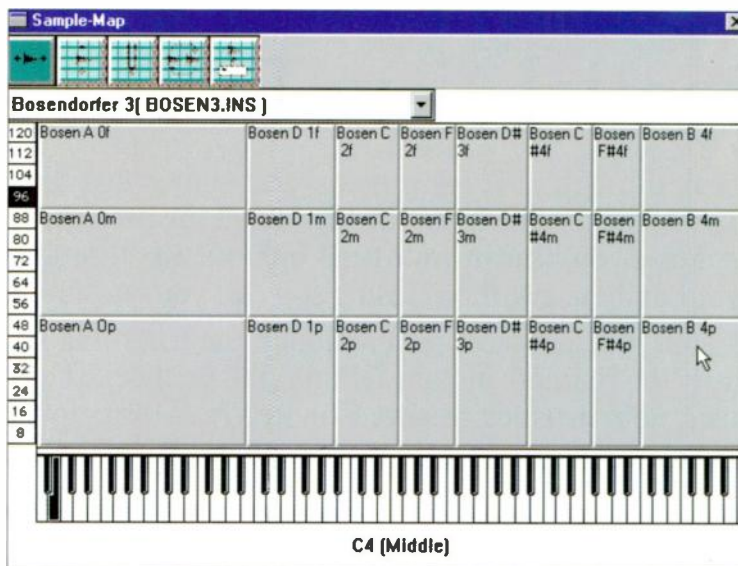
CONS

- Uses Macintosh memory SIMMs, which must be bought separately.
- Signal-to-noise ratio probably not as good as a stand-alone sampler.

SUMMARY

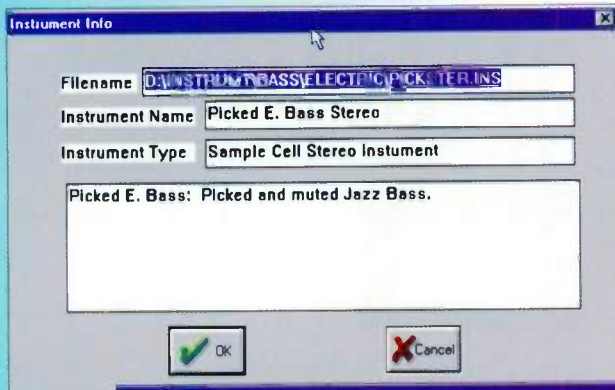
This is undoubtedly the best (if not the only) choice of PC sample replay soundcard for use in a professional studio situation. However, there are some hidden costs that need to be considered when determining whether the card is cost-effective.

The Sample Map shows how the samples correspond to the MIDI keyboard and Velocity Zones (left).



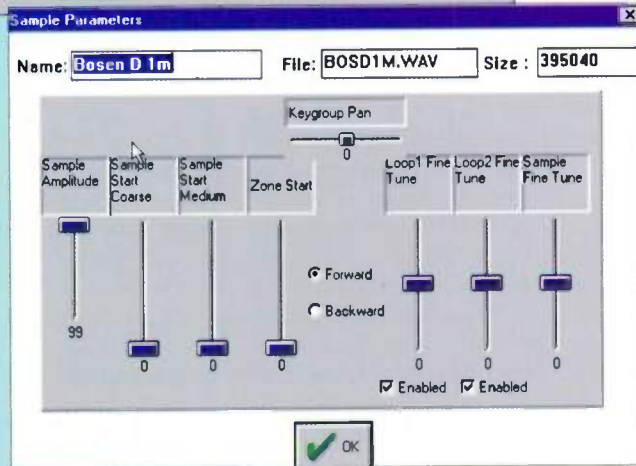
Digidesign SampleCell II PC

Each instrument can have a comment associated with it.



MINIMUM SYSTEM REQUIREMENTS

- 486SX/25 with 4Mb RAM.
- VGA or SVGA monitor.
- Windows 3.1 or later.
- At least 8Mb of Macintosh memory (uses 30-pin, 4Mb Mac II SIMMs).
- CD-ROM drive (to use sound library CDs).
- MIDI interface (to use external MIDI devices).



so you can use standard insert leads [available from SOS Mail Order incidentally] to break this into eight mono sends for connecting to your mixing desk. Once connected, you can match the audio outputs to your desk using the 'Test SampleCell' dialogue box, which puts out a (very loud, 96dB) sine wave. This dialogue also allows you to test that the SampleCell hardware is operating correctly.

IN ACTION

Operation of the SampleCell II PC control panel revolves around the Bank window, which shows the instruments currently loaded into the soundcard's memory (see the 'Samples, Instruments & Banks' side panel to learn how sounds are put together). Each instrument that appears in the Bank window has a separate control panel. This is laid out rather like a channel strip on a mixing desk, with fader and pan controls, output assign button, and MIDI settings. The layout suggests that, although SampleCell II has eight individual outputs, it has been designed to be used as four stereo instruments. This doesn't stop you from creating eight

SampleCell II implements two types of sample loops (sustain and decay) to help you conserve sample memory.

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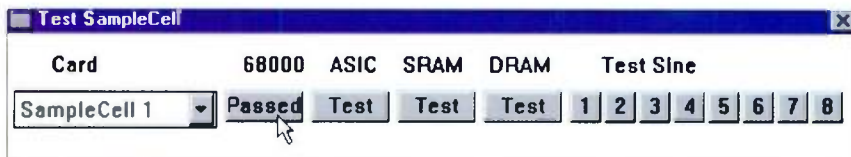
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mono instruments and then using the pan control and output selection buttons to assign them to an individual output — if you wanted to create a drum kit with individual outputs, for instance.

In conjunction with the supplied CD-ROMs, SampleCell II becomes useful almost immediately, since there is quite a wide range of pre-prepared banks and instruments available. You can tweak the banks and save them to your hard disk as new banks, either keeping the samples in the original location or copying them all to your hard disk. Using the bank mechanism, you can create a multitimbral bank for a particular song, and archive the SampleCell setup to disk along with any sequence data etc. This gives you the ability to return to the project at a later date without the hassle of having to remember the exact system setup at the time you created the sequence.

SEQUENCING SAMPLECELL

You use SampleCell in the same way as you would any external sample replay device. The installation process adds a MIDI driver to Windows that will appear in your sequencer's list of MIDI devices. The SampleCell control panel will happily run concurrently with sequencing software, so that you can flit between the two applications to tweak the bank or instrument configuration as you develop your sequence — rather in the same way you might



use the front panel controls of an external sampler in the course of a session. If you are running short of memory on your PC, you can close down the SampleCell control software after loading up the sounds, but you get a far more responsive system if you leave it in memory all the time.

The Test dialogue allows you to check the SampleCell hardware as well as match the signal levels to your mixing desk.

SAMPLES, INSTRUMENTS & BANKS

The most basic element of sound in a sampler is the *sample*, which is a digital representation of the actual audio data. The audio data takes up a fair amount of RAM (88 kilobytes per second of mono audio, 176 kilobytes per second of stereo audio). Digidesign's SampleCell II system has no facilities for either recording or editing the raw sample data.

Before a sample can be played by SampleCell it must be incorporated into an *instrument*, which defines both how the sample is played (ie. loop points, envelope) as well as how it relates to the MIDI keyboard and any other samples that make up the instrument. SampleCell offers you a lot of control of the instrument sounds, with 'synthesizer'

type facilities like LFOs and filtering, almost to the point that you could use it as a synthesizer in its own right. The instrument data structures also define the looping parameters, allowing you to sustain the samples.

Instruments in turn can be incorporated into *banks*, which let you associate a number of instruments — say, for a particular song — into one logical group. The bank defines how the instruments are assigned to individual MIDI channels and audio outputs, and allows you to set up key ranges so that you can mix or layer instruments on the same MIDI channel. In essence, the bank determines how SampleCell II behaves as a multitimbral sound module.



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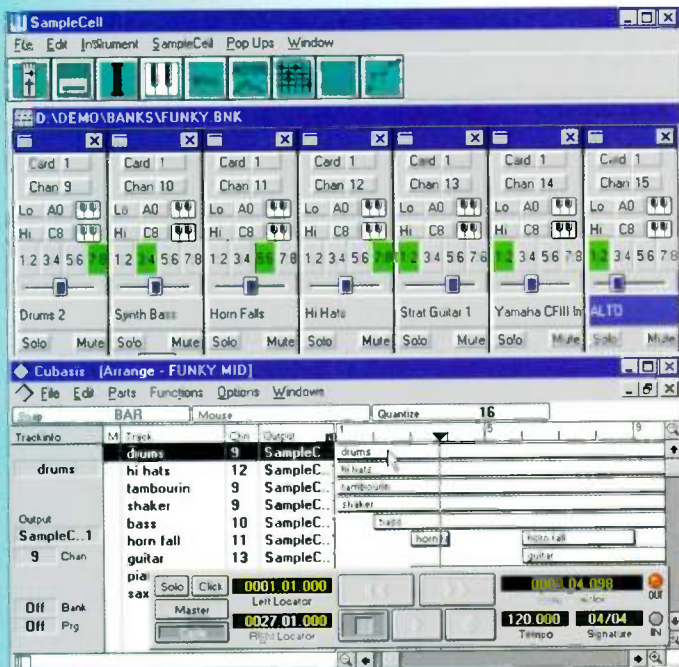
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Digidesign SampleCell II PC



The Bank windows (top) show the currently loaded Instruments, which have separate control panels rather like mixer channel strips. Here, SampleCell is running concurrently with Steinberg's Cubasis sequencer (bottom).

▶ CREATING YOUR OWN INSTRUMENTS

The most powerful aspect of any sampler is the ability to use your own samples to create custom instruments. Creating a new instrument from scratch is no trivial task and not something you'll do very often, but it's comforting to know that you can do it if you wish to. SampleCell II can't take any part in the creation of the raw samples or the initial cleaning up of the sample data, since it has no recording or sample editing capability. However, since it uses the standard Windows WAV format, you can record the samples using any 16-bit MPC soundcard that implements a 44.1kHz sample rate, and then use a Windows WAV editor (eg. *Wave for Windows*) to create a 'clean' sample.

Once you've got the samples on disk, SampleCell provides a comprehensive set of tools to forge the

raw samples into a complete instrument. There are six basic editing screens used in the instrument creation process, all accessible from the tool bar in the Bank window:

- Sample Map
- Misc. Parameters
- Envelope
- Matrix
- Modulators
- Trackers

While there really isn't scope here to go into great detail, briefly, the Sample Map is used to associate the samples to a range of MIDI keys (or key group) as well as defining the velocity zones that allow you to select between different samples, depending on how hard you hit the key, so you can have 'soft' and 'hard' samples for each key group. In fact, you can have up to 60 key groups and six velocity zones, limited only by the amount of memory installed on your SampleCell II card. Other facilities available here are the ability to tune the samples, define the crossfades between velocity zones, and controlling the relative volumes of the samples.

Most of the other facilities relate to controlling the 'instrument' as a whole — such as defining the ADSR envelope, the effect of modulation, the control of the ramp generator and the Tracker. The various generators and external MIDI parameters — such as velocity and MIDI controllers — can be directed to control various aspects of the SampleCell replay circuitry, using the Matrix dialogue. This can be thought of as a patchbay that allows you to define the way a performance parameter (such as MIDI note velocity) or one of the generators can affect the sound of an instrument, and is a good example of the advantages of using a computer-based application over an external stand-alone sampler.

CONCLUSION

SampleCell II is probably the only sensible choice of a sample replay soundcard for the PC musician working in a serious audio production environment. Its eight separate audio outputs put it on a par with stand-alone samplers and provide the ability to apply external effects and EQ to the resulting sounds. Sound quality is excellent, though I found that the outputs were somewhat noisier than those on my Akai S950 sampler. This was improved by switching off the video monitor, which I had situated right next to the PC. Under normal conditions this shouldn't be a problem, as long as you get the gain structure of your audio system right, a point that is emphasised in the SampleCell manual. However, in terms of sound quality, I would be surprised if any PC-based card could compete with a good stand-alone sampler, since this will always be affected by the PC's power supply and other factors beyond the control of the card designer.

The software interface of SampleCell II is very well designed, with a clear logical hierarchy and without any of the idiosyncratic features found on samplers with more limited user interfaces. The

REVIEW PC SPECIFICATION

- The following system was used to test the SampleCell II card.
- 486 SX/33 with 8Mb RAM.
 - SVGA display (1Mb Trident chipset video adapter).
 - 100Mb hard disk (IDE).
 - Toshiba SCSI CD-ROM drive (single spin).
 - Windows 95 (June beta).
 - Other cards: Gravis Ultrasound with SCSI add-on (equivalent to Future Domain 950 card).

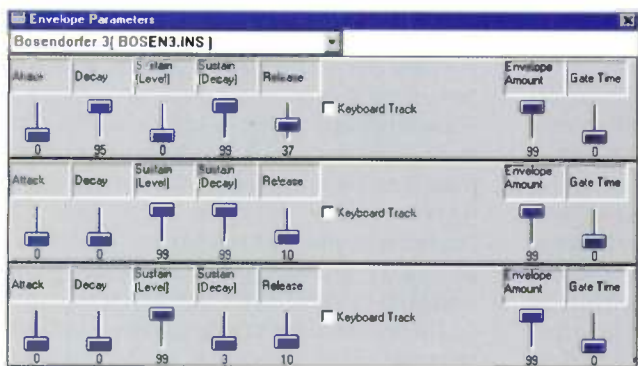


The Matrix Map lets you patch control signals to the sound generator, allowing a wide range of performance controls.

SAMPLECELL II — KEY FEATURES

- 32 dynamically allocated voices.
- 16-bit stereo or mono, 44.1kHz samples.
- 8 analogue line outputs.
- Supports 8, 16, 24 or 32Mb of sample memory.
- Dynamic digital filtering.
- 50 multi-sample instruments and 10 single-sample instruments.
- Extensive performance control facilities in the instrument programs.
- Windows-based editing control software.
- MIDI device driver for integration into a Windows-based sequencing system.
- Supports Windows WAV files.
- Compatible with Digidesign's Session-8 software.
- Bundled with two CD-ROMs of high quality instrument samples.

structure of the editing software allows you to use the system either as a production sampler or as a sound design tool, as you require. The ability to create banks for a particular project and then archive them off to a new location is a particular boon to anyone who needs to come back to a piece of work after weeks or months. The only major deficiency I found was that the bank loading software doesn't first check that there's enough memory available for the audio data when loading. This means that you can get 90% through this rather lengthy



The ADSR envelope generator (Attack, Decay, Sustain, Release) is not graphic-based, but effective nonetheless.

process before being told that there's not enough memory available on the card [aaarrgh!!!], at which point all the samples that have been loaded into its RAM are unloaded again, leaving you back at the starting point.

SampleCell II is not a particularly cheap option when compared to a secondhand MIDI sampler (or the new Akai S2000), unless you consider what you would pay for the sound design software that's bundled with it. There are a few hidden costs you need to be aware of when considering SampleCell II PC, such as the sample RAM, for which you'd expect to pay around £100 (inc VAT) per 4Mb SIMM. So if you go for the recommended minimum configuration of 16Mb of sample RAM, you will need to budget for an extra £400, which is not a trivial amount in my book. Also, if you want to record your own sample data then you'll need to buy either a decent 16-bit soundcard (around £300 for a Turtle Beach Tahiti, say) or a digital interface (around £400 for a digital-only CardD) plus sample editing software. Still, if you want to 'get serious' about using your PC in the studio, then SampleCell II PC is certainly worth a good, hard look.

SOS

FURTHER INFORMATION

- £ £1210.25 inc VAT (no RAM).
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OPTICAL DISK & CD-ROM

There's a revolution taking place and it's heading your way!

DAVID MELLOR
explains the increasing importance to musicians of optical technology for data storage.

The past two digital revolutions were pretty exciting — digital stereo on DAT gave musicians the kind of sound quality that could previously only be approached by an expensive analogue recorder with Dolby noise reduction (a combination that once cost the best part of £10,000), while digital multitracks like the ADAT and DTRS formats represented further spectacular leaps towards making pro standard audio affordable to 'ordinary' musicians.

The current digital revolution, as any regular reader of *SOS* will be aware, is in hard disk recording, where units like the Akai DR8, Vestax HDR6 and Fostex DMT8 bring multitrack hard disk recording down to the kind of price that was once mere fantasy. But we still have a lot to learn about how hard disk systems should be used to best advantage.

In the top professional bracket, hard disk recorders are used mainly for post-production (adding audio to pictures), and for that they are ideally suited. Typically, clients will bring their tapes into the studio where they will be transferred to the fixed hard disk of whatever tapeless recording system the studio happens to own (AudioFile, SADiE, Pro Tools, etc). When the session is completed, the audio will be copied back to tape and the hard disk erased, in readiness for the next client/session.

Hard disks are very good for the quick turnaround nature of the post-production business. What they are *not* quite so appropriate for is music recording. Not because of any limitations in the sound quality that any well designed system will offer, and certainly not because of any lack of facilities, but music recording projects are much more likely to take place over a longer timescale, and the project may not run continuously from initial track laying to final mixdown. In the home or project studio, this is very significant. Whereas full-time professionals may start a project and work



A 1.3 gigabyte optical disk.

on it until it is finished, many of us have to juggle our tasks and work on several projects, or several parts of the same project, at the same time. I don't know whether I qualify as an 'average' project studio owner, but I usually have three CDs worth of material on the go at any one time, and I can spend more than a year working on a single project. If I owned an 8-track hard disk system, I would need at least 12 gigabytes (12,000 megabytes!) of storage to handle all of this, possibly more.

The answer to the storage problem, I feel, will ultimately be *removable optical storage*, where you can treat the disk medium just as you do tape. When one disk is full, simply swap it for a new one, and buy as many disks as you need for the work you are doing. We haven't heard a great deal about optical disks in the pages of *Sound On Sound* yet, mainly because they haven't been entirely suitable for audio purposes. But now we are on the threshold of the point where optical disks will indeed be very suitable, and I imagine that companies producing digital tape and hard disk products today will be producing optical disk products next year or the year after. I predict that in the fairly near future we will be recording multitrack and stereo audio onto optical disks, and we will be sending our demos to record companies on CDs that we have made ourselves in our home and project studios. With this in mind, let's look at the state of play in the optical disk and CD-R (as recordable CDs are often known) market right now; later on I will speculate on what may be around the corner...

OPTICAL DISKS

As yet there is no such thing as an optical disk recorder (at least not in any sub-stratospheric price bracket), but there are hard disk recorders that you can attach an optical disk drive to. Most computer-based hard disk recorders will treat an optical disk drive just as though it is a hard disk. There are a

Maxoptix Tahiti T3 — probably the fastest currently available optical disk drive.



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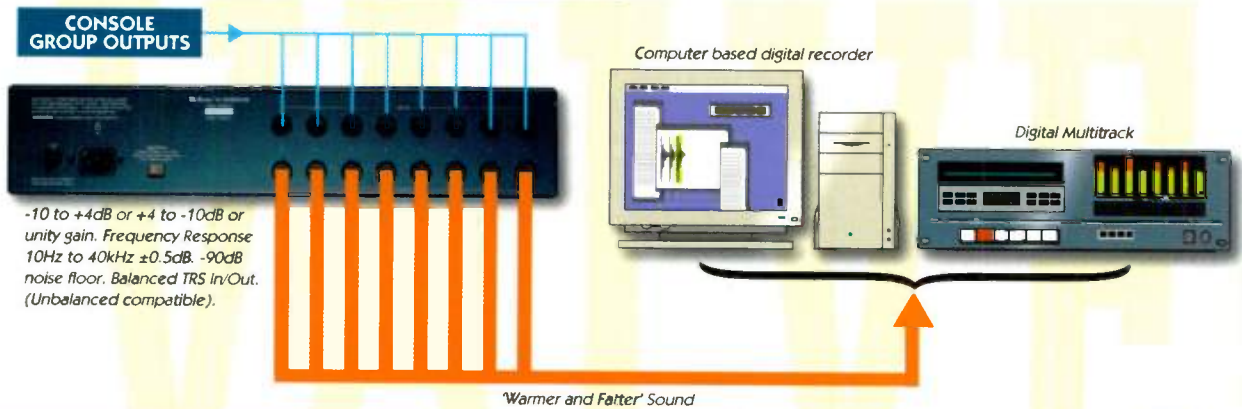
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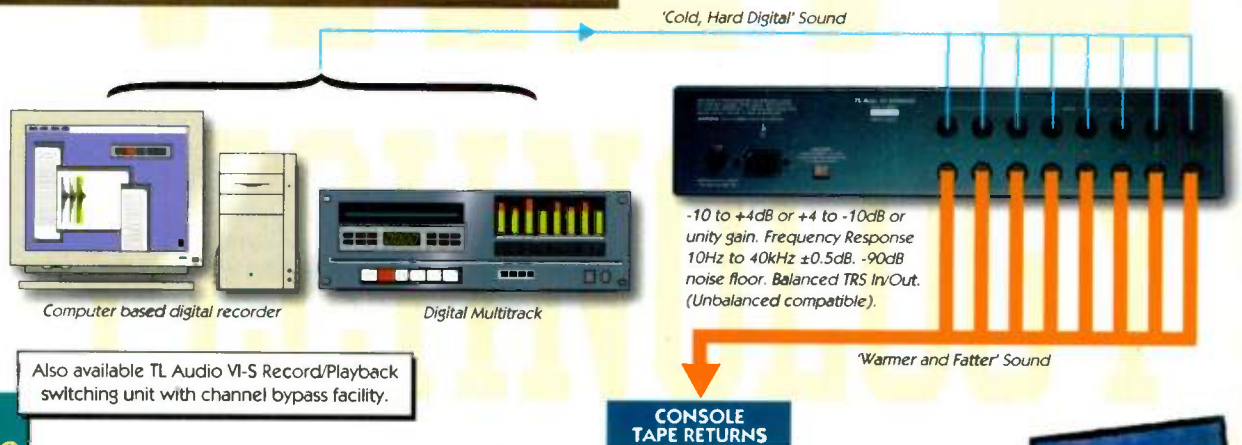
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Optical Disk & CD-ROM

▶ number of such systems available, but I will refer to two examples with which I am personally acquainted. The first is my trusty Apple Macintosh Quadra 650 (superseded by Power Macs maybe, but I'm still not selling it!) fitted with Digidesign's Audiomedia II card, and running MOTU's *Digital Performer* software.



d2 électronique optical disk drive.

The second is the remarkable Akai DR8, which I reviewed in *SOS* August '95. *Digital Performer* is the audio recording version of Mark Of The Unicorn's *Performer* MIDI sequencing software. It is compatible with a number of Macintosh hard disk recording systems, including Digidesign's Session 8 and Pro Tools. Many of my comments on *Digital Performer* and its associated hardware will apply to other Mac and PC hard disk recording systems too, since the same physical limitations apply.

In some respects, hard disk and optical disk drives are quite similar. Both are available with SCSI connectors that you connect to the computer or hard disk recorder, and both have to be formatted so that data can be stored. There are two main differences between hard disks and optical disks. The first is obviously that optical disks come in removable cartridges. Hard disks sometimes do, but large capacity disks are far too expensive to treat like you would ADAT tapes. An optical disk capable of storing around two hours of stereo audio, or the equivalent

in multitrack, costs about £60, which is rather more than DAT but not totally out of this world.

The second difference between hard disks and optical disks is that the hard disk works by magnetising the surface of the disk in a pattern of ones and zeros that describe the digital audio signal.

Even when you record multitrack audio, the hard disk doesn't actually record separate tracks. Conventional hard disks can only deal with one stream of data, so the disk has to record a little bit of track 1, a little bit of track 2, and so on. To record and replay several tracks simultaneously, the drive head needs to retrieve data for all the tracks sequentially and very quickly, so that the system can once again reconstruct the data into exactly synchronised tracks. Obviously, in order to do this the head has to be able to move about the disk very quickly, to access the data, and when the data starts to flow, it has to flow very quickly too. Magnetic hard disks are very well suited to this, because the heads are very small and lightweight. Optical disks, on the other hand,

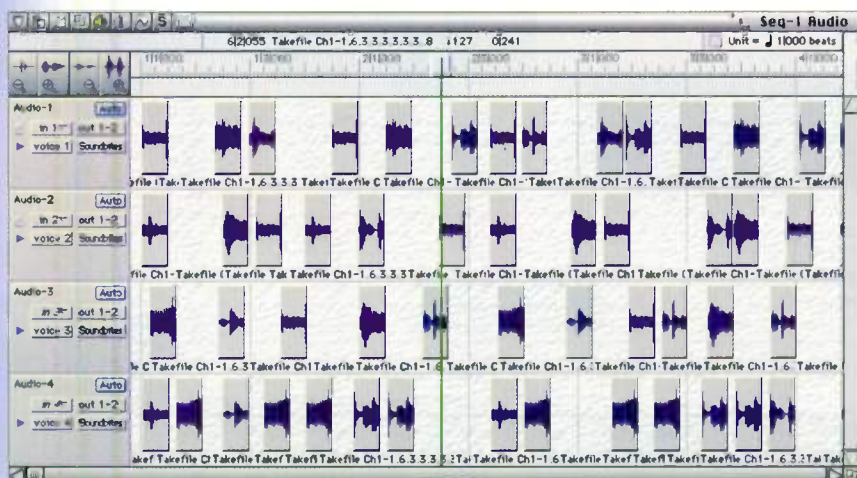
work by heating small areas with a laser and exposing them to a magnetic field. On playback, the laser bounces light off the disk and a sensor detects the angle at which it bounces. The mechanism necessary to do all this is bulky and heavy in comparison with the hard disk, therefore the access time to any part of the data is slow, and the rate of data throughput is less. Also, a separate erase cycle is needed, so recording takes twice as much effort as playback.

The upshot of all this is that where it is pretty straightforward to record and replay any combination of eight tracks on a modern hard disk, you cannot expect this level of performance from an optical disk. The best you will achieve from an optical disk connected to an Akai DR8, for example, is 8-track replay, or 7-track replay and 1-track record. You can't obtain 6-track replay and 2-track record, since even the fastest currently available optical disk drive is too slow. Note that it is *not* the DR8 that is too slow, it's the disk.

Another problem appears when you start to edit the audio. As you know, instant access and ease of editing are the reasons why we have disk recorders in the first place. When you record audio onto the disk, it will be laid onto the disk more-or-less in sequence, almost like tape (assuming you started with a blank, defragmented disk). When you play it back, the optical pickup will never have very far to go to find the next section of data that it needs. But what happens when you start to restructure the audio? Suppose that the second line of the first chorus was a bit shaky and you want to replace it with the same line from another chorus? How about moving the solo so that it comes later in the song? What about adding another track? Now the data to be played is no longer sequential or contiguous and the head must skip quickly across the surface of the disk to retrieve all the required sections.

Figure 1 shows a 'worst case' scenario that ▶

Figure 1: MOTU *Digital Performer* screen showing a high edit density.





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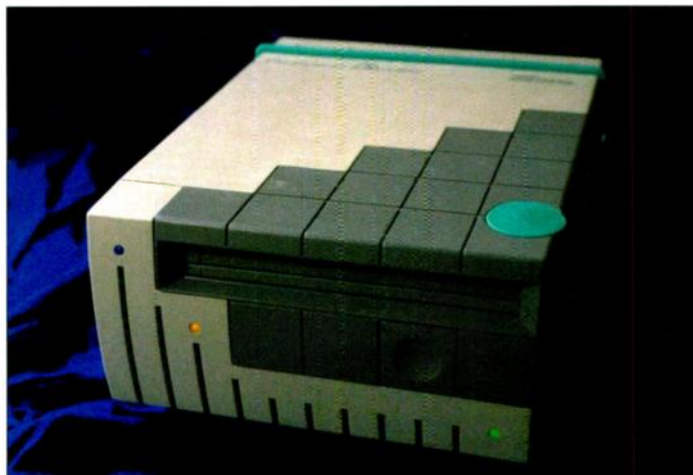


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Optical Disk & CD-ROM



Pinnacle Sierra optical disk drive.

- ▶ served to test the three optical disk drives mentioned later in this article. I recorded about five minutes of stereo audio onto a disk using *Digital Performer*, then cut out segments from various points and arranged them into a short sequence. I started off with 2-second segments of audio, which I found I could place back-to-back on four tracks, filling all the available space on the screen, and it would play back perfectly (using the maximum buffer size on the Digidesign Digital Audio Engine software, upon which *Digital Performer* relies). I tried the same thing with 0.25-second segments and found this to be the best I could achieve. If I placed the segments any closer than this, then playback would stop. You may think this is pretty extreme, and it is, even though it is only on four tracks. But this kind of edit density only has to occur once in a song and you will have a problem. Other disk recording software is available that can perform crossfading between segments, which may create literally hundreds of very short segments scattered across the disk. The number of tracks, segment length, and edit density are the limiting factors in all disk recording, but especially so with optical disks.

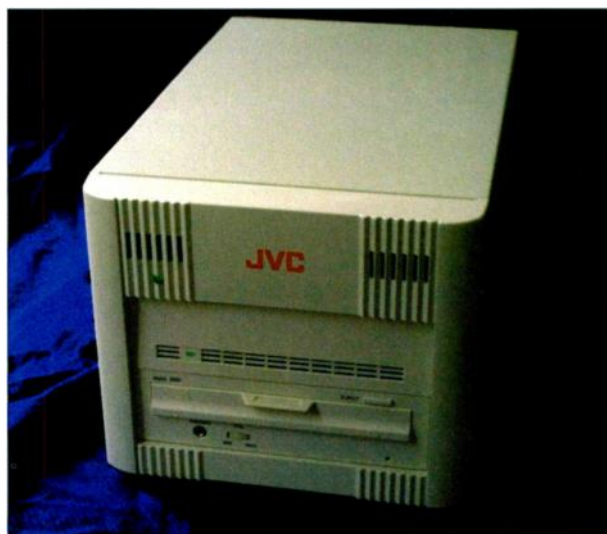
DRIVING AMBITIONS

I tested three optical disk drives with my Quadra 650 computer and the Akai DR8, all of which can be obtained for around the same price if you shop carefully. These were the Maxoptix Tahiti-T3, the Pinnacle Sierra, and a d2 électronique SMO 1300. One thing you have to note is that the brand name of the box is not necessarily the brand name of the drive inside, so you will need to develop some skill in drive-spotting to make sure you get the one you want at the best price. All three drives take 1.3 gigabyte cartridges, which equates to 650 megabytes per

side (as yet, there are no drives that can play both sides simultaneously) — good for around an hour of stereo recording, or 15 minutes of 8-track. Smaller capacity drives are also available, though these are probably better suited to sample storage than disk recording.

In the end, the choice of drive comes down to raw speed and I certainly found that one drive was faster than the other two, and therefore simply better. I have to stress that in this industry, whoever is leader today may be an also-ran tomorrow, so don't apply the conclusions I come to here to the next wave of products these companies will produce — they are all in hot contention.

Although I am still using the d2 électronique SMO 1300 quite happily for 4-track recording, and I am confident that it is a high quality product, I have to say that it was the slowest of the three. My measurements showed that it had an average seek time (the time it takes the head to get to the data) of 38.9 milliseconds and a sustained read rate of 1546 kilobytes per second. This compares with the Maxoptix, which had a seek time of 19.4ms and a sustained read rate of 1533 kilobytes/s. The slightly lower data throughput of the Maxoptix (which is approximately halved for recording) didn't seem to represent as much of a problem as the differences in seek time and access time. Although both drives are suitable for 4-track recording work, only the Maxoptix is workable for 8-track, and then only just with the Akai DR8. It takes top disk recording manufacturers like Digital Audio Research to get the Maxoptix



JVC RomMaker CD-ROM writer.

SEAMLESS TRACKS

There is a way to get two tracks to join seamlessly without a break, using a JVC RomMaker or any other CD writer software with similar facilities. What you do is this:

In your audio editing software, make one file that includes both tracks as you want to hear them. Then select the whole of the second track from the point you want the CD player to increment the track number. Use the Cut command and then Paste the audio into a new file. The join between the tracks will, as I found, be perfect.

Tahiti-T3 to work to its full potential, which shows that optical disks haven't yet really matured as a technology. The Pinnacle Sierra unfortunately didn't respond to my disk testing software, so I don't have any test figures, but it worked fine apart from that and was very nearly up to the Tahiti-T3's standard. In conclusion, all three drives are recommended, but the Maxoptix Tahiti-T3 is more recommended than the others!

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Optical Disk & CD-ROM

RECORDABLE CD

Recordable CD (usually referred to as CD-R) has been with us for some time now in the form of CD recorders, which are in appearance just another type of audio device. My first experience of CD-R recorders (some time ago) was not a happy one, since I found that the possibility for operator error was huge, with a corresponding cost in time and CD-R blanks. These days, CD recorders have now been refined to a point where they are certainly useful, but are still not at the 'must have' level. On the other hand, if you are editing audio on a computer, you can attach a CD-ROM writer which will give you the ability to create normal CD-ROMs from your data and create audio CDs too, very easily. I tested two units, the JVC RomMaker and the Pinnacle RCD, both of which gave excellent results. Both units are SCSI devices, so I was able to connect them very easily to my Mac. The JVC actually incorporates a hard disk as well, so it needs two SCSI addresses; something you may need to consider if your SCSI buss is approaching the limit of its capacity.

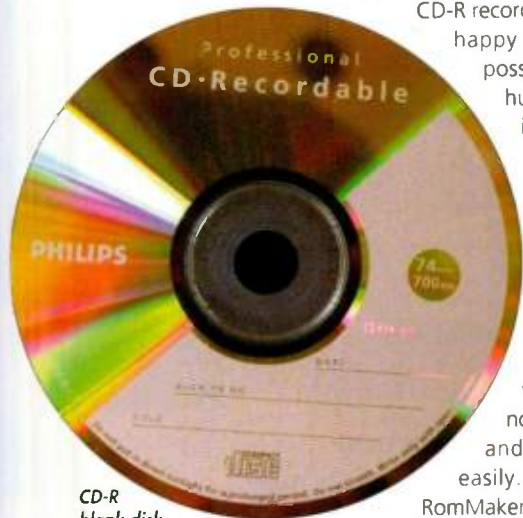
Once again, CD-ROM writers are at the useful but 'not quite there yet' stage of development and much depends on the software that is supplied with the device. I used JVC's and Pinnacle's own software, although other manufacturers' software to do a similar job is available at extra cost. Although CD-ROMs are undoubtedly interesting, let me concentrate on audio CDs.

To create an audio CD, first of all you need a stock of CD-R blanks. These cost around £8 or so each and are available in 63 and 74 minute sizes. Some CD-R blanks are advertised specifically as an audio product, but there doesn't seem to be any difference in their suitability for recording audio. I tried three brands and I couldn't detect

any difference among them (but only time will tell how long they retain their data successfully).

Since CD-Rs are non-erasable, you have to make absolutely sure that your audio file is perfect. The only 'going back' is going back to the shop to buy some more blanks! On a Mac, you will probably prepare your audio in Sound Designer format, since that is just about the standard in the professional (Mac-based) audio world, although AIFF is supported too. If you were using a PC, then .WAV would be your format. You don't need to sequence the whole CD into one gigantic file, as each track on the CD will be created from one file on your computer. JVC supplied me with two types of CD writing software, one of which (Personal Archiver) turned out to be virtually useless for audio CDs, but their RomMaker software (Figure 2) worked well once I had figured it out. In truth, the only problem I had was that the manual writers assumed that anyone using a JVC RomMaker system would be making CD-ROMs, with audio as an afterthought (silly me for having audio as my only thought). Most of you will have come across mixed mode CDs already, where track 1 is a data track for use on a PC or Mac and the rest of the tracks are audio. To RomMaker, every CD is a mixed mode CD, but you can omit the data track if you wish. Once I had grasped that idea almost everything was fine, and I simply loaded the files I wanted into the RomMaker window and set the gaps between tracks.

The next step is to transfer all the files to the RomMaker's internal hard disk. The reason for doing this is that writing to a CD-R has to be a continuous process and any interruption in the data stream will mean a ruined CD-R blank. Unless you are sure that your hard disk is fast enough, that it won't suddenly recalibrate itself in the middle of a transfer, and your files are not fragmented, then writing to the unit's local disk is the perfect way of working. Transferring the files takes as long as any disk-to-disk copy would, but once the material is on the RomMaker's hard disk, then copying to the CD-R can be done at 2x real-time speed (some CD-ROM writers can do 4x



CD-R blank disk.

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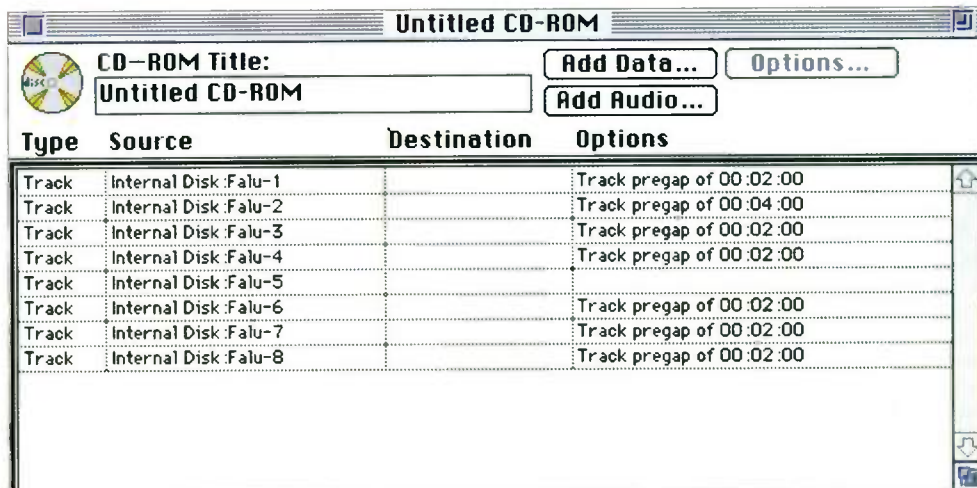


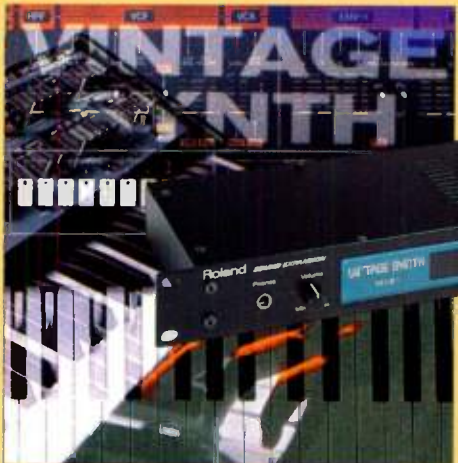
Figure 2: JVC RomMaker screen.

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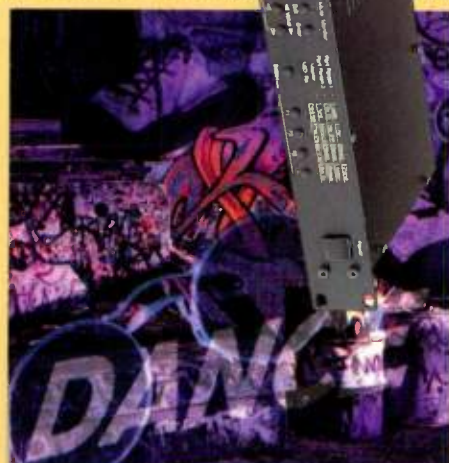
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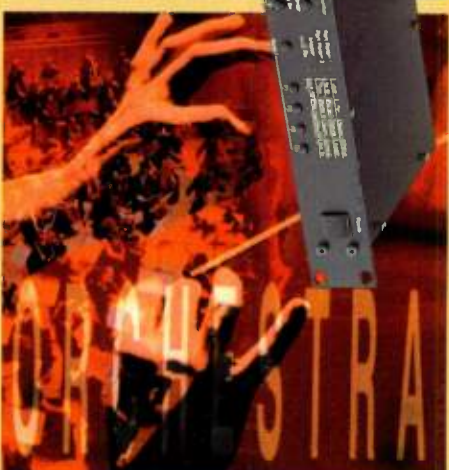
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Optical Disk & CD-ROM

► speed, or a quarter of real time; Yamaha's CDE100 for example). I recorded about 20 audio CDs on the JVC RomWriter and all were perfect, so I can thoroughly recommend it.

Of course, no relatively new technology is without its problems or limitations, and I found two:

This is not really adequate, but at least you have the option of setting no gap at all. The way around this is to include the gap as a silent period at the end of each audio file. No problem.

The only slight difficulties with the Pinnacle RCD were that the supplied software isn't suitable for creating identical batches of CDs, since it cancels your carefully created track list once the CD is made! Also, I found that on occasion there was a very slight click right at the end of the CD. I couldn't trace why this was so, whether it was the CD-ROM writer, the RCD software, or my software or computer, but it didn't happen with the JVC RomMaker.

WHAT'S NEXT?

What's next in the optical disk world is a 2.6 gigabyte drive and cartridge. Several manufacturers are working on a standard that will store 1.3 gigabytes, roughly equivalent to two hours of stereo audio or half an hour of 8-track recording per side.

Since the disk won't physically be any bigger, access to the more tightly packed data should be faster and so 8-track recording should be possible with these drives, according to what I have heard on the grapevine. When they appear, optical disk recording should become totally practical, with no drawbacks other than the fact that the cost of the cartridge will still be much higher than tape.

As far as CD-ROM writers are concerned, I don't have such good information on what might happen, but I can speculate that since CD-ROM

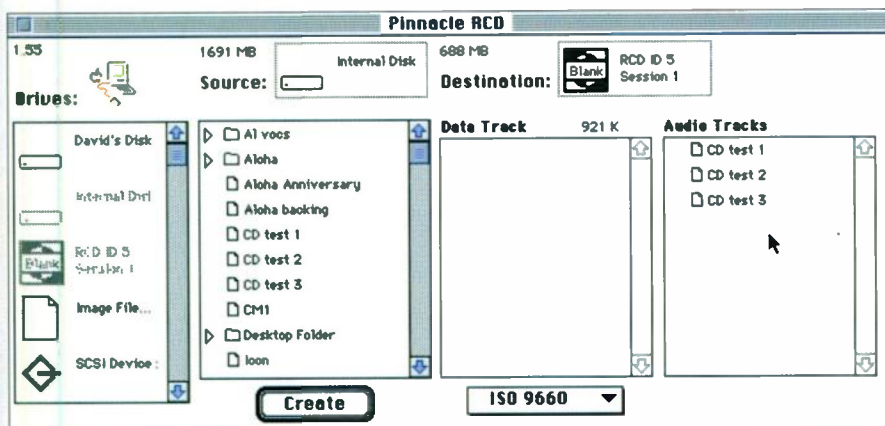
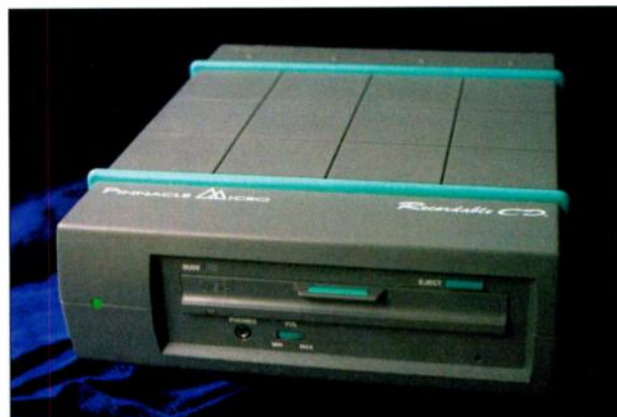


Figure 3: Pinnacle RCD screen.

- Firstly, although the JVC RomMaker is excellent for producing batches of identical CDs, it completely ties up the computer while it is copying from its own hard disk to the CD-R blank. I would have thought that this could have been done internally, rather than via the computer's SCSI buss. An opportunity missed, I'd say.

- The second problem is obviously due to a software bug. In a mixed mode CD there is a mandatory two second gap between the data section and the first audio track. Unfortunately, if there is no data track then the RomMaker software insists that there must be a gap between track 1 and track 2. Any of the other tracks can have no gap or a gap of any duration. This gap problem was the reason why I found the more basic Personal Archiver software unusable. It only allows a fixed gap of up to two seconds (see later). To a computer system designer, it may seem 'obvious' that all tracks on all CDs should be separated by two second gaps, but it certainly isn't obvious to a musician like me who wants to include segues and crossfades between audio tracks; these are ruled out completely.

The second CD-ROM writer I tried was the Pinnacle RCD (shown in Figure 3). This worked as well as the JVC RomMaker, even without an internal hard disk. Of course, this meant that I now had to source all my audio material from a fast, reliable hard disk, so I was lucky to have a 1.7 gigabyte Micropolis AV disk available for the purpose. One slight problem was that the Pinnacle software only lets you have the same duration of gap between all tracks, and only up to two seconds.



Pinnacle RCD CD-ROM writer.

writers have only just begun to make a significant penetration into the computer market, then as the manufacturers achieve a greater volume of sales in that market, prices for everyone (including audio users) will be set to tumble. But as always, if you think you can profit now from making your own CDs, then now is the right time to buy, since these units certainly do the job.

SOS

Thanks to all companies concerned for making their products available for test.

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T 0171 833 0009.

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• JVC Professional Products (UK) Ltd.

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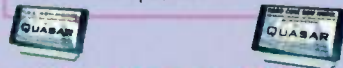
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quickly. The only problem was that if you changed a program and tweaked the associated effects, you had to store both of them individually — something that caught me out a few times. Furthermore, as more than one program could use the same effects patch, changing that patch could have an unforeseen knock-on effect on other programs. Now, in common with most other manufacturers,

ALESIS QUADRASYNTH PLUS PIANO POLYPHONIC SYNTHESIZER

Alesis released their Quadrasyth early last year to mixed reviews, and in response, an updated version has now been launched.

Does it address some of the comments levelled at the previous instrument?

Original Quadrasyth owner MIKE BEST finds out.

VALUE

When Alesis launched the original Quadrasyth in early 1994, it was met with a mixed reception; the supremely high sound quality and huge 64-note polyphony was an obvious bonus, but the piano sounds didn't quite cut it, and the lack of resonant filters meant that the palette of available sounds erred on the side of being 'safe' rather than breaking any new ground. In launching the Quadrasyth Plus Piano, Alesis have obviously addressed the piano problem, but what else is new, and how does the machine shape up against the latest competition?

the effects settings are stored directly within the program, which makes a lot more sense.

Selection of a program is now, unlike on the original instrument, glitch-free; you can either punch in the program number using the number pad or use Quad Knob 1 while pressing the program key to 'dial' through the list. If you are using the +1/+10 keys, you automatically scroll over to patch 000 of the next bank when you go over patch 127 in the current bank.

If you're a previous Quadrasyth owner, like me, your memory banks will need to be re-formatted into the new style. This may sound tedious, but fortunately all you have to do to bring any old SysEx dumps up to date is simply load banks into your internal RAM, and re-transmit them immediately... remembering to save the internal RAM bank first! As for memory cards — I dumped the contents of the card (all four banks) into my computer, re-formatted the card and then re-saved

the data. The Quadrasyth Plus 'knows' that the programs are from the older version and deals with them accordingly.

EFFECTS AND SOUNDS

Alesis has something of a track record in building digital effects, so you won't be surprised to learn that the Quadrasyth Plus offers something rather special in this department. The Quadrasyth Plus processor employs the same technology as used in the Quadverb II and the Midverb IV, giving direct access to four high-quality effects buses. A new

algorithm has been added which includes a stereo Leslie effect, and I feel the reverbs sound nicer than before.

The very first impressions of any new keyboard rely heavily on the factory presets and, with only a few exceptions, these sounds are excellent. 'True Stereo' piano (ROM Bank 1 patch 000) is totally breathtaking, and the demo sequences are actually worth listening to if you want to get a feel for the sounds on offer.

Several new raw waveforms are included in the 8Mb ROM expansion (giving 24Mb in total), and these are arranged in two new groups, QSPlus and Rhythm. There are also a few additions to existing groups — for example, 'Analog Kit', 'Brush Kit' and 'Tribal Kit' are additions to the Drums group. The 'Rhythm' bank, as the name suggests, is dedicated to rhythmic loops, and these are ideal for jamming or writing rough outlines.



PET SOUNDS

It's obviously impossible to describe the subtleties of synth sounds using mere words, but if you get a chance to play with a Quadrasyth Plus Piano, check out these presets to get a feel for what's on offer.

- Bank 1 Program 000: *TrueStereo* — an amazing stereo piano.
- Bank 2 Program 003: *DSP Acoust* — a thick 6-string.
- Bank 2 Program 011: *Ascension* — Enya-esque strings.
- Bank 2 Program 018: *TeknoStorm* — impressive techno drum loop.
- Bank 2 Program 031: *TwistedSun* — slow and weird.
- Bank 3 Program 121: *Monolith* — evolving modulation!

CH-CH-CH-CHANGES

Physically, the synth is virtually identical to its predecessor, and those unfamiliar with the instrument might like to look back over Martin Russ's in-depth review in the May '94 issue. The casework has changed from grey to black and the graphics have been improved, but the real changes are inside the box, where quite a lot is new.

After checking out the 'What's New in the 2.0 Plus upgrade' section of the manual, it seems that a lot of the original customer comments have been heeded. The biggest operational change is the way in which effects settings are stored. In the original Quadrasyth, these were stored in their own separate section within a bank comprising programs, mixes and effects. In its favour, this arrangement did allow you to try out different effects configurations on a program/mix very

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ALESIS QUADRASYNTH PLUS PIANO

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PROS

- Increased memory.
- User Sample RAM employs PCMCIA industry-standard cards.
- Improved operating system.
- Improved programmable controllers.

CONS

- Only one card slot.
- Still no resonant filters (c'mon, guys...).

SUMMARY

A significant advance on the original Quadrasynth, this should appeal to users who want access to lots of quality sounds with 64-voice polyphony. The facility to load new samples is also good news, and in part makes up for the lack of resonant filters.

FURTHER IMPROVEMENTS

Amongst other 'master keyboard' improvements, there's now greater control over the Quad Knobs (an opportunity completely missed in version 1.00). These can now generate any controller information for use internally and/or externally. This makes performance control far more flexible and interactive than before, and enables the instrument to function as a powerful master keyboard.

Another welcome enhancement is that you can now play sounds directly from the RAM card without having to overwrite the only internal user bank. The addition of three extra preset banks (including one General MIDI) brings program storage to five banks in total (four preset plus one user), plus a whopping eight on an industry-standard PCMCIA card. This means you can now access a maximum of 13 banks of 128 patches (over 1660 in total, before you leap for your calculators!) with the addition of 100 mixes per bank.

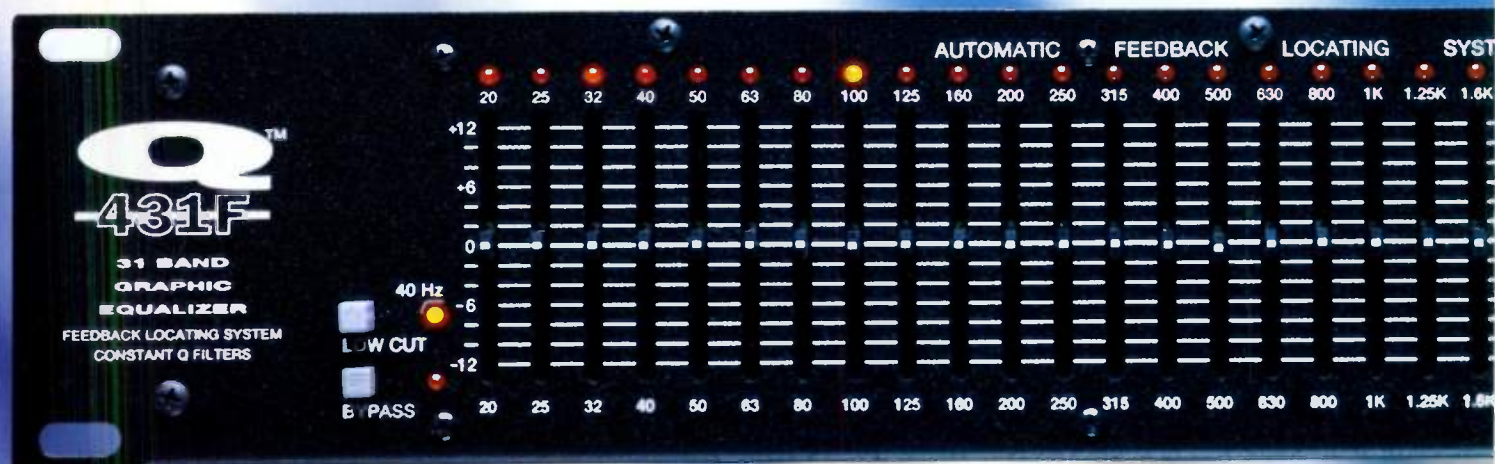
Last but far from least is the new option of loading your own samples into the Quadrasynth on a card capable of storing up to 8Mb of sample RAM, thereby allowing a certain amount of customisation. As the manual very clearly explains, SampleCell type I and II samples (including all key group, root notes, tunings, loop points, and so on), AIFF and SDII

samples can all be compiled into a 'project' (Alesis-speak for a set of samples) on your computer and then downloaded via MIDI into Flash RAM or SRAM cards. You then insert the cards into the Quadrasynth's card slot to access the samples. The best thing is that there is no need for any SampleCell hardware! One of the new Quadrasynth's (few) bad points is that it has just the one card slot, and cards cannot be split to incorporate sample RAM *and* program/mix data, so you can only access one or the other at any one time. Happily, Alesis are planning a January '96 update to allow card splitting in exactly the way described above. This may not get around the current restriction on card size, however — the manual mentions a maximum card size of 8Mb. As you can buy 16Mb Flash RAM cards, I wonder if Alesis have set this limit in the software. Compatibility with larger cards (with a lower price per Mb) would be better.

CARD TRICKS

As creating custom sample cards is so easy (I did it first time!), I do hope that off-the-shelf sample card prices will be quite low. After two telephone calls I found a distributor who had both types of card in stock; SRAM was £135 for a 1Mb card, while the slightly cheaper Flash RAM prices ranged from £100 for a 1Mb card to £288 for 8Mb. Flash RAM cards do start as small as 256K though, which is sufficient for

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either four complete memory banks or three seconds of sample time. Alesis have included their own engineers' *Sound Bridge* card creation software free as an encouragement to the rest of us to experiment, although version 1.00 is only available for the Macintosh, and is only capable of processing mono samples. Once again, an update is on the horizon, as is a PC-compatible version.

THE UPGRADE ROUTE

If you already own the original Quadrasynth, and want to upgrade, you have two alternatives. The first is the simpler of the two — sell your old one and buy a 'Plus'! However, the last batch of original Quadrasynths were 'chopped out' for around £799, and the Plus costs £1299, so this is likely to be an expensive route. Option two is to buy an add-on board which should upgrade your existing machine to the full version 2.00, but as it wasn't available at the time of writing, I wouldn't like to comment further. The projected price is between £250 and £300, so this will probably work out more cost-effective than selling off your old machine.

If you want access to just the additional waveforms, buy an 8Mb ROM card. Three cards will be available 'shortly', according to UK distributor Sound Technology: Pop/Rock, Piano and World Ethnic, at £225 each. If space is a major

factor in your studio (ie. you haven't got any!), you could always consider the updated S4 Plus Piano rack module, which has a retail price of £899, £100 less than the original.

CONCLUSION

Though there are *still* no resonant filters, I feel that the Quadrasynth Plus Piano is a significant improvement on the original. I know that Martin Russ said this in his original article, but as it applies even more now I'll say it again: I really can see many people using this machine as their only sound source. With its large range of quality sounds, brilliant internal effects and the new 'matured' software, the Quadrasynth Plus Piano represents a truly professional editing environment. Check it out, even if the original Quadrasynth didn't make it onto your shortlist.

SOS

FURTHER INFORMATION

- E** Quadrasynth Plus Piano £1299; S4 Plus Piano rack module £899. 8Mb ROM expansion cards, £225 each. Prices include VAT. For Flash RAM and SRAM card prices, see separate box.
- A** Sound Technology, Letchworth Point, Letchworth, Herts SG61ND.
- T** 01462 480000.
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Once simple one-channel units, MIDI-CV converters have become multi-output devices capable of handling various kinds of pre-MIDI control protocols. Design Labs' latest offering even sports a built-in resonant filter! GORDON REID bleeps and oscillates with delight...



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PROS

- Eight pairs of CVs and Gates.
- Retro-Synth (Prologue Plus only).
- CV tuning in software, not hardware.
- Very extensive manual.

CONS

- The cheesy '70s LED screen. Retro has its limits.
- No DCB option.
- No configuration memories.
- 5-Volt triggers and gates may not be enough for some synthesizers.

SUMMARY

A well thought-out and fully-featured unit, the Prologue is slightly let down by its cottage-industry construction. But with prices starting at under £300, it's unbeatable value for money.

The Design Laboratories is a one-man company within a company (the Synthesizer Service Centre), and has just four products in its range. The first, launched in 1992, was a RAM cartridge that offered the equivalent of four Roland M64Cs in a single package, and cost little more than one of the originals. The DX version arrived a year later, and this offered a similar price advantage over the Yamaha cartridge. The same year also saw the preview of a far more exciting product: an 8-channel MIDI-to-CV converter incorporating a 24dB/octave filter for processing audio signals. The projected price was just £299, and delivery was expected in mid-1994. Now, in mid-1995, the production models have only just appeared. During the wait, the original specification has been re-written, the hardware and software enhanced, and two models now replace the planned one — the Prologue and Prologue Plus. It's the Prologue Plus which is under review here, although those of you considering the purchase of a Prologue shouldn't be put off reading this, as the only

difference between the two is that the Prologue lacks the Retro-Synth and the connections to it, of which more directly. The question is: was it worth the extra year's development?

CONNECTIONS

The Prologue Plus packs a great deal into a small case. The back panel is busy, with no fewer than 16 3.5mm CVs and Gates, plus sockets for MIDI In, Out and Thru. There are also two quarter-inch jack sockets that provide audio In and Out for the Retro-Synth (Prologue Plus only). The fairly basic controls (a simple numeric keypad) are situated on the top panel, but as neither Prologue is rackmountable, there are no access problems. Also on the top panel is the decidedly retro LED display, and a schematic of the Retro-Synth menus. The unit is controlled using the keypad, four keys of which emulate cursor keys, while the LEDs display the parameter names and values. This arrangement is far from ideal, but cost-effective. The cursors take you through five

master menus (four on the basic Prologue, which lacks the menu controlling the Retro-Synth) and these govern every aspect of the unit's operation.

The Prologue Plus has four MIDI-to-CV processors, each of which can handle four notes simultaneously. The first menu, General Control, allows the following to be assigned to each processor: a MIDI channel, one of five keying modes, LFO, clock and portamento rates, four MIDI controllers, and pitch-bend amount. The processors can be treated individually, or stacked to give 8-note and 16-note polyphony (although you'll need a second Prologue Plus if you want to play 16 notes simultaneously).

The Gate Output Table allows any of 11 Gate-type signals, derived from each of the four processors, to be assigned to any of the eight output Gate sockets. Similarly, 24 continuous-voltage signals can be assigned from any of the processors to any of the eight CV outputs. The pitch CVs can adopt the linear Hertz/Volt standard, as sometimes used by Korg and Yamaha, or the logarithmic Volt/Octave standard, favoured by Moog, ARP, Sequential, and Roland, and each may be scaled or offset as required.

In use, the flexibility offered by eight pairs of CVs and Gates is staggering. The gates offer just two states, 0V and 5V, but each of the eight CV outputs is a source of continuous voltage, and the range of mapping options means that each of these can carry a pitch CV, or any one of hundreds of controller CVs. This means that in addition to driving up to eight monosynths with basic pitch and gate information, you can play a synth such as an Oberheim 4-voice or 8-voice with 4-note polyphony *and* four continuous controllers (such as filter, amplitude, PWM, and so on). You can also use spare CVs to add vibrato, tremolo, filter LFOs, or other modulators to patchable synths. Indeed, just two CVs will free up Oscillator 3 on your Minimoog, and three will turn an ARP2600 with a monophonic 3604 keyboard into one with a duophonic 3620 with an LFO.

If there is a problem (and there always seems to be), it's that the Prologue Plus's trigger and gate pulses are only five volts high. While five volts will drive most analogue synths, there are some insensitive beasts that require more. I had no problems during the review period, but be warned — it's a good idea to check before you hand over cash. Of course, you *can* route a Gate to a CV output set up to offer a higher voltage — but you then lose that CV for other duties. Why is life never simple?

MIDI FACILITIES

The Prologue Plus features a simple MIDI analyser that displays the last six bytes received, but its channel filter and re-channeliser is far more interesting. This allows you to select a single MIDI channel, and filter the other 15 from any data stream

FLOAT LIKE A GNAT, SYNC LIKE A WASP: THE WASP BUZZ OPTION

Some pre-MIDI synthesizers refuse to talk to conventional CVs and Gates. Examples of these include Roland's Jupiter 8 and Juno 60, and the EDP Gnat and Wasp. The Prologue is unable to talk to the Rolands, but it will control the EDPs — albeit to the limited extent that these instruments understand external controllers. The 7-pin DIN socket for the optional Wasp Buzz Interface is on the side of the Prologue Plus. Whilst there are situations where the side-mounting may cause problems, the back panel is already full, so I suppose this was a necessity.

Operation couldn't be simpler. The output derived from Register 1 of Processor 1 is always available at the Wasp Buzz output, so you just plug a suitable cable between the Prologue and the EDP synth. At the same time, you can direct the note information used to drive the Wasp/Gnat to a conventional CV and Gate, 'stacking' the EDP with a conventional synth for some really fat, or layered, sounds.

presented to the MIDI In; the information on the one you've selected can then be re-transmitted on any desired channel. The Prologue Plus is, therefore, a solution to the permanent Omni On and/or 'MIDI Channel 1 only' problem of early MIDI synths, such as the Roland JX3P and Prophet 600. Anatek offered a MIDI Filter, but it had no power supply, and had to be re-configured every time you turned your synths on.

THE RETRO-SYNTH

The basic idea behind units like the Retro-Synth is simple; they imbue the signal produced by a relatively sterile source (such as an FM synthesizer) with some of the qualities and warmth of a good analogue synthesizer, by passing the sound through an analogue filter with envelopes that can be triggered and dynamically controlled using CVs or MIDI data. The result is equivalent to having a single Moog- or ARP-style resonant filter within your digital synthesizer. Dedicated filter banks from Analogue Systems and Peavey accomplish some of this, as do a number of analogue synths with audio inputs, but probably the best example is the Prologue Plus's Retro-Synth.

The Retro-Synth comprises a multi-mode resonant 24dB/octave analogue filter and two envelopes, but no oscillators, which means it is slightly misnamed — lacking any sound generating circuits of its own, it can't really be described as a synth [*Design Labs' David Croft has explained that the name refers to the unit's rightful position behind a synth, hence Retro-Synth, which some may feel is taking poetic licence too far — Ed*]. The dedicated ADSRs (one for the VCA, and the other for the VCF) may be triggered over MIDI, but, unlike most monosynths, the VCF, VCA, and envelopes are also sensitive to velocity and aftertouch.

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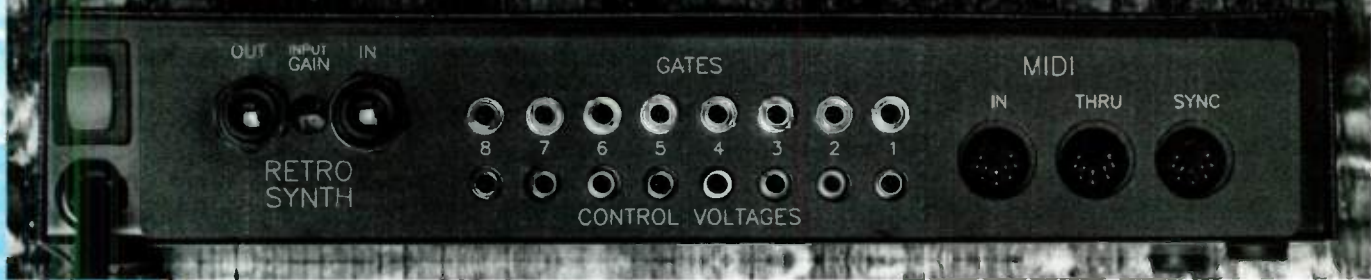
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DESIGN LABS PROLOGUE PLUS



THE COMPETITION

The obvious alternative to the Prologue is the 1U rackmounting Pro 4 from Kenton Electronics (£446.50 inc VAT, reviewed in September 1994's SOS). This offers significantly better construction, more positive knobs and buttons, and replaces the cheap LED screen with a more legible 20 x 2 character LCD. It also features eight configuration memories, and SysEx, both of which the Prologue lacks. On the other hand, the Prologue has Hertz/Volt capabilities as standard (the Kenton requires an extra plug-in board). This facility is vital for most Korg, and some Yamaha, monosynths. The Prologue also features CV tuning in software, which is preferable to messing around with mini-screwdrivers. On the other other hand, the

Pro 4 has a DCB interface for Roland's Jupiter 8 and Juno 60 synthesizers, nine waveforms for each of its four independent LFOs, and software-selectable 15V triggers. On the other hand... Oh sod it! Here are Gordon's five laws:

1. If you're strapped for cash, buy the Prologue.
2. If you've got a Jupiter 8 or Juno 60, buy the Kenton Pro 4.
3. If you need eight CVs simultaneously, buy the Prologue.
4. If you want better construction and a faster, more intuitive user-interface, buy the Pro 4.
5. If Retro-Synth turns you on, buy the Prologue Plus.

► Using the Retro-Synth couldn't be more intuitive. The Prologue Plus's fifth master menu selects five sub-menus that replace the knobs and switches of a true '70s instrument. Menu 1 and 4 are the VCF and VCA envelopes, Menu 2 adjusts the filter's initial frequency, resonance, ADSR amount, and keyboard tracking, Menu 5 controls the VCA level, velocity, and aftertouch responses, and Menu 3 gives access to the filter mode selector, and the filter's velocity and aftertouch responses. Hold on a sec... filter modes? There are 14 of these, offering low-pass, hi-pass, notch- and band-pass filters, each offering a range of Q-factors and roll-offs (see the 'Filter Modes' box for a full run down). Some include equalisation, some do not. All are fully resonant.

So how does it sound? To find out, simply

RETRO-SYNTH FILTER MODES

The Prologue Plus filter is a CEM (Curtis Electronic Music) 3372 filter chip, similar to that used in the SCI Prophet polysynths. Each of the modes has its own character and sonic identity, and the approximate descriptions below (which are derived from the Prologue Plus manual) describe the essential character of each.

- BP1 Band-pass filter 1. A wide range of frequencies is passed.
- BP2 Band-pass filter 2. A medium range of frequencies is passed.
- BP3 Band-pass filter 3. A narrow range of frequencies is passed.
- HP1+L A 12dB/octave hi-pass filter with a low-frequency EQ boost.
- HP2+L A 18dB/octave hi-pass filter with a low-frequency EQ boost.
- HP3+L A 24dB/octave hi-pass filter with a low-frequency EQ boost.
- LP1 A 12dB/octave low-pass filter with no EQ applied.
- LP2 A 24dB/octave low-pass filter with no EQ applied.
- LP1-L A 12dB/octave low-pass filter with a low-frequency roll-off.
- LP2-L A 24dB/octave low-pass filter with a low-frequency roll-off.
- LP1+L A 12dB/octave low-pass filter with a low-frequency EQ boost.
- LP2+L A 24dB/octave low-pass filter with a low-frequency EQ boost.
- NOTCH1-LP A medium range of frequencies is rejected. There is a low-frequency roll-off.
- NOTCH2-LP A narrow range of frequencies is rejected. There is a low-frequency roll-off.

connect the Audio Out from your sound source to the Retro-Synth In, the MIDI Out to MIDI In, set the parameters (as you would on a JX10P, for example), and play. The Retro-Synth envelopes are triggered each time a Note On is received, and all the velocity and aftertouch information is interpreted and directed to the appropriate parameters. The result is similar, but superior, to that obtained when you play other polyphonic, but single-filter, synths, such as the Polymoog, ARP Quadra, and Korg Poly800 — *it's magic*. Taking one of the most soulless synths in existence (an Akai AX80), I created resonant voices, and punchy lead and bass patches. OK, so the warmth of a Minimoog or Pro One eluded me, but the Akai's DCOs are just about Fourth Division in the waveform department. Nevertheless, the flexibility of the envelopes (10mS to 10S), and the almost ridiculous range of resonant filter effects, will keep even the most demanding knob-twiddler happy for a long, long time.

CONCLUSION

At just under £300, the basic Prologue demands attention, with its 16 assignable CVs and Gates, its MIDI filter and re-channeliser, and its 24ppqn DIN Sync (which shares the MIDI Out, and drives fashionable items such as the TR808 and TR909). Let's face it, it's excellent value for money. Another £120 also buys the Prologue Plus with its Retro-Synth, which is (in this analogue enthusiast's opinion) a 'must-have'. There are, of course, compromises, and the Prologue's low costs are clearly reflected in Design Laboratories' choice of hardware. The software also shows a number of short-cuts, though deficiencies, such as the lack of configuration memories, and SysEx, could be rectified in a software update. Provided that Design Laboratories achieve the right compromise between low cost, build quality, and reliability, the features of the Prologue and Prologue Plus make them winners. SOS

FURTHER INFORMATION

£ Prologue £293.75; Prologue Plus £411.25; Wasp Buzz Interface option £17.04. Prices include VAT.

A The Design Laboratories, 6 Erskine Road, Primrose Hill, London, NW3 3AJ.

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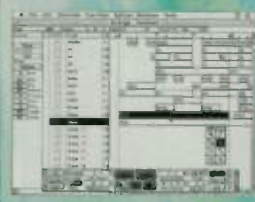
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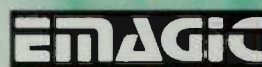
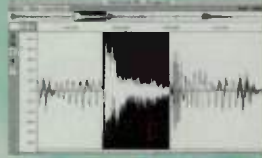
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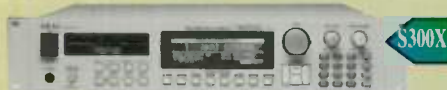


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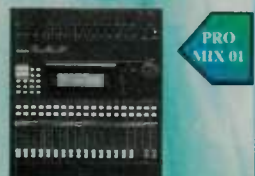
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Oddly enough, when the Sabres Of Paradise are mentioned in the music press, it's nearly always Andrew Weatherall's name that comes up, as though the other two founder members, Jagz Kooner and Gary Burns, were unimportant sidekicks. However, a closer look reveals that Kooner and Burns have been responsible not only for much of the sound associated with the Sabres

'93]. After that, we decided to form a band, and so the Sabres Of Paradise were born."

Neither of the two has any engineer or studio training, just self-taught knowledge and reluctance to follow the rules.

Kooner: "Engineers I've spoken to are taught how to do things in a certain way, which to me is hypocritical — the thing is to do it how you feel it sounds best."

THE SABRESONIC STUDIO

As a result of the ever-increasing number of requests for remixes and their addiction to recording studios, Kooner and Burns, together with Weatherall, decided to set up their own recording facility which could cater for both their technical needs and work methods. The Hounslow-based studio had previously been a first floor demonstration suite for a local music shop when the opportunity arose for them to take it over.

Sword Dancers

The Sabres Of Paradise are familiar to many as the experimental dance project headed by renowned DJ/Producer Andy Weatherall. However, the two other members of the Sabres also have an extensive list of production and remix credits to their credit.
NIGEL HUMBERSTONE
talked to them at the Sabresonic Studio about their recent work.

JAGZ KOONER/GARY BURNS

- SABRESONIC STUDIO
- DAVID HOLMES

and their critically acclaimed albums *Sabresonic* and *Haunted Dancehall*, but also for distinctive production and songwriting for others, including techno DJ David Holmes. Add to this the fact that Jagz and Gary are in constant demand for remix work, and it should come as no surprise that the duo have set up their own separate publishing deals with Island Music and are apparently preparing to retire the Sabres Of Paradise permanently to concentrate on their own work.

Nevertheless, it was undeniably their work with the Sabres that gave Kooner and Burns their first success. Kooner, like many, started off fiddling around with bits of equipment in his bedroom, while Burns, a trained keyboardist, was making a living from session work. They met up with Andy Weatherall thanks to frequent visits to the Flying Club in London (where Andy was DJing) at the time of acid house.

Kooner: "The first thing we did with Andy was in 1992, the 'Visions Of You' remix for Jah Wobble. That went well, so then he called us in to do the One Dove album [*Morning Dove White*, eventually released in 1993 — see *SOS* December

Burns: "We had been using this studio occasionally — for instance to do the One Dove album — so one day we said to the owner 'what about selling us the studio?' and that was it."

Kooner: "It was down to the time we were spending at other studios in London. During one year at Orinoco Studios, we clocked up eight months' studio time. Also, we had to drive there and back — we were losing three hours a day."

The Sabresonic studio is now an essential workplace for all projects, and is still owned by Burns, Kooner and Weatherall, who run it as a business with a daily charge implemented regardless of who is using it. Having their own studio makes it easier for accepting and scheduling remix work, but it also allows Kooner and Burns to pursue various other ventures and side-projects like the last Sabres Of Paradise album *Haunted Dancehall*, the recent bizarrely-titled David Holmes album, *This Film's Crap Let's Slash The Seats*, and the *Cover The Crime* album by The Aloof, a band that includes both Kooner and Burns in its line-up. Already, the Sabresonic studio is looking busy for the rest of the year, with bookings



The Aloof; Kooner and Burns are members (2nd left and far right respectively).



for a new Aloof album, tracks with Denise Johnson (ex-Primal Scream) and the duo's as-yet-unnamed new band to follow on from the Sabres Of Paradise — and then, of course, there are the inevitable remixes...

Kooner: "We're in here all the time. If we're not working on a track, we'll be doing a bit of maintenance or setting up a new piece of kit."

However, asked whether there are any particular pieces of equipment they wouldn't be without, the men from Sabresonic are temporarily nonplussed.

Kooner: "It's really hard to say, because every bit of gear in here we really do use. The reason we got this studio together was so that everything we had used before in other studios would be here in one place."

SABRE GEAR

In fact, the Sabresonic workhorses are the four Akai samplers: an S1000, S1100, S1100EX and S3000i. Data storage is handled by a 44Mb removable DAC drive, recently augmented by a larger 230Mb optical.

Kooner: "We're going to be upgrading the memory of the Akai samplers soon, because they're the basis on which we build everything."

"A lot of purchases have been based on our work in other studios. When we moved into the studio we knew we wanted Oberheim Matrix 1000s — we've now got two. The whole Emu Proteus range was also something we knew we wanted. We've actually gone more for sound modules than effects, whereas many studios go the other way round."

"You can't edit the Matrix 1000s — but there's a thousand sounds in there, so if you can't find something, you'd better start again. The Matrix

has been a major league player in the Sabres sound — I think virtually every track that we've done has got a Matrix 1000 sound in it."

"The Ensoniq DP4 is also pretty essential. We've got two — they're outrageous. They each have four separate effects that you can link and configure in different ways. On the Sabres track 'Return Of Carter' we've got this mad stereo panning, almost tremolo reverb; most of our mad effects are created on the DP4. You can also put a gate on each channel to stop any noise creeping through. It is the one thing that will get used on every session."

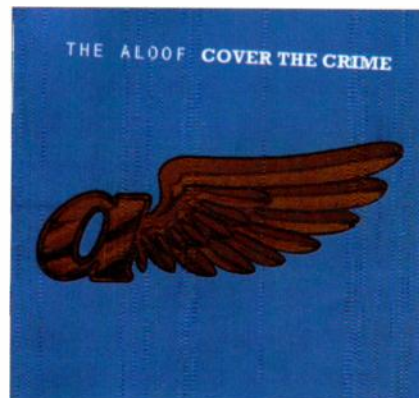
A Peavey 2400 series desk came as part of the deal when the duo bought the studio. I wondered how they found working with it.

Kooner: "It's not got any MIDI muting, but it is good to work with. It's got four effects sends and four auxiliary sends, and the EQ's really good."

Burns: "It's useful having a split console, because we can bring up all the effects returns on faders, and then re-route them to other effects. A lot of the effects we'll control 'hands on' in the 'old school' way, just firing them off now and then."

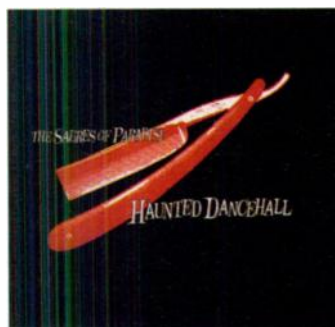
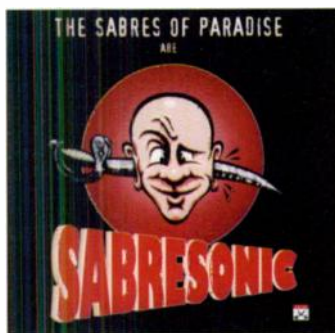
Although Kooner and Burns possess an Akai ADAM digital recording system, they hardly ever use it, except for recording the odd vocal. On the other hand, their Falcon computer is the nerve centre of their operations and is constantly in use. However, it arouses strong feelings in them akin to those expressed in *SOS*'s 'Sounding Off' page.

Kooner: "Everything we do is from the arrangement page in *Cubase* running on the Falcon — and our version hasn't worked properly since





A crop of vintage gear, including a Roland TB303, MC202, TR808, TR909 and Roland RE301 Chorus Echo. The other Akai sampler is also pictured.



► the day we got it. If you go into Key Edit and alter anything, it crashes! It keeps giving us grief; we invested a lot of money in it and expected a top-flight system, which it would be if it worked properly. One inherent problem is that when we've got *Cubase* booted up, we can't format a blank disk. A basic requirement of a computer system is media storage, so if we can't even save our information to a new disk, there's not much hope, is there?"

THE WORKAHOLICS OF PARADISE?

Like most dual partnerships, Kooner and Burns interact but have developed particular defined roles within their working relationship. Kooner: "I can't play any instrument at all — or maybe just a little bit to get by — and I'm tone deaf. So I'm more into the programming, while Gary basically plays everything.

"But it's good the way we work, because we swap roles — Gaz might be over one side of the room by the desk and wiring things up in the patchbay, whilst I'm over the other side getting sounds together. Then maybe I'll go over and start tweaking bits on the desk, and Gary will work on the arrangement. That way, we don't tread on each other's toes."

Evidently, however, the partnership works: Kooner and Burns are highly prolific, at their most productive turning out three tracks a week. Their work method is to write, record and mix a track in one go, with little room for any back-tracking.

Kooner: "I find that if we've got everything set up on the desk and then you need to come back to that same configuration later on, you'll spend half a day patching everything up, because we work with specific effects settings that are tricky to recreate. I also feel that if you get a track up and running and you don't finish it, then you almost lose the vibe on it — or at least it changes."

One characteristic of the Sabres sound is that instruments are often considerably treated and

303 OVERLOAD: THE SABRES ON REMIXING

Despite having remixed countless major artists including the Future Sound Of London, Jah Wobble, the Stereo MC's, Björk, and the Utah Saints, the Sabres team are pretty scathing of the majority of current remix styles.

Kooner: "You know what's going to happen all the time — there's a frantic 303 going mad, building things up and then the snare roll comes in... You know the formula, and it's just getting so tedious now. It's music that doesn't involve a lot of thought, which is cool sometimes, but some people are stretching it a bit too far. And I didn't mention any names!"

effected. Kooner: "As far as effects are concerned, we never stick to a preset — we've always got to alter it in a drastic fashion. When we timestretch a sample, we'll stretch it by 100 percent, then 400 percent, then shrink it by 25 percent, take it up again by 150 percent, and so on, so that the original sample is unrecognisable. Our two Yamaha SPX900's play a major part, with short delays and really high regeneration times to get a mad metallic effect."

Even with basslines, an unorthodox approach is adopted. Burns: "A lot of the time, I'll play along



Kooner & Burns' troubled Atari Falcon, Technics turntable, S3000i, S1100 and S1100EX Akai samplers and synth and drum module rack, including the two Oberheim Matrix 1000s.

with the track, straight into the sampler. We do little tweaks on the sampler so that sometimes the signal distorts as it goes in, and you get a mad overloaded bass sound with digital distortion."

Kooner: "We don't use compression at all. The bass has really got to be 'old school' — straight out of the bass and into the sampler. I think that's part of our whole vibe; we don't do anything that's over-produced, we like to keep it at the low end, dirty level. Like with hip-hop — it's just one loop, no EQ, with a TR808 filling out the bottom end on the first beat of each bar — and people just knock the stuff out. And house music — most of the original good stuff is done in basic 4-track studios, or if not, done live on a 16-track desk. You could spend ages in a studio cleaning everything up, but then I think you

THE SABRE MASTERS

Kooner: "Mastering is not our problem really — if it sounds good in here then it's down to the cutting engineer. We're always present when we cut our own stuff, and having worked with various cutting engineers we know what to bear in mind when mixing a track. But having said that, if we like the way something sounds in the studio, then it's going to stay like that whether they like it or not. Some cutting engineers have had kittens over our stuff, saying there's too much bass or a big

hole in the sound — in which case we just get another engineer to do it. Some cutting engineers can't get their heads around heavy phasers, because it actually creates separations in the grooves of vinyl and really low bass tones that require a deeper groove, so if you've got a low bass which is being phased they all start sweating and throwing their arms in the air [isn't that what people are supposed to be doing on the dance floor? — Ed]."

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▶ lose a lot of the dynamics — nothing jumps out at you, it all sits in there nicely. With us, it's got to be dirty, grungy and gritty."

"Even listening back to old jazz records, all the good stuff is where you can hear them breathing and tapping their feet" concludes Burns.

RULES? NAH!

The studio has a small recording room, which despite having barely enough space for a drum kit, is used to great effect. Burns: "A lot of the time Richard Thair (drummer and percussionist with The Aloof) will come in with his full kit and set it up a bit at a time. We'll get him to just play his bass drum, record that and play it back to him after looping it up, so that he can play hi-hat and snare over the top. Then we'll add things like timbales and cymbals.

"A lot of the time we'll just get loops, stick 'em on DAT and sample them off later. We don't actually use multitrack tape that much."

Kooner: "There really are no rules. A lot of people still won't accept that the One Dove album was done by the same lot that have done the Sabres albums. Nothing ever comes out sounding the same." I asked if this was because the pair were reluctant to re-use tried and tested sounds and methods, but this met with a grin. "No, it's usually because we can't remember how we've done things the time before!" jokes Kooner, but with a hint of honesty.

Burns: "Usually, it's because of the different vibe from



The Roland JX8P, PG800 programmer, Novation BassStation, and Korg O1/WFD.

working with different people. With the Sabres, I wouldn't play a nice-sounding riff — we'd always go for something with a minor key or moody feel. It's almost as though you get into a certain frame of mind when different people come in."

Kooner: "Sometimes you have to restrict yourself, because the way that The Aloof approach their work and the way Andy Weatherall approaches his are totally different, and it's different again with David Holmes."

THE DAVID HOLMES EXPERIENCE

Renowned techno DJ David Holmes opens my interview with words guaranteed to freeze any *SOS* feature writer's blood: "You're not going to ask me



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SABRESONIC: SELECTED STUDIO EQUIPMENT

KEYBOARDS

- Ensoniq EPS16
- Korg O1/WFD
- Novation BassStation
- Roland Jupiter 6/Juno 106/D50/JV80/JX8P (with PG800 programmer)
- Yamaha DX11

MODULES & DRUM MACHINES

- Alesis SR16
- Emu ProCussion
- Emu Proteus 2
- Emu Proteus 3 World
- Korg M3R (+RE1 editor)
- Oberheim Matrix 1000 (x2)
- Roland TB303, MC202, TR808, SH09 & TR727
- Yamaha RX21
- Yamaha TG77

COMPUTER

- Atari Falcon running *Cubase*, with SMP11 MIDI/SMPTE interface

SAMPLERS

- Akai S1000 (8Mb)

- Akai S1100 (8Mb) and S1100EX (4Mb)
- Akai S3000i (16Mb)

EFFECTS

- Alesis 3630 compressor (x2)
- BBE Sonic Maximiser
- Boss SE70
- Drawmer DS201 noise gate (x2)
- Ensoniq DP4 multi-effects (x2)
- Guyatone VT2 vintage tremolo
- Korg Toneworks effects foot pedal
- Roland SDE330 digital delay
- Roland SRV330 digital reverb
- Roland Space Echo
- Vox wah-wah pedal
- Yamaha SPX900 (x2)
- Zoom 9050

RECORDING

- Akai ADAM (24-tracks) with DM1200 meter units
- Alesis ADAT
- Calrec Equitec microphone
- JBL 4425 main monitors

- Peavey 2400 series 36/24 console
- Sony 60ES DAT
- Sony 1000ES DAT
- Yamaha NS10M monitors

MISCELLANEOUS

- 230Mb removable optical hard drive
- DAC 44mb removable hard drive
- Kenton Pro 2 MIDI/CV converter
- Technics SL1200 turntable



The Peavey 2400 desk, with JBL 4425 and Yamaha NS10 Monitors.

about machines are you? I don't play any of the instruments, and to tell you the truth I know absolutely sod all about equipment," he announces. But Holmes' natural forte is knowing what music works in a club environment, a skill which has established his reputation as a leading techno DJ. Nevertheless, I wondered how he went about translating his ideas into the finished music on his debut album *This Film's Crap Let's Slash The Seats*. Holmes: "I just have an engineer and a programmer. I should be learning everything

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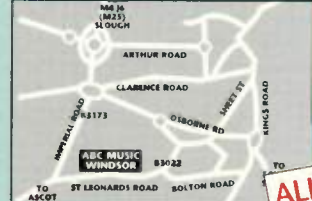
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JAGZ KOONER/GARY BURNS

It was a good album to do — everyone expected it to be full-on banging techno because it was David Holmes, but it shocked a lot of people.”

I asked David how the album idea had come about, and why he'd decided to confound everyone's expectations. "I'd said to my mates that I'd love to make an album, because I was getting bogged down with remixes and wasn't getting enough of my own material out there. Plus I was getting a 'tag' as a heavy techno DJ, which isn't the case. I *wanted* to incorporate lots of different genres of music, and it was good when the album came out and people found it wasn't what they had expected. A lot of reviewers have picked up on the filmic content, but that wasn't really intended — it's just that sometimes I do a lot of tracks from experiences. 'No Man's Land' on the album is based on the film *In The Name Of The Father*, and the soundtrack to that was so great that you get an instant vibe. It was a piece of piss, really, because I come from Belfast, so it was totally from the heart.

"I went to see the film four times, and sat there with a little Dictaphone recording to get different vibes, like the prison doors closing, a church bell, military drums and Irish percussion. The church bell was just an idea jotted down on paper and, in the end, sourced from a CD, like the footsteps and door slamming."

The main melody motif on 'No Man's Land' is particularly emotive. Burns elaborates on how the Celtic feel was achieved: "That track was done over a year ago. It's actually off the Emu Proteus 3; the 'Penny Whistle' preset, but with a short 100ms delay which sounds more like a reverb. I like doing stuff like that, with a soundtracky vibe."

Holmes: "It was perfect because it blended in with the whole electronic aspect. It's hard to do an Irish thing without it sounding like a cheesy jig".

Further inspiration and influences came from many different sources, including other soundtrack works, as Holmes explained: "I was at Sabresonic working on 'Slash The Seats'. We'd got the acid line down and the beats, and one morning, while I was waiting for Jagz and Gary, I played this John Carpenter soundtrack that I'd bought that weekend. They came in and thought it was perfect for the track, so we adapted it and put in all the sci-fi sounds from the Juno. It worked! 'Gone' with Sarah Cracknell [better known as the singer from St Etienne] was a track that I'd already done called 'Hawaiian Death Dub' on my own label. My press agent got this idea to put something like the Shangri-Las over the top, and I'm a big fan because I've come through all the rhythm 'n' soul, Latin American thing — I was a mod. So, we got Sarah in, remixed the track, and now it doesn't sound anything like the original. 'The Atom And You' has this old Super 8 projection we used to have at college. It's this mad professor talking about the atom bomb, and I transferred it onto DAT and took snippets of it.

"The track 'Inspired By Leyburn' was just that. Glenn Leyburn is my artwork designer, a really



David Holmes.

► myself, but I'm more interested in getting a vibe going. You know, I just understand how to programme music and make it work. People have said that it's better for me to have a back seat in it, because when you're actually involved in making it all yourself, you can get too caught up in the production and lose the edge."

Kooner and Burns had previously worked alongside David Holmes when remixing the Sabres Of Paradise's single 'Smokebelch'. Was he really just taking a back seat?

Burns: "Basically, yeah. Oh, no — he cracked some horrendously bad jokes as well. Seriously, though, David came in with loads of different CDs and said 'I really like *this* kind of vibe and *this* little sequence going on in the background.' We'd normally come up with some other ideas, and he'd pick ones he liked."

Kooner: "It's generally the way we work with most people; we feed off each other. David will literally turn up with a bus-load of CDs and records. When he comes into the studio, he's got an A4 pad which is full of ideas for each track, with notes and references.



LIVE SWORDPLAY

Despite being self-confessed studioheads, Kooner and Burns are nevertheless enthusiastic when it comes to live work. As the Sabres Of Paradise, they have put together numerous live shows, including a support tour with Primal Scream and culminating in a short tour of Japan earlier this year. Upon their return, they went straight out on the road with The Aloof, on a full live presentation taking in the UK (including Glastonbury) and Europe.

Kooner's live instrument is a Studiomaster 24/2 desk into which are fed the samplers, Burns' keyboards, bass, guitars, and percussion.

Throughout the set, Kooner controls the output levels and mix. "I control the samplers and drum machines with an Alesis MMT8 sequencer. The advantage is that we can extend each track as much as we like.

"All the 24 inputs go direct (post fader) to the front-of-house desk. Everything from the stage comes into my desk; it works really well that way, and everyone on stage gets a L&R mix. I have two monitors behind me so that I can check the left and right. I have total control; if someone's pissed me off that day, they get muted".

• SABRESONIC STUDIO • DAVID HOLMES

good friend. He brought me back this tape from New York where there's one break that's just perfect. It was two days before I was going to do the track, I heard it and just went 'yes please'."

Kooner recalls working on this track, as well as the story of the breakbeat. "That was the track with Steve Hillage playing guitar, but the actual breakbeat was off a bootleg cassette and was very dull. So we bought it in on one channel and made it clean by getting rid of the top-end hiss, then patched it into the next channel, cranked up the bass and took all the top end out of it. Then, on a third channel, I got the actual loop from the first channel, and put a rumble filter on it that knocked out everything below 1kHz and everything above 4kHz, to give you the harshness of it. Then I just levelled the three tracks together. It's a method that we've used before on a Sabres track."

Some inspiration was even more accidental, as David recalls: "A lot of the album was just a fluke. 'Got Fucked Up Along The Way', was in fact a Jah Wobble remix that was rejected because the record company thought it was too experimental — so I bought it back off them. The bassline is Wobble's played backwards. It's my favourite track on the album, I love it because it's so different — you can't pigeon-hole it.

"Another track, 'Minus 61 In Detroit' I recorded

DAVID HOLMES/STUDIO EQUIPMENT

KEYBOARDS/MODULES <ul style="list-style-type: none"> • EDP Wasp Deluxe • Emu UltraProteus (soon to be purchased) • Novation Bass Station • Roland JD800 • Roland SH09 • Roland SH101 • Roland TB303 • Roland TR909 	EFFECTS <ul style="list-style-type: none"> • Ensoniq DP4 (soon to be purchased) • Sony HRP7
DRUM MACHINE <ul style="list-style-type: none"> • Roland R8 (soon to be purchased) 	COMPUTER <ul style="list-style-type: none"> • Atari 1040ST (running Cubase)
SAMPLER <ul style="list-style-type: none"> • Akai S3000 	RECORDING <ul style="list-style-type: none"> • Mackie 1604 mixer • Sony DTC690 DAT recorder • Tannoy speakers (soon to be purchased)
	MISCELLANEOUS <ul style="list-style-type: none"> • Kenton Pro 4 MIDI-CV converter • Technics SL1200 decks (x2)

mainly at my own Exploding Plastic Inevitable studio in Belfast. The set up is fairly 'acid house'." [See separate box above].

It is at this studio that Holmes works with engineer and programmer Gary Irwin, a like-minded soul: "I pay him good money to come in and work with me. Every time I buy a new toy it's like Christmas morning for him. I was making money from remixes, so I put the money back into equipment because I want to be making music for the rest of my life".

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Every once in a while, a piece of gear comes along that attracts a huge amount of interest, not because it offers anything really new in the way of facilities, but because it enables a lot of people to buy something that they couldn't previously afford. The S2000 falls squarely into the 'more for less' category — for under £1000, it offers a huge amount of sampling power and, equally importantly, upgradability.

FIRST IMPRESSIONS

Technically, the S2000 is closely related to the S3000; it's a 16-bit sampler, mono or stereo, and comes with 2Mb of memory upgradable to a maximum of 32Mb using standard computer SIMM chips. Resonant low-pass filters give the instrument synth-like capabilities, and in acknowledgement of the importance of CD-ROM sample libraries, a SCSI interface comes as standard. What's more, sample

CD-ROMs intended for other machines can be loaded in, though there may still be a little tweaking required in some cases.

As you might expect from a modern sampler, the S2000 features full 32-voice polyphony, up to 16-part multitimbral operation, and a choice of 44.1kHz or 22.05kHz sampling rates. All the usual sample editing features are implemented, including crossfade looping, assisted looping via the Find function, reverse and timestretch (see the 'And... *Stretch*' box elsewhere in this article). For Mac users, there's the bundled *MESA* sample editing software (of which more later), and for those not yet working with hard drives, the internal floppy disk drive accepts both standard DD and HD disks. It all sounds too good to be true, so what's the catch?

Firstly, some of the facilities found as standard in top-end samplers come as options in the case of the S2000. For example, the audio outputs are stereo only, and if you need assignable outputs, you have to buy a plug-in card option which has eight outputs plus digital I/O. Similarly, the basic

AKAI S2000 DIGITAL SAMPLER

THE PRICE IS RIGHT!

AKAI S2000 £999

PROS

- Great features for the price, including SCSI as standard.
- Reads all Akai S-series CD-ROMs, as well as CD-ROMs designed for Emu and Roland samplers.
- Expandable (see box).
- Bundled Mac *MESA* editing software.

CONS

- Data wheel not entirely satisfactory, especially when accessing CD-ROM programs.
- *MESA* software too complicated and insufficiently powerful in the area of sample editing.
- Unnecessarily deep box makes rackmounting awkward.

SUMMARY

For less than £1000, this represents a very powerful basic sampler that can be expanded to a fully professional spec by means of plug-in options.



memory provision of 2Mb will only give you around 12 seconds of stereo (or 24 seconds of mono) sampling, and as most CD-ROM material requires more memory than this, buying more memory SIMMs is almost mandatory. In addition, there are two internal slots to take Flash RAM cards which retain their data when the power is switched off. At the moment, 8Mb cards are available at around £500 each, but it's rumoured that 16Mb cards will soon be on the market. The obvious benefit of using Flash RAM is that you can keep your favourite samples in the machine, so you can simply switch on and play. Finally, you can also buy a powerful on-board effects processor card. For more details on the options, see the box later on in this article.

Some of you might consider the optional extras a bit of a con to make the price look artificially low, but I actually think expandability is the right way to go, and the only thing the S3000 really has over the S2000 is the separate outputs as standard. There's very little that this sampler can't handle when compared with its more costly cousins, and unlike my old S950, the operating software comes on disk, so that when upgrades do come along, you simply get a new boot disk.

USER INTERFACE

A degree of compromise is evident when you check out the user interface; the most obvious economy is the two-line, 16-character LCD display — but in practice, I didn't find this too much of a problem.

Come on down, Akai's new low-cost sampler! Astonishing value for money at a mere £999, the basic S2000 is expandable to a top-of-the-range spec by means of add-on cards. PAUL WHITE spins the (data) wheel of fortune to see whether Akai have played their cards right this time...

Physically, the S2000 is distinctively Akai, though its slim 2U front panel belies the huge depth of the machine, which measures over 16 inches front to back. The front panel is extremely simple — there are individual buttons to provide access to the key areas of the machine, and a familiar Play button for playing back samples while editing if you don't happen to have a keyboard connected.

A dual-concentric Data/Select wheel takes the place of up/down buttons in certain situations; the inner part of the wheel is used to increase or decrease values, while the outer ring is used to select items for adjustment. In some instances, this makes getting around the S2000 easier, but the system is marred slightly by the fact that the inner wheel has a poor tactile response. This is one rare case where I'd have preferred the old up/down buttons — and I never thought I'd say that!

Because the user interface has been streamlined, the inevitable menus are quite long, but to make moving from one section to the next more intuitive, ►



AKAI S2000 DIGITAL SAMPLER

- ▶ the control panel includes both Page and Group buttons. The Group button is used to skip from one logical set of related pages to the next without having to scroll through the whole list. Two 'soft' buttons beneath the display double as both cursor buttons and 'enter' type buttons, their function being evident from the screen display.

One nice touch for those seeking instant gratification is the inclusion of envelope templates covering piano, string, brass, percussion and

As with my old S950, the loop start point and loop length are specified in samples rather than in seconds and milliseconds even though the latter, to me, would have been infinitely more sensible. If I can work out the times on a calculator, I'm pretty sure a box full of DSPs and processors could do it for me... Despite this minor quibble, looping sounds that have a reasonably even sustain is quite easy, and once you've set up nominal loop start and length values, you can get the S2000 to



similar sound types, but you can ignore these by moving onto the next page down, where the rate and level parameters may be edited conventionally. These same templates are available for both the level and filter envelopes.

RECORDING AND EDITING

Sampling may be carried out in mono or stereo via the line inputs, and these will also take a mic if you don't expect to need vast amounts of gain. You have a choice of just two sampling bandwidths — 10kHz or 20kHz. Sampling may be initiated manually, via MIDI or automatically using the user-adjustable trigger threshold, and the sampling time can be set to any value up to the maximum available memory. A front panel knob sets the record level, and a second control sets the level of the stereo outputs, though it has no effect on the separate assignable outputs if these are fitted.

Once a sample has been recorded, it can be 'topped and tailed' then looped or reversed if necessary. Samples may also be normalised to bring their peak level up to maximum, and it's possible to resample sounds at a lower bandwidth to conserve memory. All this will be familiar territory to existing Akai users, and indeed, as an S950 user, I managed to find my way around the S2000's menus with very little help from the impressively thick and clearly written manual.

In common with Akai's other lower cost samplers, the S2000 supports only a single loop, and this may either be set to continue looping during the sustain portion of a sound, or set to revert to the original sustain part of the sample once the key is released. It's also possible to set a maximum looping time of up to 10 seconds if you wish, after which the sound automatically enters its release phase. It could be useful for emulating the maximum note length of a Mellotron tape, I suppose...

help you find the nearest points of equal amplitude, so that any level changes at the loop point are minimised. However, sounds that are heavily modulated or have a constantly decaying level are very difficult to loop convincingly whatever method you use — something that's true regardless of which sampler you use.

Once your samples have been recorded and tweaked, they are placed into Programs, which can comprise up to 99 keygroups with four zones per keygroup to accommodate layering, velocity cross-switching or crossfading. It pays to appreciate that layering or crossfading samples uses up two voices, whereas simple velocity cross-switching uses only one voice a time. There are various trigger modes to allow the one-shot triggering of samples, *mono legato* for emulating monosynths and suchlike, and of course you can set up drum sounds so that (for example) open hi-hats are cut off by closed hi-hats.

IN USE

After waiting 30 seconds or so for the operating system to load in from floppy, I found the S2000 as easy to use as most other Akai samplers, and there's little new to learn other than the introduction of a new 'Multi' mode of operation which brings the S2000 more into line with its contemporaries. On older Akai machines, multitimbral operation was achieved by loading several programs, all with the same program number, then allocating these to different MIDI channels, which often involved a degree of tedious renumbering and channel changing. You can still work this way in Single mode, which is an obvious advantage if you have existing library material in the old format, but in Multi mode, you can slot in any 16 programs, regardless of their program numbers. This has the advantage that if you want to call up a new program part way through a mix, ▶

BACKWARDS COMPATIBILITY

I tried loading my old Akai S950 samples from floppies, and though these took a short while to convert, they survived the trip with no problems. However, I had less success when I tried to read my old S950 Syquest disk; the S2000 refused to talk to it. Akai revealed that this is because S950 disk directory structures are so different from the ones on all their samplers from the S1000 onwards. For the same reason, an upgrade to correct this is unlikely, which means that all transfer of S950 samples will have to be done via floppy disk... groan!

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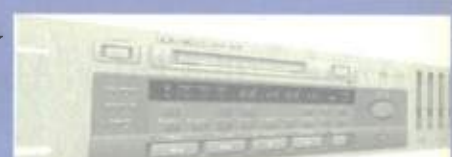
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AKAI S2000 DIGITAL SAMPLER

▶ you can do it using a program change, just as you would with a multitimbral synth. You can also change the pan positions of programs within a Multi; these override the pan settings of the original programs. Perhaps the biggest creative value of Multi mode is that you can make adjustments to things like envelope settings in context — for example, while a sequence is running, or when two or more sampled sounds are being used as layers.

The manual admits that there is a bug in this current software version which prevents you from saving Multis properly, so you have to save the whole memory, including any samples you have loaded that are not included in the current Multi. I suppose this could cause difficulties if you are short of storage space, but I didn't find it a huge problem, and Akai do promise that it should be fixed by the next software revision.

Creating your own samples from scratch is quite easy, though I did have problems watching the display at the same time as trying to play a sustained digeridoo note! A bargraph creeps across the screen as sampling takes place, so you can see at a glance how much longer you need to blow, twang or hit. I found that looping

the digeridoo sample was quite easy, and once I'd picked a reasonable ball-park loop point, the Find command improved upon it. A crossfade loop completed the job, but it was here I discovered an immense irritation, namely that once you've done a crossfade, you can't undo it — you have to reload the sample and try again. I mentioned this to Akai, who say that the existing hardware can't cope with undoes, so don't expect miracles in the next software upgrade — of the available options, loaves and fishes are not included!

I finished off by making some more samples, tuning them, and slotting them into keygroups. I then saved the whole shooting match to disk, just to prove that it would load up properly. It did.

The only real operational frustration was the slowness of CD-ROM access, which is compounded by the uncertain nature of the data entry wheel. It appears that instead of the S2000 loading up the entire list of contents from the disk (which would let you see at a glance what was available), it looks for the items on disk one at a time, so if you turn the wheel too far, you can end up several items past the one you're looking for before the display registers the change. Akai are now aware of this, and will see what can be done in the next software upgrade. The other thing the S2000 can't do is create Multis that will automatically load in the appropriate sounds from CD-ROM for you — this would make life much easier, and surely shouldn't be too much of a challenge for today's technology.

ANOTHER FINE MESA?

Bundled with the S2000 and S3000 is a software package called *MESA*. Currently available for Mac

only, *MESA* provides a more visual means of organising samples into keygroups and sorting out envelopes and filter settings, as well as zones, modulation, pan and so on. *MESA* also allows you to load AIFF or Sound Designer II files for use as samples, and a zoomable graphic waveform display helps you find the best sample loop points. Sadly, *MESA* doesn't let you do your crossfade looping on the computer, and you can't splice bits together from different samples or even remove a chunk from the middle of an existing sample.

Overall, *MESA* is probably far too powerful in areas you're never likely to need, and noticeably underpowered in the sample editing department, though its graphics are attractive and fairly clear. The operating system is more than a touch cryptic, and though the on-line help does a reasonable job of guiding you through it, my initial impression was that it made about as much sense as Morris dancing!

Initially, I expected to see a nice friendly box saying 'load sample from sampler', but no, that's too easy. Instead, you have to open something called the Toolbox, which shows you a postage stamp-sized picture of a computer and a sampler. You then have to interrogate the sampler to get a list of samples and programs up on the screen. *Then* (and this is the good bit) you have to open the sample edit window, go back to the sample list window, grab the sample you want to work on, drag it to a letter box icon on the sample edit page, and post it!

Once you've done this, the sample finally comes up in the computer window. It's rather like finding your way around one of those mindless adventure games where you come across a sheer brick wall, only to be told that you can't go any further because your troll isn't carrying the right type of fish to trade in for a magic anti-gravity belt! When you finally do sort out your loop points, you have to post the result back into the original sample list to send it back to the sampler before you can deal with any crossfading. What's more, I couldn't find any means of using my MIDI keyboard via the computer to check out the results of my editing. There is a floating window containing play and stop controls which lets you hear the sample at its original pitch, but you really need to know how things sound at different pitches, or when played as chords.

During my tour of *MESA*, I found countless references to something called 'scripting', and on trying to open some of the scripts provided, I was told that I needed AppleScript. At first, I wondered whether this might be some form of elven calligraphy performed on fruit that needs to be picked up earlier in the game! However, it turned out to be an extension (pre-installed on all System 7.5 Macs, but also available separately to Macs with earlier system versions) which allows you to automate tasks you perform regularly. However, I saw little point in being able to construct my own faders and buttons (which is part of what 'scripting' is all about) when what I really wanted was for the program to be a damn sight simpler and to help me sort out my crossfades. At this point, I sheathed my magic sword and headed for home. ▶

"...the S2000 is sensationally good value. As a straightforward sampler, it's easy to use, sounds exceptionally good, and its SCSI interface provides direct access to a huge range of existing library material on CD-ROM."

'AND... STRETCH!'

Those interested in the Timestretch function may be pleased to know that it's exactly the same system as used in Akai's S3000. This means you can change a sample's length by up to five or six percent without altering the pitch before the sound quality starts to suffer too much. There are various settings for different types of material, and what works for drums won't produce the best results with a sustained tone. Some experimentation is in order, and because the process isn't all that fast, expect to spend some time working with it before you get the best possible result. If you need to do a lot of pitch or time changing, or if you want a greater range than Timestretch can provide, the only truly satisfactory option is to use a dedicated hard disk editing system in conjunction with a program such as Steinberg's *Time Bandit*.

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DB50XG

AKAI S2000 DIGITAL SAMPLER

► If you have access to AIFF or SDII files, then *MESA* will be useful in transferring these to your sampler, and I'm sure the program creation features will be wonderful when you finally get used to them, but if you want to do serious sample editing, then you still need a dedicated program to do the job for you. In *MESA*'s favour, because samples are transferred back and forth using SCSI rather than MIDI, the sound you're working on is still likely to be in fashion by the time you get it loaded. Transferring samples via MIDI is about as slow as trying to back up a digital recording by writing the 1s and 0s on a sheet of paper by hand!

SUMMARY

Even taking into account my minor criticisms, such as the rather non-tactile data wheel and the inscrutability of the bundled *MESA* software, the S2000 is sensationally good value. As a straightforward sampler, it's easy to use, sounds exceptionally good, and its SCSI interface provides direct access to a huge range of existing library material on CD-ROM.

Even if you go for all the options, which will more than double the price of the basic unit, you still have a very cost-effective sampler. The only real limitations are in the sample editing department, where you're restricted to a single loop, and can't graft different bits of different (or even the same) samples together. The use of

SIMMs makes it far more cost-effective to add more memory (though I don't know why 8Mb SIMMs are taboo), and being able to add outputs, effects or filters when you can afford them is a good way to spread the cost of buying a really first-rate machine.

Existing S3000 owners (especially those who use multiple machines in live performance) can use the S2000 as a very cost-effective expander module, where two samplers can share a single hard drive. This has the obvious advantage that editing can be done in the slightly more friendly S3000 environment.

I suppose the ultimate question is, would I buy one? The answer is that I've just sold my S950, and decided to reinvest the money in an S2000. It's not quite perfect — but it's as perfect as you get for the price! Now all I need to do is find the enchanted chalice of Ethelrond and the mighty sword of Grothrud that allows my troll to activate *MESA*'s MIDI interface — if it has one!

SOS

FURTHER INFORMATION

- C** Akai S2000 (basic 2Mb model) £999 inc VAT. For prices of the expansion options, see the separate 'Options' box elsewhere in this article.
- A** Akai UK, Haslemere Heathrow Estate, The Parkway, Hounslow, Middx TW4 6NQ.
- T** 0181 897 6388.
- F** 0181 759 8268.

EXPANSION OPTIONS

• **EB16 MULTI-EFFECTS PROCESSOR**
This is a 4-channel processor which can handle two channels of basic reverb and two channels of simultaneous multi-effects. The effects available include distortion, 3-band EQ, ring modulation, modulated delays effects (chorus, flange and so on), pitch-shifting, rotary speaker effects, stereo delay and reverb. Cost £399 inc VAT.

• **IB208P S/PDIF AND ASSIGNABLE OUTPUTS**
The existing stereo output can be supplemented by eight assignable outputs if you fit the IB208P expander option, which also includes digital I/O on phono connectors. Samples can be loaded directly from CD or DAT machines with S/PDIF compatibility, but working with sample rates of 48kHz is not recommended. Cost £399 inc VAT.

• **IB304F FILTER BANK**
The internal 12dB/octave, low-pass filters may be augmented by an optional second bank comprising high-pass, low-pass, band-pass and EQ filter modes.

An additional envelope generator is included as part of this option. The price is not yet confirmed, but is expected to be under £500.

• **MORE MEMORY**
Memory is expandable using standard computer SIMM chips (2, 4 or 16Mb SIMMs only), to a maximum of 32Mb, which translates to almost six minutes of mono sampling time at 44.1kHz, or three minutes of stereo. There are two SIMM slots, and you aren't restricted to using two SIMMs at once or SIMMs of the same capacity. If the full 32Mb is fitted, the 2Mb of on-board RAM cannot be used. SIMMs currently cost around £35 per Mb.

Akai kindly provided an extra memory SIMM, and this gave me an

excuse to take the lid off the machine. Nearly everything is one large circuit board, and the SIMMs slots are easily accessible. SIMMs will only fit into their sockets the right way round, so there's no problem with accidentally reversing them, though you do have to take precautions against static electricity. Removing the lid is a simple matter of taking out five crosshead screws, and the whole procedure takes less than five minutes.

• **EXTRA STORAGE**
Though there is no provision for an internal hard drive, the standard SCSI interface means that any SCSI hard drive, Syquest, magneto-optical or similar drive system may be used to store sample, program and multi data. The

architecture of the S2000 can only address 500Mb per hard drive, though more than one SCSI drive may be used.

Once formatted, a hard drive may be partitioned. Each partition can contain up to 128 volumes, and each volume (which can be thought of as being similar to an Atari ST or Mac folder), can hold up to 510 items, which may be programs, samples, multis or effects settings. According to Akai, Iomega's new low-cost Zip drives have been checked out with the S2000 and work fine.

Two internal Flash RAM card slots are provided so that frequently used programs can be held in memory, even when the power is off. This leaves the conventional RAM memory free to be used as normal.



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18 payments @ £50.00
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EMU ESI-32

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+ 18 payments @ £60

EMU E64

deposit = £265
+ 18 payments @ £132

Yamaha P150



deposit = £199
18 Months @ £94

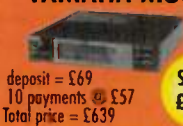
KURZWEIL PC88

deposit = £199

18 payments

@ £94

YAMAHA MU80



deposit = £69
10 payments @ £57
Total price = £639

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YAMAHA SY85

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YAMAHA W5

deposit = £154
18 payments @ £82

Roland JV1080



deposit = £120
18 payments @ £59
Total price = £1182

AKAI S3000XL

deposit = £197
18 payments @ £89

AKAI S3200XL

deposit = £439
18 payments @ £170

YAMAHA PRO MIX 01



deposit = £199
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@ £94 Total price = £1891

KORG I3

deposit = £184
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KORG X3

deposit = £120
18 payments @ £60

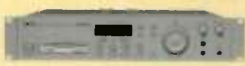
KORG X5



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Total price = £699

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AKAI S2000



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Cubasis PC	£129
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Cubase Score (Mac or PC)	Call
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E-Magic Logic (Mac or PC)	Call
E-Magic Logic Audio (Mac)	Call
E-Magic Micro Logic	£89
Calkwalk Home Studio	£99
Calkwalk Professional	£199
Calkwalk Audio	Call
Passport Mastertrack 6	£149
Passport Musictime	£149
Passport Encore	Call
Opcode Vision	Low
Opcode Studiovision	New Version
Motu Freestyle	£149

Editing Software

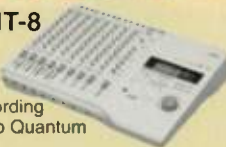
Recycle PC / ac	£199
Resample Professional	£99
Wave edit Akai DR4	£99

Interfaces

MPU 401	From £64.95
V22	In Stock
VP 4	£115
Mac Interfaces	From £49
Opcode Interfaces	In Stock
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New Product

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For his latest musical project, Rick Wakeman chose to work with a travelling state circus. JONATHAN MILLER discusses the keyboard virtuoso's clowning glory, and delves into the man's 27-year recording career.

Rick Wakeman's recording career now spans over 25 years, from the psychedelic '60s to the turbulent '90s. Along the way, he has adopted many musical styles, from session appearances on cutting-edge pop songs like David Bowie's 1969 epic 'Space Oddity', to his fusion of rock and classical music with progressive rockers Yes. Having also passed from '70s 'king of pomp-rock' status to '80s new age piano 'doodler' and on into the '90s with the revitalised Yes, Rick has outlived many a

passing musical phase — most notably punk, the slayer of many of his less fortunate contemporaries. All in all, it would be fair to say that Rick has lived an archetypal rock star existence, complete with the usual ingredients of alcoholism, divorce, heart attack and near-bankruptcy. Now a teetotaler, Rick resides happily with his family on the Isle Of Man, choosing musical projects at leisure whilst pursuing an insatiable passion for golf.

That said, composition-wise the man has been far from idle. Since setting up his own Bajanor Studios in a converted coach house next to his home in the late '80s, Rick has made no fewer than 30 released recordings, both solo and in collaboration, the latest being the recently-released *Cirque Surreal* album (see the 'Bajanor Studios' side panel). Those with at least a modicum of French might guess that there is a circus connection here — and they'd be right.

CIRCUS OF THE IMAGINARY STATE

Strangers to this magazine may have missed the item gracing the *SOS* news pages in the July '95 issue, which outlined Rick's involvement with

Rock & Roll CIRCO

RICK WAKEMAN • CIRQUE SURREAL



Phillip Gandey's *Cirque Surreal* — The State Circus Of Imagination. Just to recap, Rick composed and recorded a collection of exclusive musical pieces, specially written to enhance the characters in the show for this 'brand new all-human designer circus'. At the time, *Cirque Surreal* was enchanting thousands of visitors to the Brighton Festival with the aim of re-establishing the circus concept as quality entertainment with mass appeal. As Rick is such a busy chap these days, I was lucky to catch him in a rare live *Cirque Surreal* performance with his band as part of the Cheltenham Festival. During a break between the matinee and evening shows, Rick amiably explained how the project came about. "I've started my own management company which we run from the Isle Of Man. Candy, the girl who's in

charge, used to work for Phillip and Carol Gandey before she came to me, so it was through her that we got together.

"With Cirque Surreal, the idea was to create a real family show that anybody could go to, with music that was timeless, so that Granny could tap her foot to it and not be offended whilst it would still appeal to rock and rollers. So the music's from no particular genre. Phillip booked acts from all over the world, and explained all the routines to me. I then wrote a load of music to fit."

HIGH FIDELITY

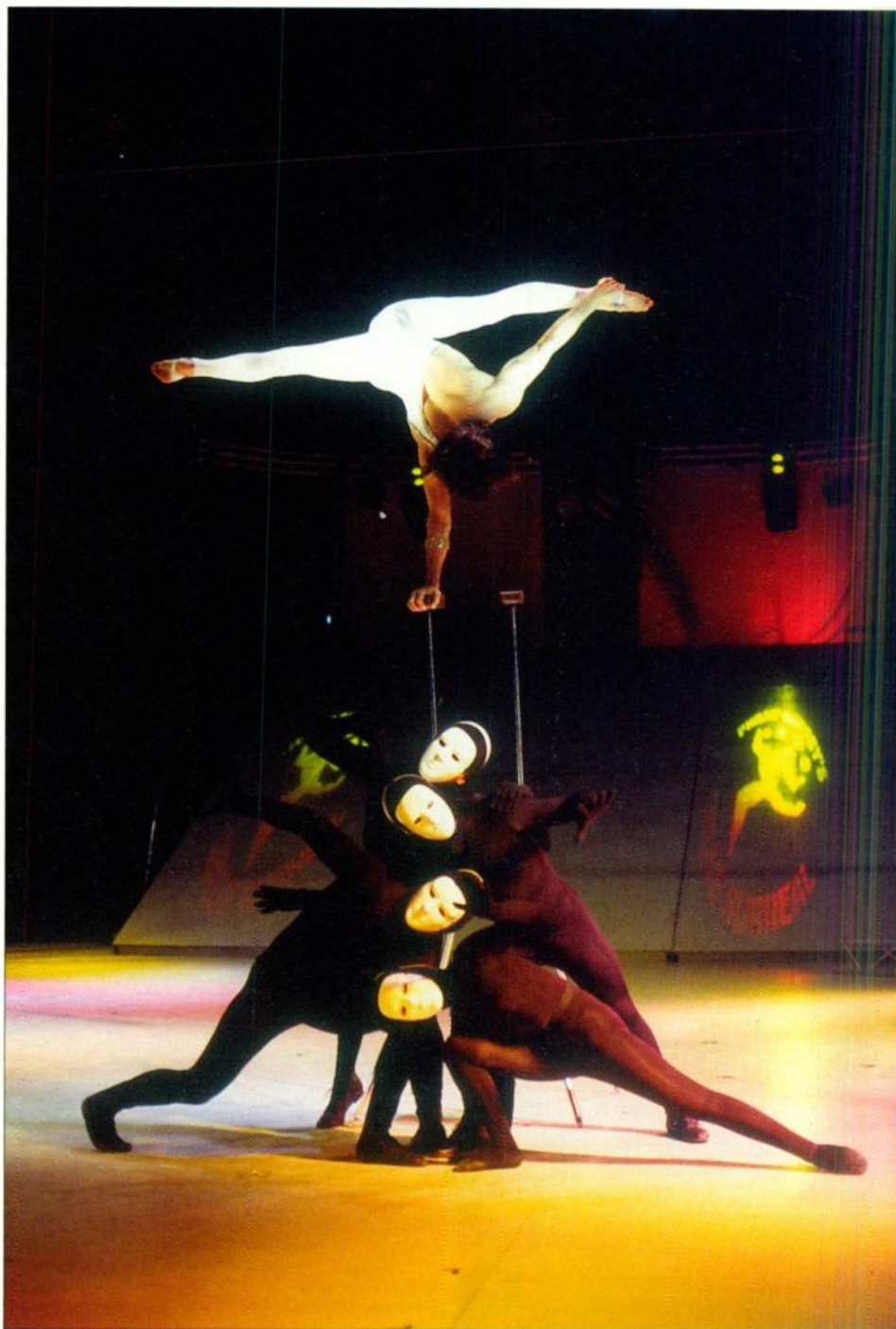
Grimly recalling his previous disastrous flirtation with a circus incorporating music (see the 'Dali vs Wakeman' box elsewhere in this article) Rick nevertheless felt that "the rock and roll circus that we did in France was quite a good idea, except that there was no way back then that modern music could technically work in a circus. In 1970, electronic keyboards were still very much in their infancy, and PAs were scarcely out of the maternity ward. People might raise their eyebrows at that, but the improvement that has gone into the technology of speakers over the last eight years or so is absolutely phenomenal.

"Cirque Surreal has been seriously thought out. My idea was that we had to build the world's biggest hi-fi system, because it's got to be loud enough that young people can get off on it, but

US

without it giving Granny grief. Everywhere we go, we always get people of all ages afterwards saying, 'I really like the music', but we've never had anyone complaining it's too loud.

"I originally told Philip and Carol it had to be a lot more expensive than a couple of 4 x 10" columns that normally go up in circuses with an old cassette recorder out the back. I had a lot of stuff already, and wanted to build an actual PA, so we went and talked to Celestion and Crest, because Crest had the only 40-channel mixer that wasn't an add-on within our price bracket. We started off renting equipment, but when it became obvious that it was going to become a long run, I bought the whole PA system, because I was so thrilled with the sound. A tent like this is the worst possible advert for sound you could wish for, but when we brought the Celestion and Crest boys down to the opening night in Brighton, they couldn't believe it. They've brought loads of potential customers to the show since then, and all the reviews we've had sound-wise have been fantastic."

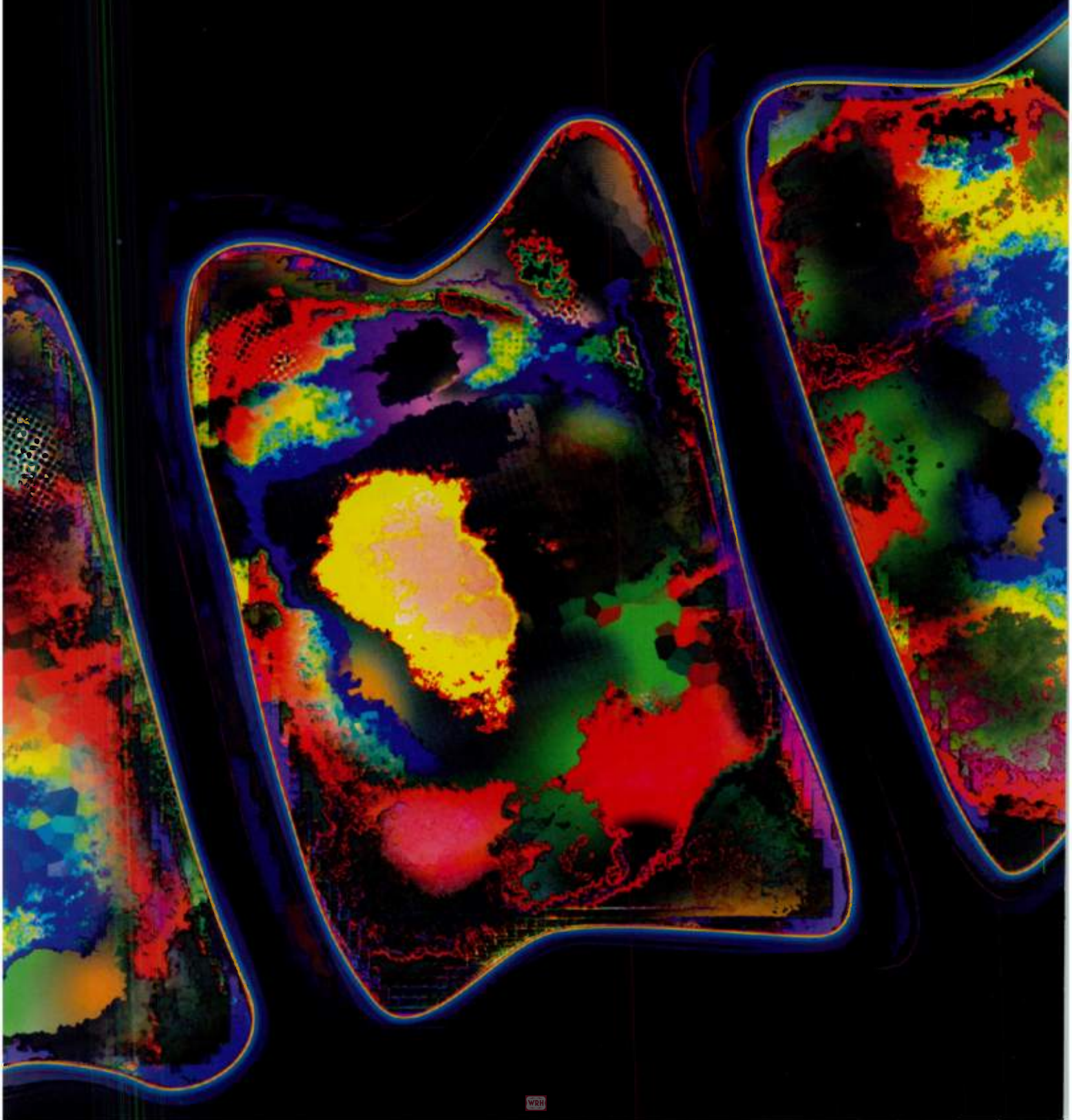


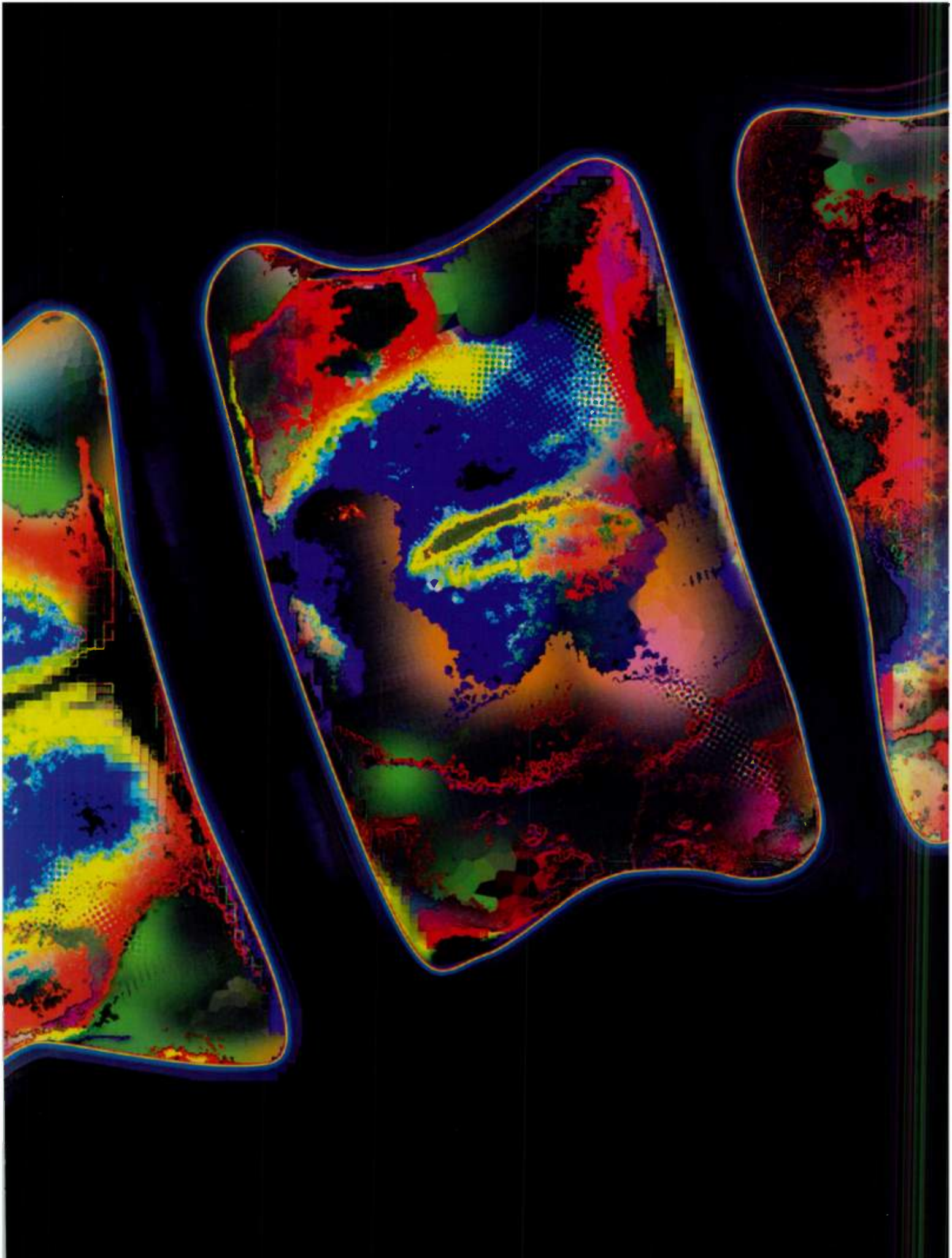
LIKE FATHER LIKE SON

The Cirque Surreal album's sleeve notes credit Rick's son, Adam, as Musical Director. Like his father, Adam is no slouch when it comes to finding his way around a keyboard. After all, on the morning of the interview he had just been voted 'Best Newcomer' in *US Keyboard* magazine's annual poll, an accolade of which Rick was justifiably proud as he defined Adam's role in the Cirque Surreal project.

"I had a major problem about three weeks before the circus opened. I was doing the music for the new Michael Caine and Jason Connery movie, *Bullet To Beijing*, and the film had arrived with me a month late, so I was trying to catch up by working stupid hours. The rehearsals for the circus were then brought forward by a couple of weeks, and I was in the dreadful position of having no time to do ▶

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▶ them both. Adam and myself have worked together musically for three years now, so he knows how I work and rehearse. The music for the circus was all written, but I needed someone to rehearse the band, so I phoned Adam up and asked him to do it.

"Fortunately, he was used to reading *Cubase Score*, which I find bloody terrible! Even so, for the circus people's original rehearsals I did everything on *Cubase*, as it's easy to alter things. Whoever wrote it obviously never had any feet — it doesn't understand or read pedal information on printout! If some bright spark could write something into scorewriting software that's intelligent enough to understand pedal information, whereby if you're holding a note on with the pedal it'll actually read the note for the length you're holding it for, instead of just lobbing odd crotchets and things all over the place, they'd be onto a serious winner. Surely it's not that difficult?"

"Anyway, I left Ad to it. I said, 'Good luck — and don't call me and say you've got problems, because there's nothing I can do'. I arrived at the circus the day before opening, and I have to own up — I thought I was going to walk into a nightmare. In the event, I walked into a room just as the band were in the middle of one of the pieces. They'd learnt everything and were brilliant, so I told them to go down the pub!"

DALI VS WAKEMAN, 1970

It turns out that Cirque Surreal is not the first time Rick has worked in a circus in a musical capacity. Whilst a member of folk rock outfit The Strawbs, in 1970, he found himself in the centre of a Parisian circus scandal. At a poorly promoted circus event in the French capital, artistes and animals were required to perform alongside live rock bands, instead of having normal run-of-the-mill music with a circus band.

Rick recalls in his autobiography *Say Yes!*, released this year, how one of his solos was interrupted by an apparently deranged old man banging a walking stick on top of the trusty Wakeman electric piano. Naturally, Rick proceeded to throw the man off stage, only to discover later that the man was none other than renowned Spanish surrealist Salvador Dali, whom the circus promoter, in a desperate bid to attract some press attention, had cajoled into appearing. Suffice to say, Cirque Surreal is a tame experience by comparison!

TOP GEAR

Whilst Rick's popularity in terms of album sales is now a far cry from his million-selling '70s heyday, he can comfort himself with the knowledge that he helped to bring the synthesizer to its dominant position in rock music. Through his long and mutually beneficial association with the synthesizer as a performance instrument in its own right, Rick has amassed a few classics along the way. In his heyday, and like Tangerine Dream, Rick was heavily involved with notable synth manufacturers, endorsing Moog, for example. Equally, Rick's professional relationship with Japanese synth giants Korg dates back many years, although, as he was at pains to point out, the company weren't exactly scaling the dizzy heights of leading electronic instrument design at the time he first met with them.

"I was in a studio in 1980, and a guy came in who'd just taken on Korg, whose products Woolworths probably couldn't even sell at that time! He told me that Korg were doing some new stuff, and showed me a picture of the Trident. I looked at the spec, thought it was half-decent, and asked when I could see one. He said I could see one any time I liked, but I'd have to go to Japan! I told him I wasn't due to go to Japan for an awfully long time, and off he went.

"The following day, he came back and said Korg would fly me over to Japan. I went, but I wasn't expecting much, because they really were making Mickey Mouse stuff then. I arrived at the Korg factory and met the big boss, who is now a very close friend. I sat in his office, and through the translator he said, 'At the moment, Korg are number 14 in the world in keyboard sales.' At this point, I was struggling to *think* of 14 keyboard manufacturers — basically, it meant they were bottom! He said, 'We want to make professional keyboards for professional musicians that can be used by aspiring professional musicians, at a price

CIRQUE SURREAL: AN OVERVIEW

response to a demand for spectacular shows that do not employ animals.

Cirque Surreal's all-human production presents performers from the Cuban State Circus, the Russian State Circus and the French State Circus of Paris and Challons. To take an example, the 'Elastics' are one of the brand new speciality acts presented in Cirque Surreal. Three gymnasts, trained at the Cuban State Circus School,



perform an aerial routine suspended by elastic cords. The act opens under ultraviolet light with a gymnast's body floating in mid-air and their disembodied hands and feet flying nearby. In a flash, the hands and feet find the body and it begins to fly. The lights lift and the other performers

join in the routine. The end result is original and highly entertaining. As Rick himself said during our interview, "In a circus, every night is totally and utterly different".

- A** Circus Surreal Ltd, Chapel House, Chapel Street, Congelton, Cheshire, CW12 4AB.
- T** 01260 276627.
- F** 01260 270777.



Cirque Surreal is the latest development in the long history of the circus, and has been designed with the aim of raising the standard of live entertainment by presenting world-class speciality circus acts in combination with the best in music and technical innovation. The show has been produced by Phillip Gandey, whose family has a long tradition in circus entertainment. Phillip successfully introduced the Chinese State Circus to Britain in recent years in

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▶ they can all afford, and I want to be number one!' I thought, 'I like your attitude'.

"He then showed me the new Korg range — the Lambda, the Sigma, the Trident, and the CX3 organ. The CX3 was the first time that anyone had got even remotely close to a Hammond. The new range were light years ahead of everything they'd ever done before; the Trident was a wonderfully clever machine — three instruments in one. He asked me if I'd like to use them, and ended up giving me three of everything to take on a Brazilian tour! I have to say, it was one of the most enjoyable tours I'd ever done at that time, because nothing broke down. We take reliability for granted now, but back in 1980 it was unheard of!

"From that moment on, with the exception of one period where they lost control of the company in the mid-'80s, I've always had a tremendous relationship with Korg, and they still epitomise a company that give the musician what they want. They put class in the hands of the masses — the equivalent of giving someone who wants to be a racing driver a McLaren or Williams to play with."

THE PROG ROCK PROPHET

In asking Rick if his relationship with Korg extended into the realms of instrument design, I was surprised to learn of his involvement with another revolutionary instrument, namely the legendary Sequential Circuits Prophet 5.

"To an extent I was involved in how certain Korgs looked — certainly the PolySix was heavily Minimoog-oriented. Korg were bright enough to know that if they were aiming at a particular market then it had to be aesthetically pleasing. This was the same principle when I helped to design the front panel of the Prophet 5. The original fascia that Dave Smith [of *Sequential Circuits, who designed the Prophet 5 — Ed*] came up with was all sliders. He was aiming to do what Moog never did, that to is make a polyphonic Minimoog. I said, 'If you're trying to aim at that market, the last thing you want to do is make it look like an old Yamaha, with sliders everywhere, because people just don't like them.' I sat down by the side of a swimming pool at the Holiday Inn in Oakland, California, where Sequential Circuits were based, and designed the entire front panel ▶

BAJANOR STUDIOS: A RECORDED HISTORY

stuff's great, but get into the world of comparisons and it really doesn't stand up.

"So I decided the best way around this was to hit a compromise, by building something in between — not a demo studio and not a home studio. Obviously, I couldn't afford a CTS setup, but I needed something that could adequately cope with what I wanted to do. Fortunately, I owned the building already, and I was very lucky because it turned out to have wonderful acoustics and didn't really need to have anything done to it.

"I put all the facts and figures together for what it would cost — Doug Hopkins, who used to own Advision, was a great help to me in this respect. He told me not to waste my time getting people in to deal with acoustics: the thing to do is choose the gear you want and get to know that, and then decide what you're going to do with the building. There's so many people who make the fatal mistake of spending money designing what it's going to be like before they even put the gear in! We eventually added some curtaining around the sides for some areas that I wanted deadened, which can be opened when needed.

"There's a good film setup in there, with all the necessary synchronisation equipment, and it's pretty much covered in terms of mastering — I've got a Fostex open-reel recorder which still occasionally gets used, and a Tascam timecoded DAT recorder. I've also got the first professional Sony DAT — they were about four grand when they came out, and they're still that price now. It's interesting that when I recently went to do some editing at CTS, they've got banks of them and wouldn't hear of changing them.

"I've got an Otari 24-track, 24 tracks of ADAT and six tracks of hard disk recording with the Vestax HDR6 — I did an advert for them, which came about because I saw them at Frankfurt and was absolutely delighted to become involved. I'm no technician, and that was the

first hard disk recorder that I could actually understand and use straight away!

I still tend to put guitars and live drums onto analogue, where, to my ears, they sound better. The best example I can give is that I recently flew over to New York to play on the new Ozzy Osbourne album. They had a two-inch 8-track machine, and were also running a 24-track Otari, plus a big Sony DASH digital machine. They played back the drums from all three machines with everything flat and, just to prove a point, with everything coming back through the same channels of the desk. A newt could have heard the difference — it was phenomenal! I was quite pleased with that, because I've always instinctively thrown the drums back onto 24-track to create a better live sound."

"I've got the last Trident T24 desk ever made, plus a special patchbay. It's a lovely desk, and has just had its first overhaul in six years. With 52 inputs, I'm more than covered, because I don't use all the recorders at once. I used the ADATs recently when we went away to Scotland to record a choir, and they're tremendous. We did initially have problems with them cutting out, but it turned out that this was nothing to do with the machines themselves — we have a problem with power on the Isle Of Man. The electricity is poor and fluctuates badly, and the ADAT controller certainly doesn't like it. I must say the Sound Technology helpline was fantastic in sorting this out — and not because it was me either, since my engineer did all the talking.

"The studio I've got now is capable of producing most of the things I want to do, but I don't take it for granted. I was taught by Tony Visconti, Gus Dudgeon and David Bowie that studio time is precious, and you don't waste it. When you go into a studio, it should be something special. I don't like what I call 'studio writing' — you hear about so many bands wasting money writing their next album in the studio. One day, they'll wish they had an extra day of studio time, and they'll have no-one to blame but themselves."



"My studio came about for financial reasons. I was losing work — particularly films — because I couldn't afford to go and record in big studios anymore. What happens with a lot of films is that they run over budget, and it's the music that suffers. It's a case of, 'We'll use him, because he's a good musician and he can do it for five grand.' I found there were so many films like this being churned out that I couldn't compete. The budgets I was being offered to do scores wouldn't even cover the cost of one day at somewhere like CTS Studios in Wembley, or Air Studios.

"I know you can put together an extremely nice little home studio for four or five grand and get great sounds, but at the end of the day, if you've got a serious feature film coming out and compare the end musical product from somewhere like CTS against something done in a £5,000 home studio, there's no comparison. Listen to it on its own and the home studio

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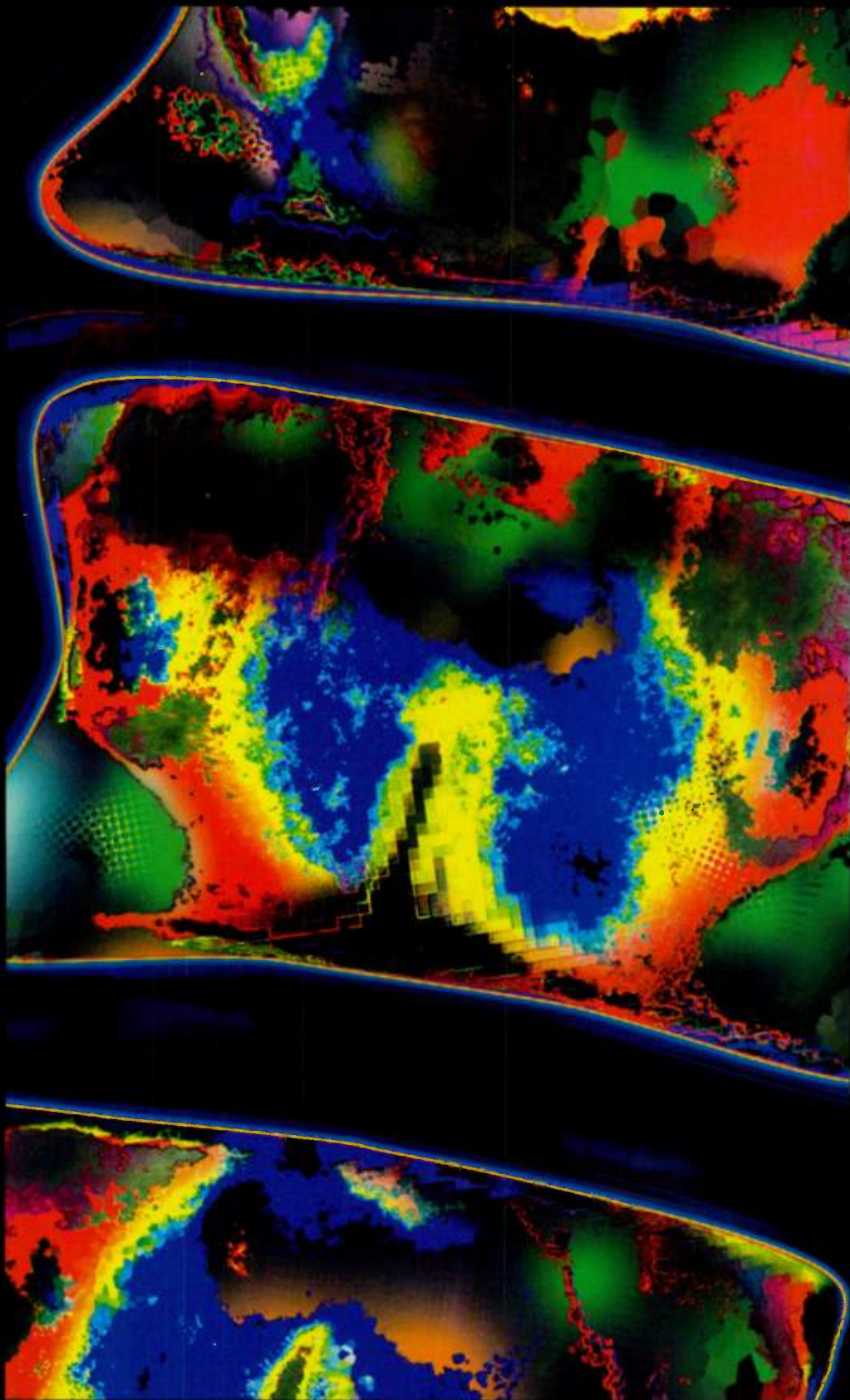
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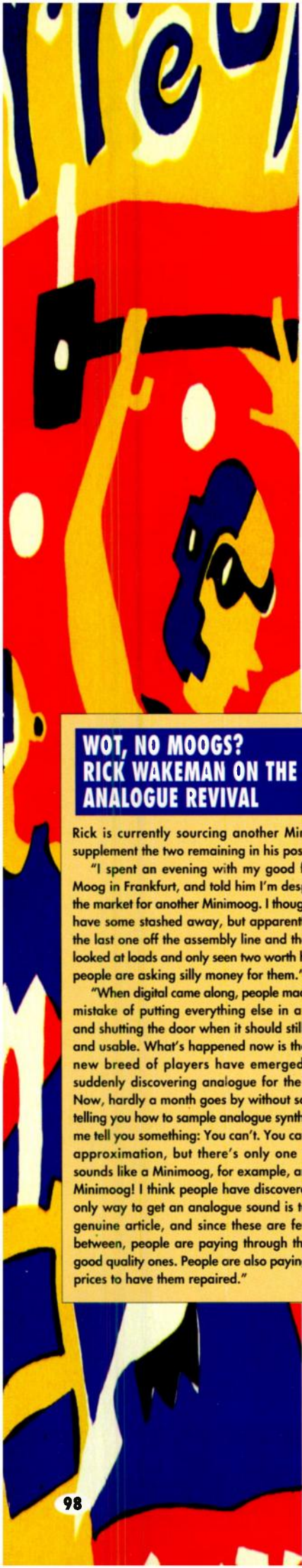
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▶ with knobs on a piece of paper, so that it looked like an elongated Minimoog, and it worked.”

Indeed it did, with a lengthy lifespan to boot, unlike the increasingly short-term shelf lives of many current electronic musical instruments. But Rick is philosophical; “That means there are the most wonderful bargains to be had on the second-hand market. It’s interesting that a recent series in *Sound On Sound* was all about buying older synths, which is brilliant for young aspiring players [see ‘*The Bargain Basement*’, SOS July/August ’95 — Ed]. You can now put yourself a very nice setup together without buying new.

“However, I think the manufacturers are going to have to be careful. They’re making a little bit of a mistake by bringing the Mark II out before Mark I’s even hit the streets. People aren’t falling for this anymore, especially if it’s a brand new machine — they know if they wait for six months, it will come down in price.”

THE SHOW MUST GO ON

Rick has a well-documented love of analogue equipment — see the ‘Wot, No Moogs?’ box for more evidence of this. During our interview he said, “you have to play analogue synths differently.

All keyboards have a different feel to them. It’s like if you’ve got three different cars. They’re all a different design, so you drive them differently”. Perhaps this helps to explain his continuing penchant for surrounding himself on stage with banks of keyboards as in days of yore, despite the advent of master keyboards, sound modules and multitimbrality, and no doubt to the dismay of roadies the world over. I could not resist playing devil’s advocate and asking Rick if this is simply a case of showmanship or genuinely necessary.

“The joke is that when I first went out with Anderson, Bruford, Wakeman, and Howe and toured America, I only had four keyboards with a lot of rackmounted gear for the first few shows — and I got crucified by the press. So I replaced a lot of the racked stuff with the keyboard versions. From then on, everybody, including the keyboard manufacturers, were very happy!

“It goes back to what I said earlier about the feel of keyboards. I like the JD800, which I know was regarded as a bit of a failure for Roland, but if, like me, you were brought up on the Minimoog, it’s a wonderful instrument to solo with

because you can fiddle and play, and to be honest, that’s all I use it for. People might ask why I don’t just use a JD990 module for that sound and play it from another keyboard, but I’ve got used to the JD800’s feel whilst soloing. I’m not a great advocator of master keyboards and don’t see the point in them, because you can use any good

keyboard as a master keyboard if you want to anyway. It’s a no-win situation for me really, because there is an element of showmanship, but there is also the fact that I tend to like physically playing the instrument on which a sound was made.”

“I HAVE A DREAM...”

Despite his lengthy and admittedly varied career, Rick remains inextricably associated with his mid-’70s epic recordings and performances. *No Earthly Connections*, his 1976 follow-up to *The Myths And Legends Of King Arthur And The Knights Of The Round Table*, was originally intended as a “musical plan for the epic to end all epics”. Whilst still hitting the British Top 10, record company objections in light of the punk invasion prevented Rick from presenting the album in a live setting as he saw fit. Given that he was arguably the forerunner of Jean-Michel Jarre’s live extravaganzas, I could not help but wonder if the heady days of the epic are now long gone for the former caped wonder.

“The most amazing thing for me is that I managed to do it all without any sponsorship, because it didn’t exist at that time. Now there’s sponsorship and I can’t bloody get it! Having said that, it’s not been helped by a couple of remakes of concept-style albums that have copped very large advances but not been presented or put together very well, in my opinion. Subsequently, it’s been very difficult for me — on two occasions, I’ve been stunningly close to getting a major record company involved in a *Return To The Journey To The Centre Of The Earth*-style album.

“I’m 46 now. It may be a dream, but you’ve still got to aim for things you want to do, and I want to do another epic — very, very badly — because I love them. I know that a lot of the press and music critics will already be vomiting as they read this, but I don’t care, because I just love a good evening’s entertainment of music and drama.

“I know exactly what I want to do visually, because there isn’t really much more you can do with lightshows. It’s now a case of who’s got more Varilites than the next man — apart from Pink Floyd, who are absolutely brilliant — but you don’t have to spend millions to make something look good. Hopefully, I’ll get the opportunity again before I’m 50, which is my retirement age.”

Lest fans throw their hands up in horror, Rick was quick to put his ‘retirement’ into perspective: “When I say ‘retirement’, I’m still going to carry on doing the odd concert, and I’d still like to record and do films, but what I don’t want to do is what I call scratching around”.

I, for one, look forward to an evening’s entertainment of epic proportions in the not-too-distant future courtesy of Mr Wakeman. As Rick and I parted company, he joked that I was the only interviewer who failed to bring up the inevitable question of his proposed rejoining of Yes for the umpteenth time, with another grandiose worldwide tour on the cards. But that’s another story...

SOS

WOT, NO MOOGS? RICK WAKEMAN ON THE ANALOGUE REVIVAL

Rick is currently sourcing another Minimoog to supplement the two remaining in his possession.

“I spent an evening with my good friend Bob Moog in Frankfurt, and told him I’m desperately in the market for another Minimoog. I thought he must have some stashed away, but apparently he’s got the last one off the assembly line and that’s it! I’ve looked at loads and only seen two worth having, but people are asking silly money for them.”

“When digital came along, people made the fatal mistake of putting everything else in a cupboard and shutting the door when it should still be visible and usable. What’s happened now is that a whole new breed of players have emerged who are suddenly discovering analogue for the first time. Now, hardly a month goes by without some article telling you how to sample analogue synths. Well, let me tell you something: You can’t. You can make an approximation, but there’s only one thing that sounds like a Minimoog, for example, and that’s a Minimoog! I think people have discovered that the only way to get an analogue sound is to have the genuine article, and since these are few and far between, people are paying through the nose for good quality ones. People are also paying ludicrous prices to have them repaired.”

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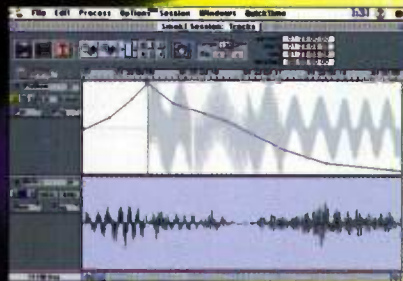


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MIDI basics

PART 4

Most contemporary sequencers include facilities that make it possible to automate all the key aspects of a MIDI mix, but all too often they remain unused. PAUL WHITE explains how to dip your toe in the water without falling in...

As you'll already know if you've been following this series, MIDI isn't restricted to carrying information relating to musical notes — amongst other things it also caters for Controller information. MIDI Controllers can be used to adjust many different parameters relating to a musical instrument, the most useful in a mix situation being **Main Volume** (Controller 7) and **Pan** (Controller 10). However, you're not limited to automating volume and pan during a mix — you can, in theory, change any parameter of an instrument that is assignable to a MIDI Controller, including **Portamento Rate** (Controller 5), **Sustain Pedal** (Controller 64) and, where supported, parameters such as **Filter Frequency** or **Resonance**. These latter parameters aren't defined Controllers, and it's up to individual manufacturers whether and how they are implemented, so you'll need to look in the back of your instrument manual to see exactly what you can access via MIDI. You may also find that you can construct Bank Change messages for your synth using Controller data, so it really is worth looking into those apparently tedious back pages once in a while!

PATCH CHANGES

Another fundamental of MIDI mix automation is the **Program Change** command. It's surprising how often even this humble feature remains unused, yet if you have a limited number of MIDI instruments, it can be very useful to be able to change sounds mid-song. Most sequencers will let you enter a new program change command directly from within the event list, so that you can decide at exactly which bar and beat the change should take place. Sometimes, you need to be careful where you put the command in order to get a graceful changeover of sounds, but the vast majority of

synths help you out by retaining the old patch sound for any sustained notes — these don't change until they are released, even if newly-played notes have switched to the sound of the new patch.

If you have a sequencer that doesn't let you enter program changes directly (and to be honest, I can't think of one off-hand that doesn't allow you to do this in one way or another), you can instead use the Program Select buttons on your master keyboard to send a patch change command at the appropriate time. The patch change will be recorded into your sequencer just like any other MIDI event, and if it isn't in quite the right place, you can always go into the edit list and move it.

Program changes may also be used to switch MIDI effects units from one patch to the next, but here you have to be more careful, as some units can take up to a couple of seconds to change over, during which time the output is usually muted. If you're using a reverb or delay effect with a long decay time, you have to give the effect time to finish doing its thing before you hit it with

a patch change, otherwise you're certain to hear the changeover when you listen to the mix. The basic rule here is: always change effect patches when there's no signal passing through them and where you have enough space following the changeover to allow the new patch to load up.

Even if you don't intend to change patches during a song, you should still put Program Change commands at the start of each track, ideally during the count-in period, so that all your

instruments are automatically set to the appropriate patches before playing commences. It also pays to be aware that if you copy a track so that you can use it with a different MIDI instrument, any embedded patch change information will also be copied, so don't forget to update these Program Change numbers before continuing work, otherwise you might find that totally inappropriate patches are being called up.

PRACTICALITIES

When you come to use Controller information to set up volume and pan effects, you first have to make sure that your instruments respond to these messages. This may sound obvious, but there are a few instruments out there, including Yamaha's otherwise excellent EMT10 piano module, that

ERRATUM

At the end of last month's instalment of MIDI Basics, we promised the start of a new series on the basics of sampling. We got our months a bit confused, as there are still parts of MIDI Basics to come! Needless to say, the Sampling Basics series will follow when MIDI Basics has finished.

Yamaha's EMT10 piano module — excellent, but it can't receive Controller 7 MIDI volume data...





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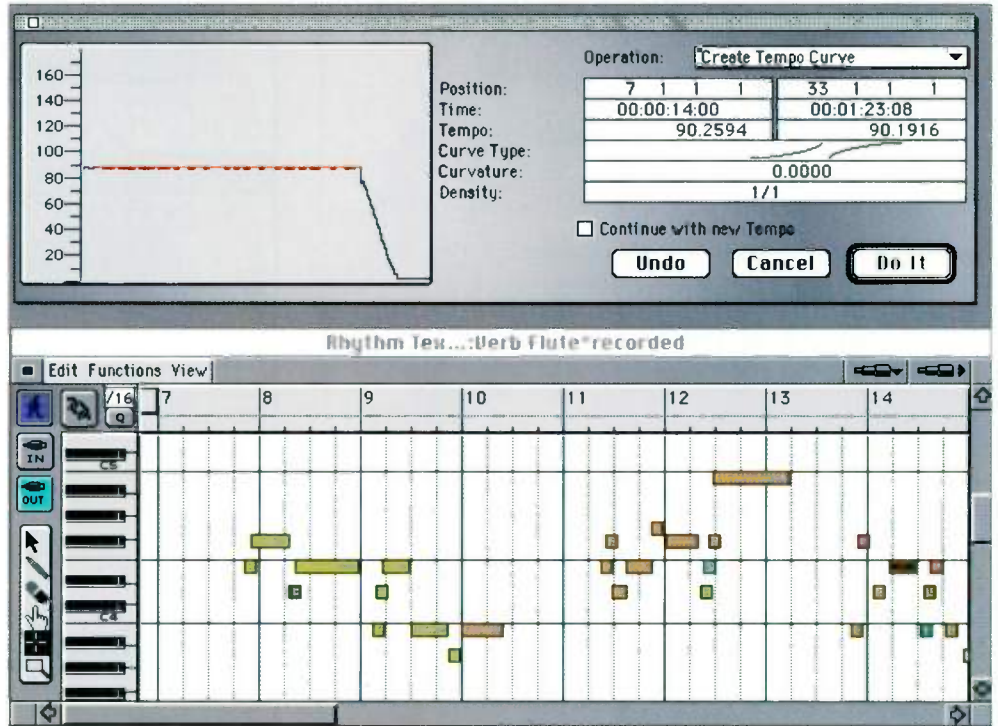
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The Hyper Draw window from Emagic's Logic sequencer.

- ▶ are totally oblivious to Controller 7. The only way to fade one of these babies is to either pull down the fader by hand or doctor the MIDI note velocity data in your sequencer so that the notes actually become quieter.

Thanks to modern sequencer design, there are now lots of ways to enter Controller information. In the early days of MIDI, you had to add Controller numbers and values to the MIDI event list or record them in real time, but now there are more intuitive graphic methods, for example Emagic *Logic*'s new 'Hyper Draw'. This lets you shape your own Controller 'envelope' by dragging points on a line representing the Controller's numerical value. Once again, if you have no easy way to do this in your sequencer, you can send the data direct from your MIDI keyboard by using the modulation wheel (Controller 1). It helps to record this data on a separate track after recording the main musical part. Once you're happy with the result, you can merge the two tracks, but do keep them separate for as long as possible, as it's often easier to change

or delete the controller information if it isn't mixed in with note data. Even though your mod wheel sends out Controller 1 data, you can still change the Controller number in your sequencer event edit list after recording. Having said that, if you have a sequencer that will allow you to change the Controller number in real time as you record, that's a better option, as you'll be able to hear what you are doing. If you simply record the data first and then edit it afterwards, you'll hear vibrato when recording rather than volume, pan or whatever it is you're trying to change, and that's certain to be very confusing! If you have a keyboard with assignable data sliders or wheels, these represent an even more convenient way of sending Controller data in real time without having to edit it afterwards.

AUTOMATION

Controller 7 acts exactly like a conventional volume control, enabling you to turn level up or down during a single sustained note — something you can't do simply by changing the note's velocity data. In practice, this allows you to vary levels during the course of a song, just as you would with an automated mixing console. The easiest way to enter data in this case (if you don't have a hardware MIDI fader unit or a bank of assignable faders on your master keyboard), is to create an on-screen fader in your sequencer assigned to the appropriate Controller and MIDI channel. Most current computer-based sequencers allow you to create faders which can be moved with the mouse, and if there are functions you want to use regularly, it's best to save these as part of your default song, so you don't have to re-invent the wheel every time you boot up. For example,

ADVANCED USES OF CONTROLLER 7

If you have the patience, you can create envelopes for sounds using Controller 7 data. One neat trick is to emulate a keyed gating effect by using Controller 7 values of 0 and 127 to create a full-on or full-off effect.

By placing the Controller data at exactly the start of beats on your quantise grid, you can imitate the effect normally achieved by keying a noise gate from a drum track or other rhythmic source. For example, if you take a four-beat bar where each beat is one eighth of a bar in duration, set Controller 7 to 127 at the start of each beat and to

0 at the end of each beat, your synth patch will pulse four to the bar. With a little imagination, you can design your Controller data to create interesting rhythmic effects, and you can, of course, use intermediate Controller values if you want the level to pulse rather than switch hard on and off.

Controller 7 can also be a useful way of tailing off a long sound that otherwise ends too abruptly — especially useful at the end of a song. You could achieve this by editing your synth patch, but the Controller 7 workaround is generally a lot easier and arguably more precise.

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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MIDI basics

I have a couple of multitimbral instruments with built-in reverb and chorus, so I've created a pair of faders for each part that can be used to set the appropriate effect levels. I work mainly in Emagic's *Logic*, and this allows you to give faders their own sequencer tracks if you want to automate their movements, but equivalent functions are available in most of the leading sequencer packages.

When automating functions such as level and pan, you have to remember that if you fade out at the end of a song, the next time you run the song, those instruments will remain turned down until new Controller information is sent. So don't simply use Controller data to fade the last few seconds of your song — also place some which sets your starting levels at the beginning of the song, during

the count-in bar. The same is true of pan: if everything goes out stage left, it will stay there until either the instrument is reset or new Controller information is registered. Putting Controller information at the start of a song is a good habit to get into, and once again, you can do this in your default song so that you only have to do it once. You can always make any required changes once the song is loaded.

Pan effects can work very nicely when they are in sync with the song tempo. An easy way to do this is to create a short

section of pan information and then either copy or loop it. And yes, if you save a few examples as part of your default song, you can either use them or dump them when the song is loaded up.

HINTS AND TIPS

Once you've tried using MIDI mix automation, you'll probably wonder how you ever managed without it, but there is a potential danger in treating MIDI automation like 'real' console automation; there are differences, especially when it comes to noise. On a conventional mixer, when you pull down a fader, anything being fed into that channel, both signal and noise, is turned

down; on a MIDI instrument, when you turn down the instrument level, a certain amount of residual noise remains, because the output converters and any subsequent analogue circuitry are still as live as ever. What's more, because Controller 7 turns down a sound digitally, the lower the volume, the lower the resolution of the sound, because fewer bits are used to represent it. As you lower the resolution of a digital signal, the quantisation noise and distortion increases.

To make the best of this situation, always have the nominal level of your MIDI instruments set as high as possible, and in the case of a multitimbral instrument, make sure that the loudest part is peaking at or near to velocity values of 127, and that Controller 7 is fully up on the loudest parts. The only time you might need to rethink this is if you are using budget multitimbral modules that have insufficient headroom to allow everything to run flat out without distortion. If distortion occurs, reduce the value of Controller 7 until it stops.

As you can save all your automation data with your song, you can recreate the same mix any time you like — provided that you decide on standard gain settings for your keyboard mixer channels and always stick to them. Your external effects can also

HARDWARE CONTROL

If you intend to make extensive use of MIDI automation, you may feel it's worthwhile to buy a hardware MIDI fader control unit.

These comprise a bank of faders, each of which can be independently assigned to send different types of MIDI message; suitable units are made by JL Cooper,

Peavey, Roland (whose MCR8 controller is pictured left) and Penny & Giles, to name a few.

To use one of these without unplugging your keyboard, you'll either need a fader unit with a MIDI Merge facility, a separate MIDI

Merge box, or a MIDI interface with a Merge facility.



Roland's MCR8 hardware MIDI controller (reviewed in SOS January '95).

be called up repeatedly, as long as you always allocate the same effects unit to the same send and return points, use consistent gain settings, and include the effect's Patch Change data at the start of your song. If you work exclusively with MIDI pan and leave your console pans alone, you'll be able to recreate even the most complicated of mixes, providing you make a note of any console EQ settings — but then, making it too easy would spoil the fun, wouldn't it?

Because it's so easy to automate instruments in a MIDI mix, you'll probably find that you're able to do things never before possible, and though you may go over the top at first, don't be reluctant to experiment — it's only because users have constantly pushed at the boundaries of MIDI's capabilities that we have such a powerful MIDI spec available to us today.

"Once you've tried using MIDI mix automation, you'll probably wonder how you ever managed without it."

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BEFORE YOU BUY YOUR NEXT LIVE MIXER

ONCE 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⁺ and Live 4⁺. 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⁺ and Live 4⁺ 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:

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.

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⁺ and Live 4⁺ 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⁺'s six auxiliaries can be set to pre- or post-fader, with three of Live 3⁺'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⁺ and Live 4⁺ 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⁺ and Live 4⁺, 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

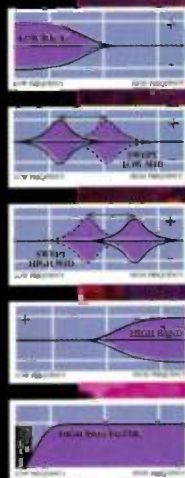
Powerful, corrective EQ is essential in live situations to cope with varied venue acoustics and band members operating at competing frequencies. Spirit's legendary 4 band EQ with two swept frequencies is available on Live 3⁺ and 4⁺ to provide you with even more control over your sound. In addition, both 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.

PRICES FROM
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Both consoles offer the option of 8 channel expanders for the smaller frame sizes, and dust covers for protection. The 8 channel Live 3⁺ is rackmountable.

LIVE 3²

LIVE 4²

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⁺ 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⁺ 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

12

16

24

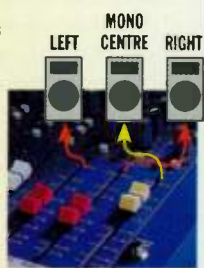
32

40



Why Mono Out on Live 3?

Most Mixers in Live 3'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'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'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.

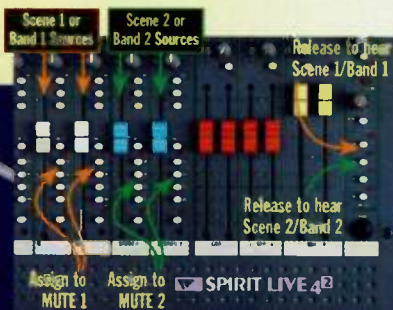
A Mic Input on Every Mono Channel

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.

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Live 4'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'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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GIGAPACK 2 (ROLAND FORMAT DOUBLE CD-ROM)



I reviewed *Gigapack 1* back in January 1995 and found it to be a useful, well-produced, and unpretentious bread and butter workstation. The companion volume, however, is less well-rounded, concentrating on voices, synths, guitar, brass, atmospheres, and sound effects. Drums are limited to Roland CR78 loops, some synth drums, and percussion.

Disk A kicks off with around 70Mb of Gregorian voice samples, including a multitude of high-quality sustained note and chord multisampled tones. The stereo 'Aah Oct' set was particularly lush, and a set of riffs and licks invited playful arrangements which could feature as hooks in dance tunes. A superb selection of classical and religious choral samples are included, and these were first featured on a sample CD released by

ever was on *Hallelujah*.

Following the voices there are some simple electric guitar licks, repeated on every note in the octave, and grouped according to their bpm (beats per minute). They are usually played tightly enough to enable you to turn single note riffs into one rhythmic chordal part simply by playing several keys at once — don't rely on the internal looping though. I quite liked the funky 120 Strat, and the solitary 130bpm pattern sounds promising when triggered on the off-beat.

A brass section follows, which includes solo and ensemble examples of alto, tenor and baritone saxophones, as well as trumpet and trombone. The solo sets are made up of soft, hard, long and short tones and falls, and some patches incorporate velocity switching. Monophonic mapping is employed on solo instruments to maintain playing realism, and the tenor set I examined was well produced, if safe. The section set was not made up of solo layers (which you could easily do if you have a spare 32Mb), but has been specially recorded. Three multisampled patches are offered — unison (long, unlooped and lacking in lustre), and a short and long diminished chord of limited usefulness.

One piano sound is offered, called Micro-Piano, which uses a whopping 16Mb to provide a very average result. Next come several volumes featuring Emu's Morpheus. Big sounds take up a great deal of memory, and only eight or nine mostly heavily multisampled patches fit into 16Mb. Synth basses are last to feature on this CD in the form of a Dance set. This set is compact (usually one sample per patch), and

around 60 highly usable, unlooped dance basses are fitted into around 5Mb. MKH50, SH101, Minimoog, and DX7 bass volumes are also provided.

Disk B kicks off with the Roland CR78 samples, again arranged according to bpm. Again arranged according to bpm, the CR78 voices are laid along the keyboard with progressively more open kick drum samples on adjacent keys. Overkill, or what? Of the loops, I checked out the most densely

populated section at 100bpm. Two patches each contain 16 loops, one at 100 and one at half-tempo. Patterns are typical, including bossanova and hip-hop.

Vocal hits and shouts come next. The session singer syndrome strikes again with loads of clichés recorded in an annoyingly live acoustic environment. Of more interest are the 'Foreigns' (sic): prayer chants, yodels and tribal song. There are also some 'robot voice'-style samples including number sets in English and German. The countdown to a rocket launch is amusing, with a nice take-off punch line.

Moving on, we reach a clump of 808 bass drum soundalikes, some high-Q noises, and a few hits of genuine class and character. The hats and snares fare best, offering most variety. Two synthetic percussion performances encompass a multitude of short hits, ranging from Latin percussion emulations to bona-fide synth hits — worth checking out.

The 'Special Effects' section caters for devotees of cartoon/B-movie sci-fi. These are bold, brash, and not to be taken seriously — except by techno/trance enthusiasts. A large 'Dance Effects' section, on the other hand, provides plenty of quality interest, including whales, more (but darker) sci-fi FX, and a great sustained sonar drone. One gripe though — all samples play until the end. You can't artificially truncate sounds by lifting your finger off the keyboard — an effect frequently used in dance productions.

A 'Kraftwerk' set of hits is provided. Many sounds have digital reverb applied, so purists might be disappointed, although I found the selection lively enough.





In the section entitled 'Big Effects', we find a set of quality sci-fi noises, somewhere between atmospheres and hits in length. The first of three performances in 'Atmospheres' proper fits 16 stereo samples into 16Mb. Complex looped waves and textures are mapped one sample per patch, and all take transposition over a range of several octaves surprisingly well.

A wide range of 'Real Effects' conclude the proceedings. These are usefully grouped according to type, and pretty much all the standard environments are well represented.



Peter Siedlaczek entitled *Hallelujah*. Although it is nice to have the samples tidily mapped and ready to play, the audio quality seems to have suffered somewhat in the translation from CD to CD-ROM. I heard some very obvious digital clipping on a few samples in the 'Classical Singing' section, but fortunately, sustained sounds don't show this, providing some very usable chordal and tonal sets. This inclusion of a bit of 'modern' singing and toasting at the end is as incongruous as it

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SAMPLE SHOP

- 'Sea/River' holds two extremely long shoreline samples (one with seagulls), plus four of running water, and the recording and fidelity are excellent. On the other hand, 'Orchestra' contains just one sample, an orchestra tuning up, taken originally from the Emu library, and here fidelity is shocking! 'Match/Fire' is a convincing vignette, while 'Cameras' include shutters and motorised zoom and rewind. I've heard better 'Footsteps', but thought the 'Fireworks' were very good, despite being notoriously difficult to record.

Conclusion: Not a universal workstation, more an addendum to an existing general library. The fidelity is mostly good, and the better sounds are pleasing, if not inspiring. Nevertheless, I can't think of a really strong reason for anyone shelling out £279 for this set. *Wilf Smarties*

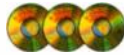
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POP, ROCK, R&B: VOLUME 1 (SAMPLE CD)



Pop, Rock, R&B contains a wide selection of different samples taken from Sound Source Interactive's sound libraries for the Korg, Roland, and Yamaha series of synths. This 99-track CD begins with a selection of 2-bar 'Rap Loops'. Twenty of these drum loops are provided, all with a very strong American R&B and hip-hop flavour. Most work quite well within a track, and although they cover a fairly wide range of tempos (80 to 110bpm) they don't always seem to deliver the freshness or punch that they might. There is virtually no stereo movement within these loops, and this, along with the occasional use of unoriginal-sounding drum samples, leaves you wanting more.

A good selection of individual drum samples follows. These have a distinctly electronic feel and seem to be taken from the Korg 01/W range. There is a good depth of sound to most of these, but nearly all are very heavily effected with the likes of flange and chorus, limiting their versatility somewhat. The hip-hop kits provide a good collection of thumps and crashes, and just in case you happen to be the one person on the planet who doesn't have them, a selection of TR808 drum samples are also provided (with ambience).

The rest of the CD is devoted to exploring 'famous' sounds from a number of classic synths. The bass sounds are particularly well represented, containing samples of the DX7

and Moog Taurus pedals. Most of the other basses work very well, particularly with a bit of creative EQ-ing, and as with all the other instrument samples on the CD, they're sampled over five octaves of the note C. The DX7 appears later on with a classic 'Rhodes'-type sound, and there is a wonderfully grotty S330 piano multisample, perfect for any house track.

Moving on, we find a selection of eight Hammond B3 multisamples (again, five octaves of C). This is a very usable and effective set of organ sounds, which nearly all contain a certain amount of vibrato, the only drawback being that many of them suffer from an annoying amount of background hiss.

The brass and saxes sample very well, as do the string sections, and many of these sounds evoke a very '80s feel (particularly track 67: 'Toto Brass'). It's also worth taking the time to experiment with any filter options your sampler may have, to further enhance the analogue feel. Surprisingly, some of the most effective results came from the acoustic nylon and steel guitar sounds. They certainly won't win any awards for sonic realism, but are just percussive enough to cut through nicely within a track. There are also solo violins, cellos, violas, banjos, and pizzicato sounds — not actual recordings of the real instruments, but interesting all the same. The only truly 'real' elements seem to be contained in some of the choir and string section waveforms.

Conclusion: It's very difficult to see who this CD is aimed at. Certainly the sound quality is not as good as some of the higher-end multitimbral sound modules currently on the market, and in a couple of instances, the sounds suffer from unwanted background noise. On the whole, however, *Pop, Rock, R&B* represents a wide selection of usable and fairly versatile synth-type sounds. *Paul Farrer*

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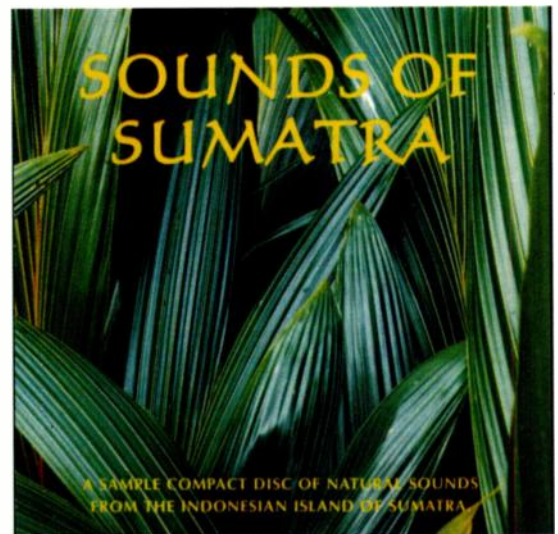
SOUNDS OF SUMATRA (SAMPLE CD)



This is one sample CD unlikely to find its way onto many dance records, but it does provide a range of sounds which might well be useful in new age compositions, or as soundtracks for

plays or films. Recorded on location in Sumatra during 1994, all the tracks feature natural, environmental sounds, the first 15 being given over to insect, bird, gekko and frog chatter, set against a backdrop of busy rainforest activity. Most of the recordings are in stereo and exhibit strong imaging, which significantly enhances the impression of being there, and although the tracks vary in length from five seconds to several minutes, all are usable.

The following four tracks comprise bird sounds against a background of the sea, or in



one case, a coconut grove, and from then on it's monsoon time, with a good selection of rain and thunder sounds. The thunder is particularly well-recorded, and has a great sense of depth and width as it reflects from the surrounding volcanoes and mountains. To finish the album, we are treated to traffic in heavy rain, a powerful waterfall, a more moderate waterfall, and two samples of sea — both light and heavy.

Conclusion: Although not everyone's cup of sampling tea, this album is an excellent example of its genre, and the overall standard of recording is good. The background noise is fairly high on a couple of the rainforest tracks, but that's probably due to the rubbing together of an infinite number of scaly back legs, rather than any fault in the recording technique. For me, the high spots were the excellent thunder recordings, the bird sounds, and the general jungle background noises. At just £30, *Sounds Of Sumatra* has to be good value. If there's anything missing, it was burbling streams, but for all I know, they might not have any in Sumatra — perhaps they just do raging torrents! *Paul White*

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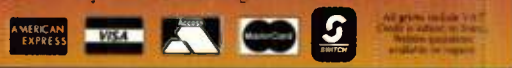
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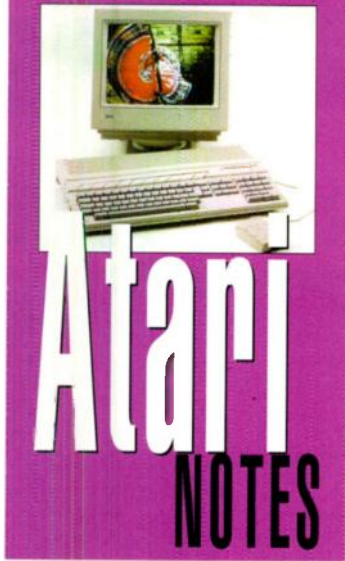
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*This month
OFIR GAL takes a
look at screen
resolution.*



One of the reasons for the success of the Atari ST in the MIDI market was its clear, high-resolution display. While Macs were too expensive, and PCs had a shoddy green text on black display, Atari users were enjoying high-quality, monochrome graphics with all their benefits.

ABOUT DISPLAY RESOLUTIONS

What might seem obvious to the computer buff may not be so to the musician, and screen resolution is one of many examples. Computer display is basically measured by four factors — height, width, number of colours, and refresh rate. The first two are not measured in inches or centimetres, but in picture elements called pixels — the tiny squares that make up the picture on your computer screen — and each pixel takes up 1 bit of computer memory. The ST hi-res mode is made up from 640 x 400 pixels, requiring 256,000 bits, and since each computer byte is made of eight bits, this translates to 32,000 bytes, or about 32Kb of RAM. The number of colours varies from monochrome through greyscale to true-colour. As the number of colours is increased, so is the memory required to display each pixel — while a monochrome display requires 1 bit per pixel, a true-colour one would need 24 bits. The general compromise is to use 8 bits per pixel, which translates to 256 colours — this is suitable for most needs, with the exception of graphic design and colour reproduction work. It doesn't take a NASA scientist to see that a colour display would require eight times more RAM — 250Kb to be exact.

As you can see from the screen grabs, higher resolutions are desirable, and a little extra screen

TABLE 1 — THOSE SCREEN RESOLUTIONS IN FULL

	Resolution	Colour	Refresh Rate
ST High	640 x 400	2	71Hz
ST Medium	640 x 200	4	50/60Hz
ST Low	320 x 200	16	50/60Hz
TT High	1280 x 960	2	70Hz
TT Medium	640 x 480	16	60Hz

estate can go a long way. It can mean less scrolling, as you can see more tracks, and more parts on screen. If you have considerably more screen pixels, you can start working with multiple windows. It's not the physical size of the screen that is the issue, but the number of pixels that can be squeezed into the display area. Obviously, there comes a point where the pixels are so small that the image is all blurry, but a good quality monitor can achieve much more than you'd expect.

The refresh rate, also known as vertical scan rate, indicates the number of times the display is updated, and the faster it is, the better. Standard (and now obsolete) VGA screens had a refresh rate of 60Hz, which resulted in subtle, but persistent flicker that tired the eyes. Refresh rates above 70Hz are much easier to work with for long periods of time, and many PCs are now equipped with graphics cards capable of screen resolutions of 800 x 600, and a refresh rate of 75Hz.

ST RESOLUTIONS

The ST can only generate three resolutions, known as ST High, ST Medium, and ST Low, all requiring the same 32,000 bytes. As can be seen from Table 1, as the number of colours is increased, the resolution is decreased by the same factor. It is also obvious why the monochrome display works so well — with a healthy refresh rate of 71Hz, it is easy on the eyes compared with the old 60Hz VGA standard.

The high resolution mode is ideal for word processing, DTP, and, of course, MIDI, enabling the display of a musical score and fine detail. However, it only works with a monitor designed specifically for the Atari. The other two screen modes are not available when using this monitor, and are only of use for playing games, or very basic image editing.

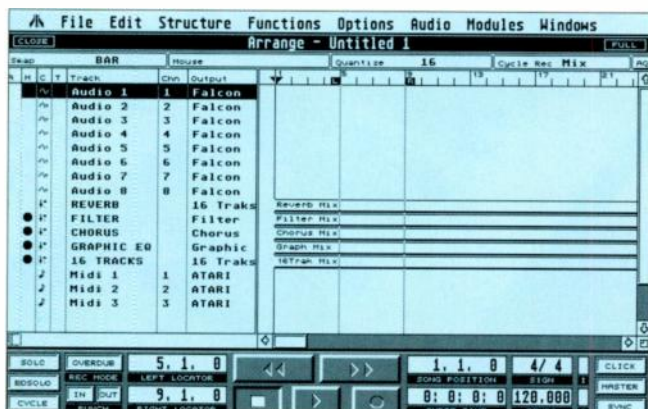
Compared with today's computers, the basic ST resolutions are not that impressive, but there are ways of improving them with the use of simple modifications, or more expensive graphic cards.

To get the most out of graphics but still remain an Atari user, consider buying a TT. This machine was overpriced when it was launched by Atari, but a second-hand one can be obtained for a fraction of the original price. Besides the vastly improved performance, the TT is capable of a resolution of 1280 x 960 pixels when connected to the SM194, an Atari-made 19-inch monochrome monitor. When used with a standard VGA monitor, the TT can display various screen resolutions, including a rather useful 640 x 480 in 16 colours.

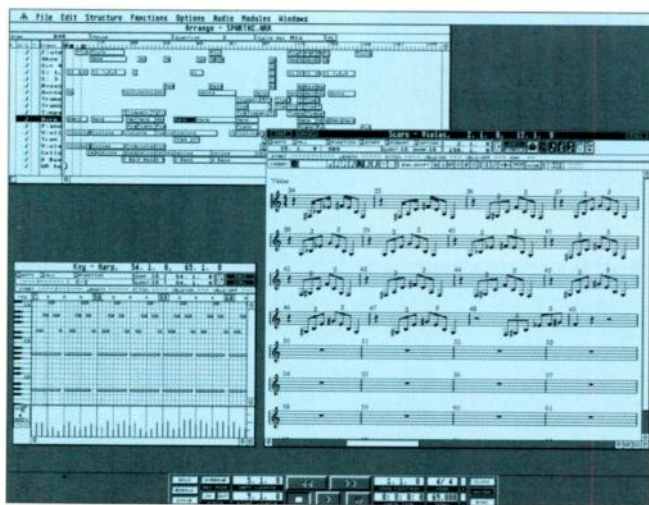
OVERSCAN

The ST does not make full use of the SM124 screen (the image is surrounded with a black border), so

The standard ST High resolution displays 640 x 400 pixels on screen.



The TT supports a resolution of 1280 x 960 in monochrome. Graphics cards are available that can also generate similar display resolutions in 256 colours or more.



a clever hardware hack was developed to increase the screen resolution, and make use of the unused screen area. Overscan was originally a public domain DIY kit, comprising a text file and a few images outlining the modifications to the ST motherboard. The idea was refined, and made into a commercial product. How far the display resolution can be pushed varies from one ST to the next, but resolutions of 688 x 480 and beyond are possible. Although it doesn't sound like much, this 30% increase in screen area makes a big difference, even though it uses a little more memory — around 40Kb instead of the usual 32Kb. Overscan works with all ST, STM, STF, STFM, and MegaST models, but due to changes Atari made when designing the STe and MegaSTe, there is no way of increasing the resolutions on these models. Note also that Overscan is compatible with *Cubase*, but not with *Creator/Notator*.

Overscan is available from Compo UK (Tel: 01487 773582) for £49.95. Installation requires good soldering skills, but Compo will do the modification for you for an additional fee of £20.

GRAPHICS CARDS

The MegaSTe and TT feature a VME buss that can be used to connect a graphics card. The capabilities of such cards are normally indicated by the amount of Video RAM they come with — a 1Mb card can normally produce a screen resolution of 1,024 x 768 at 256 colours. The Nova range starts with a 1Mb model retailing at £399, and extends to a 4Mb model that sells for well over £1,000. The Falcon Nova should be available by the time you read this, and this finally frees the Falcon processor of the thankless task of screen refreshing.

The Nova cards are available from 16/32 (Tel: 01634 710788). Although earlier versions of *Cubase* worked perfectly with the cards, for unknown reasons Steinberg made some changes in v3.10 and *Cubase Score* that prevents *Cubase* from working.

THE MEGABUS AND MEGA4000

The latest addition to the graphics scene are the MegaBus and Mega4000 cards, available from 16/32 and System Solutions (Tel: 0181 693 3355) respectively. The MegaBus costs £399, while the Mega4000 price has not been set yet, but should be under the £300 mark. System Solutions have indicated that the Mega4000 is capable of true-colour display at 640 by 480, or 1151 by 896 in 256 colours. As with other graphics cards, these are incompatible with *Cubase*, as well as *Creator* and *Notator*.

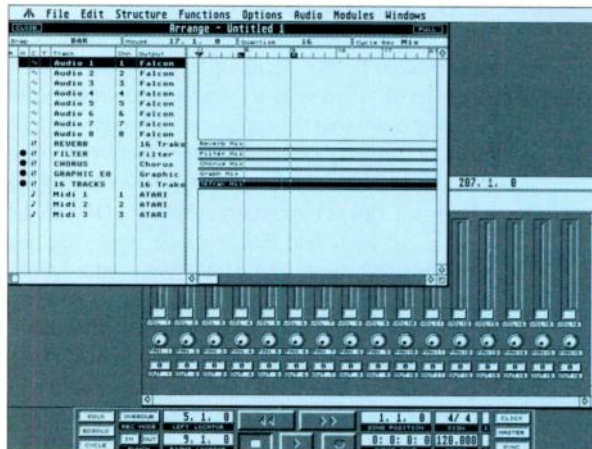
System Solutions have indicated that an ST/STe graphics card is imminent, but there are no further details available at present.

SCREENBLASTER AND BLOWUP 030

If you have a Falcon, devices like Screenblaster or BlowUp 030 can help you utilise the full power of your computer. They consist of a small adapter that plugs to the monitor port



Overscan increases the image size and resolution by getting rid of the black borders around the display.



The Falcon features a programmable video chip. Using Screenblaster, or similar products, the screen resolution can be stretched to 832 x 624 and beyond with a suitable monitor.

of the Falcon, and a simple AUTO program. Depending on the type of monitor (a multi-scan SVGA is recommended), resolutions such as 832 x 624 or higher are possible. Screenblaster is available from Compo UK for £69.99, and BlowUp 030 from System Solutions comes in several versions starting at £15. The full version costs £69.95.



AUDIO SPECTR

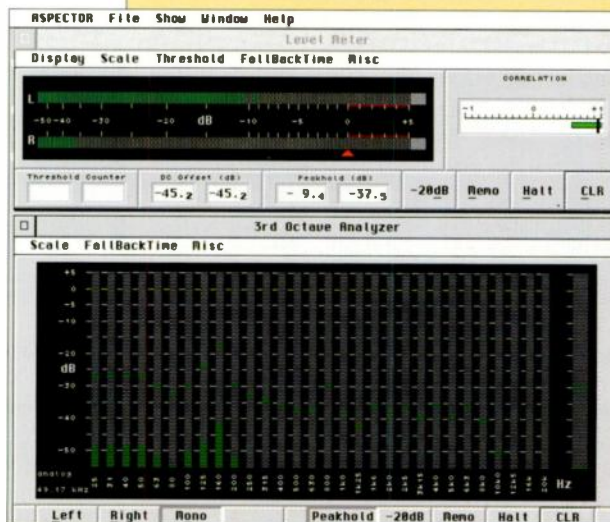
Audio Spector is a new product from Steinberg that realises the full potential of the Falcon as a pro-audio tool. It is both an accurate level meter and spectrum analyser, with advanced features like a stereo phase correlation meter.

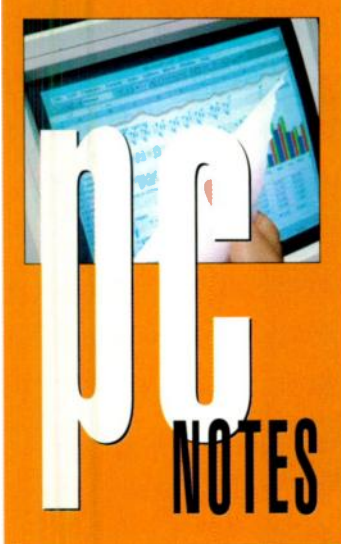
Audio Spector is a new Falcon product from Steinberg aimed at the pro-audio market.

The program works either by using the Falcon built-in A/D and D/A converters, or via the FDI (Falcon Digital Interface). It is centred around three windows, each with its own menu bar and related dialogue boxes. The first is the level meter which can be switched between RMS and Peak display, and has an adjustable headroom. Scaling can be set to conform to the BBC BS5428, or the German DIN 45046 standards. The meter has adjustable peak hold and fallback times, and threshold and clipping counters.

The spectrum analyser window is divided into 30 bands, from 25Hz to 20kHz. Like the level meter, it features adjustable peak hold and fallback times. When used with the test tone generator and a graphic equaliser, it can be used to fine-tune the acoustics of a studio. The test tone generator can produce sine waves at any frequency, or white noise.

The program requires a Falcon with a high-resolution display (640 x 400 or better at 16 colours), and 4Mb of RAM. It is copy-protected, using a cartridge port dongle, and is available from Harman (Tel: 0181 207 5050) for £399.00 inc VAT.





BRIAN HEYWOOD
considers the role of affordable 'PC plus soundcard'-based digital audio recording systems, and considers whether such systems could ever mean the end of dedicated hard disk recorders...

The last few months has seen an increasing number of MPC (or Multimedia PC)-based hard disk recording systems becoming available. *Cubasis Audio*, *Cakewalk*, TripleDAT and the like all provide a level of functionality that is beginning to encroach on the domain of the high-end professional systems. Some might argue that this is just a continuation of a current trend (namely that computer-based technology tends to provide better features for less outlay as time goes by); but there are numerous advantages in a Windows-based digital audio system comprising a soundcard plus the appropriate application, especially when you consider 'integrated' MIDI and audio applications like the audio versions of *Cubasis* or *Cakewalk*.

However, there are a few issues that need to be considered before deciding to use a MPC-based non-linear audio system. Most soundcards on the market claim that they produce 'CD-quality sound' — but this simply means that they happen to have a pair of 16-bit digital-to-analogue converters (DACs) on board. Unless the circuitry around the DAC is well designed, you'll find that the least significant bits don't actually do anything, effectively reducing the 16-bit DAC to 15 or 14-bit resolution, or even lower. Even if the digital-to-analogue circuitry is well designed, there are other factors, such as noise generated by the PC's power supply and RFI (Radio Frequency Interference) from adjacent cards inside the PC that can worsen the signal-to-noise ratio. Most professional systems place their converters outside the PC, the only exception being SADIe, which virtually isolates the on-board converters by total enclosure in a metal shield.

One solution is to get a soundcard with an S/PDIF connection (like the CardD+ or the

you do need to have a decent DAT machine to take full advantage of this route.

USABILITY

With an MPC-based system, the features and usability are usually dependent on how powerful your PC is — to take an example, consider *Cubasis Audio*, reviewed in last month's *SOS*. *Cubasis Audio* illustrates the advantages of integrating MIDI and audio; it is entirely dependent on the MPC facilities of Windows for both its MIDI and digital audio playback. As the article pointed out, it comes with a performance tester that showed that the reviewer's PC could play back four mono tracks. When I ran this utility on two of my machines, it reported the number of available audio tracks as one (on a 486DX/50) and two (on a 486DX4/100). I assume the inferior performance on the faster machine was due to the fact that it was only fitted with 8Mb of RAM. So, to get either of these systems to give performance comparable even to that of a fairly modest 4-track cassette multitracker, I'd need to spend at least £200 for an extra 8Mb of RAM. Add that to the cost of the software (£250) and then maybe an extra hard disk for the audio (540Mb at £130) and an audio mixer (£120 or more), and you've more than doubled the cost of your 'low-cost' PC-based recording system.

So the moral is — watch out for any hidden costs. Use the following checklist to see if a particular system suits your needs.

- Is your PC powerful enough for your intended use?
- Do you need extra RAM?
- Is your soundcard quality good enough?
- Can you sync the digital audio to your existing sequencer?
- Do you need to buy a mixer to get the sound into your PC?
- How fast is the editing process?
- Do you need to master down onto DAT?

When you add the costs of the extras you need to buy to get a system working to your specifications, you may find that it actually works out cheaper to buy a *dedicated* hard disk recorder like a Soundscape SSHDR1 or Digidesign Session 8!

LYRRUS G-VOX REVISITED

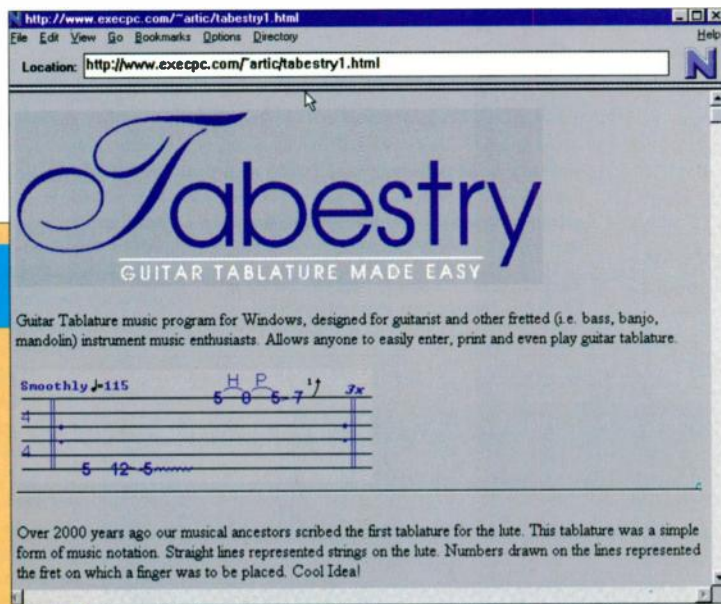
I've had a lot of fun recently playing around with both the Roland GI-10 and new Lyrrus G-Vox guitar MIDI systems. Paul White covered the Roland unit in depth in the June issue of *SOS*, so I won't go over old ground, apart from saying that it works very well and is a very worthwhile investment for the studio-based producer/guitarist. However, if you

fancy a more computer-based approach, Lyrrus's new low-profile version of their guitar pickup is also worth a closer look. Unlike the previous version, which mounted on 'suckers' over the strings, the new model is slim enough to fit *under* the strings of most guitars (the pickup is curved to keep the distance between the pickup elements

CYBERSPACE CORNER

I mentioned Artic Software's MIDI *CoolTools* a while back for programming MIDI applications using Microsoft's Visual Basic software development system. The company now have a Web site which covers their range of products and allows you to order on-line. Various programming tools, tablature applications and other utilities are available; to check out what they have to offer, point your Web browser at:

<http://www.execpc.com/~artic/>



US-based Artic's web pages contain details of their range of music software, including this guitar tab application.

TripleDAT) which solves any potential 'quality' problems the same way as the 'professional' systems do (if the signal remains digital all the way through the PC to the output, it can't be affected by PC power supply noise or RFI) — but

TODAY'S K2000.

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Kurzweil's innovations in sound processing (V.A.S.T.®), connectivity and upgradability have earned the K2000 many awards around the world, including the prestigious *TEC Award*. But we didn't stop there. Today's K2000 has two new, groundbreaking upgrades: **Version 3 Software** and **Contemporary ROM**.

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

The new **Contemporary ROM SoundBlock** adds 8 MB of dynamic contemporary sounds to the K2000's permanent memory - from *Distorted Lead Guitar* and *Analog Synths* to *Tabla* and *Hip-Hop/Rock Drums*. Combine it with the **Orchestral ROM SoundBlock** and internal ROM banks for a stunning 24 MB, available at the touch of a button, with no disks to load. Thousands more additional samples are available on disk and CD ROM - and because the 2000 Series also reads current sampler formats from Roland®, Akai® and Ensoniq®, the K2000 gives you access to the world's largest sound library.

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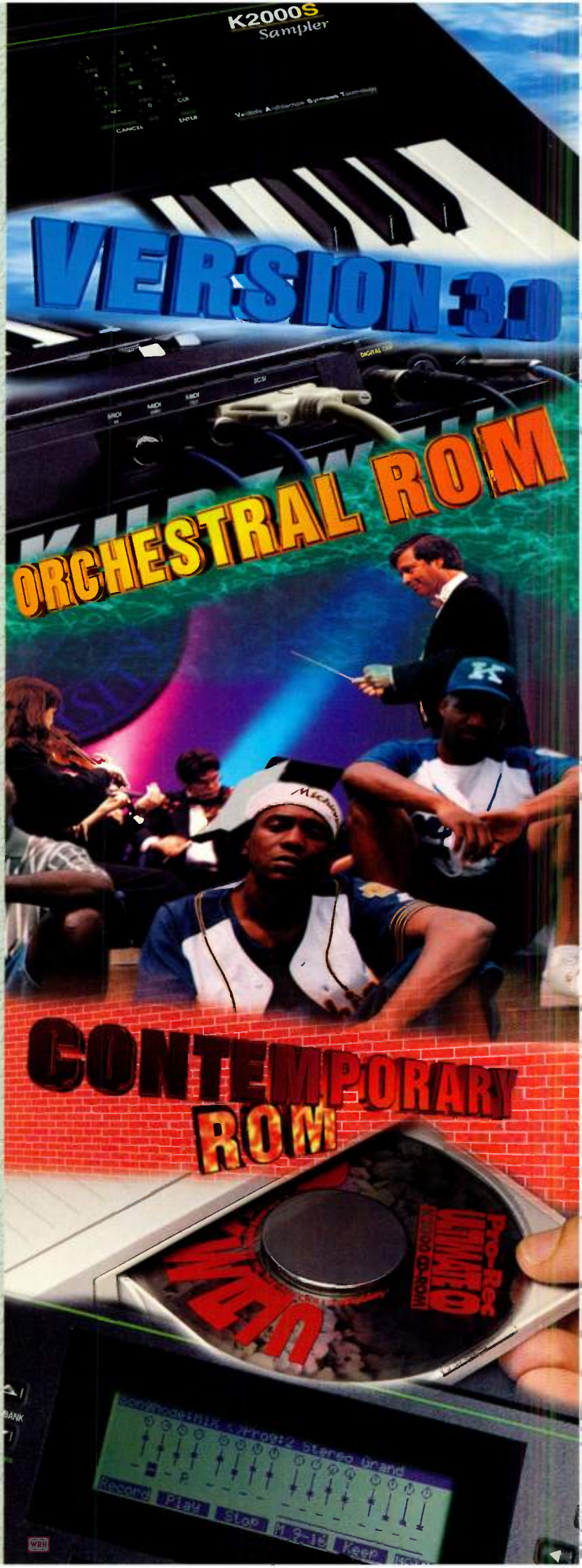
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► and strings constant). The pickup can be attached to the guitar using the supplied suckers, or fixed permanently using double-sided tape.

The pickup connects to a belt pack which in turn connects to the serial port on the PC. The belt pack contains a DSP that does the pitch-to-note conversion, so there's no extra load on the PC's CPU. The DSP code is downloaded from the PC, allowing the software to be updated at any time. The G-Vox system comes supplied with a number of DOS-based applications, and Lyrrus can supply DOS-based tuition software specific to their pickup.

More interesting is the *Bridge* software, a MIDI device driver for Windows, which allows you to connect the pickup to any Windows-based MIDI application. The *Bridge* not only allows you to play your guitar into any program — say a sequencer — but also allows you to alter the performance characteristics of the G-Vox system, and even tune your guitar. You can also assign each string and/or range of frets to different MIDI channels, so you can control multiple MIDI instruments. Unfortunately, the *Bridge* doesn't implement pitch bend yet, but this is planned for future releases.

Like pitch-to-MIDI units, the Lyrrus hardware suffers from the delay caused by the time it takes the DSP to calculate the pitch of the note you've just played. This delay is dependant on the pitch of the note, and can't be any less than half a wavelength for physical reasons. However, the *Bridge* device driver uses an interesting piece of lateral thinking and a feature of the Windows MIDI API to improve the performance. The DSP in the belt pack can accurately determine where the start of the note is — it just takes it a while to work out the pitch. So it records the true start time of each note and then, once it has determined what the

One thing to be aware of if you plan to permanently attach the pickup to your guitar is that the cable that connects it to the belt pack can't be unplugged from the pickup, which might make it awkward to use the guitar in any sort of live performance situation. At just over £350, the G-Vox is a somewhat less expensive solution than the Roland, but is unusual in that Lyrrus charge for the Windows device driver, which adds another £116 to the package — although you may get a discount if you buy both items at the same time. Ring Koch Media (01252 714340) to find out where to get a G-Vox for your guitar.

ROLL YOUR OWN BACKING BAND...

Of course, you don't have to plug your guitar into your PC to create music from scratch — you can also use it to support your other musical activities, such as practising and learning new material. One program I find especially useful for this is *Band-in-a-Box* (*BiaB*) from Canadian company PG Music Inc. Like *Jammer* (mentioned in August's PC Notes), *BiaB* is auto-accompaniment software, which means that you can quickly set up an arrangement in a particular style (say Jazz, Bossa or Rock), and leave the software to sort out what each instrument plays. Unlike *Jammer*, however (which is really designed to help create original music or arrangements), *BiaB* is very simple to use, and allows you get an arrangement up and running with the minimum of effort on your part, allowing you to concentrate on making music rather than the PC technicalities.

I have recently upgraded my copy to version 6.0, which adds a number of useful new features, including better support for entering melodies, a standard notation window and the ability to print out the music in standard 'lead sheet' format. Unfortunately, there is no way of entering the melodies by hand on a music staff — you have to either play the melody in via MIDI or import it as a MIDI file from another application, which can be a bit fiddly. But you'll be surprised how quickly your performance skills can improve when you start playing regularly with a band — even if it's a silicon one! It's really quite uncanny; the 'software' musicians in the program are so realistic that they've never been known to buy a round!

...OR HIRE A VIRTUAL SESSION GUITARIST

Another interesting program from PG Music is *Jazz Guitarist*, which is a sort of musical workshop covering a large number of well-known jazz standards. The music was created by a Canadian jazz session player, Oliver Gannon, using a MIDI guitar to give an accurate 'live' feel to the music. The software not only plays the music via MIDI, but also shows the fingering and notation as it plays, allowing you to really get inside the music. Each piece has a short description with performance notes and musical anecdotes. While the choice of material is rather limited to older standards, it can still give an insight into the way jazz guitarists voice their chords and interpret melody lines. Both PG packages are available from Arbiter Pro MIDI (0181 202 1199). *Band-in-a-Box* costs £89 and *Jazz Guitarist* £49 (prices include VAT), which makes them ideal Christmas stocking fillers.

SOS



Improve your guitar chops by studying some jazz standards with PG Music's *Jazz Guitarist*.

pitch is, it has the Windows device driver send the note message to the MIDI application with the actual note start time, rather than the time that it worked out the pitch. Though this means that the driver is effectively lying to the MIDI application, it does ensure that when the MIDI is played back, it is an accurate transcription of the performance.

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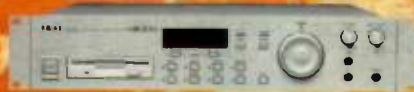
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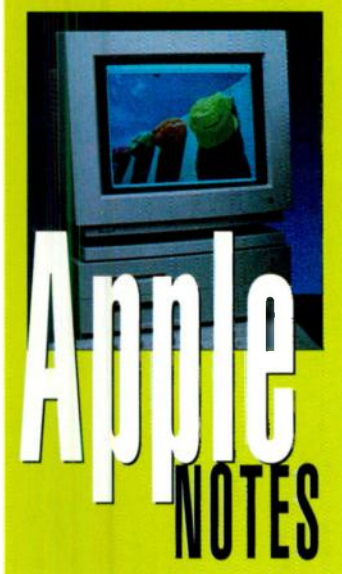
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MARKS



MARTIN RUSS offers an antidote to the hype of Windows 95 and explains why the future of computing lies with the PCI buss...

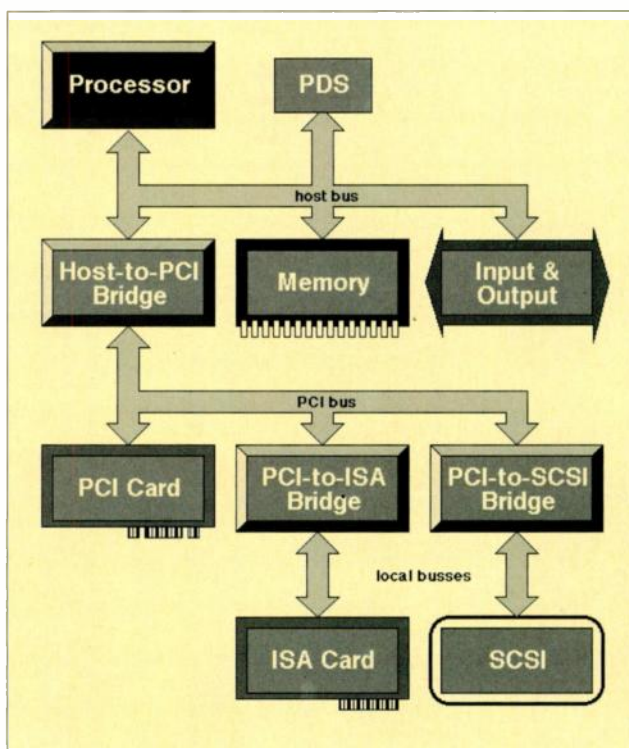
As I write this, September 1995 is being seriously over-hyped by the media because of the launch of Windows 95, the latest version of Microsoft's graphical operating system for IBM PC-compatible computers. Having used the full release version of Windows 95 for some time, I must congratulate Microsoft on a marvellous piece of software. It is intuitive, easy to use, first-time friendly, has lots of shortcuts for experienced users, and gives a nice set of graphical metaphors for using a computer. It manages to turn a distinctly unfriendly DOS machine into something which is usable by almost anyone (yes, you are reading the Apple Notes column, honest!).

My only question is: why it has taken Microsoft so long to get to where Apple were many years ago? Windows 95 is huge, complex, and very user-configurable, but it feels like they have thrown a Mac, UNIX and Windows 3.1 into a pot and merged them together without doing any pruning. There are still inconsistencies and awkward solutions in there, and although you can do just about anything, I can't help feeling that it still lacks the streamlined, polished gloss of my Mac's System 7.5 (and besides all that, Opcode's *Max* is still only available on Mac!).

HOW IT WORKS: THE PCI BUSS

You've probably heard about the PCI buss, although all the mentions that I've seen in computer magazines so far have been rather vague. Since any future Mac that you might buy is very likely to have a PCI slot in it, this seemed like a good time to look at what PCI really is. The best place to start any discussion on computer busses is to put them into context — after all, confusion is the one thing that is certain with any talk of buss standards.

You can't always believe in corporate images. You may have heard that the Peripheral Component Interconnect (PCI) buss was originally designed by Intel, and so you might imagine that there would be no way it would ever get anywhere near a Macintosh — but you'd be wrong. Although originally defined by Intel's Advanced Development Lab in early 1991, the responsibility for controlling and updating the buss was handed over to an independent committee, the PCI Local Buss Special Interest Group (PCI SIG), in June 1992. Intel even made the PCI patents public domain — and so PCI is not a proprietary standard. As a result of this far-sighted generosity, PCI looks set to become the unifying



buss for all personal computers: IBM/Intel PC compatibles and Apple/Motorola PowerPC compatibles. Many workstations now have PCI slots too.

The main processor in a computer communicates directly with its RAM, ROM, and cache memory, using a host buss — the Processor Direct Slot (PDS) in a Mac provides this direct access to the processor. Any other busses in the computer hang onto this host buss using a bridge. In the past, computers have been designed with a bridge to a system buss (usually proprietary, and often very manufacturer-specific) that forms the backbone of the computer. These are the ISA or EISA busses that you find in many IBM-compatible PCs, the MCA in IBM PS/2s, and the NuBus in Apple Macintosh II, Quadra, Centris and the first Power Mac machines.

PCI changes this architecture by providing a single bridge between the host buss and the PCI buss. The PCI buss then acts as the primary buss for any other buss usage. A PCI-to-ISA bridge would provide an ISA buss in a PC-compatible,

TIP OF THE MONTH

One of the best ways of finding out how to make the most of your Macintosh is talking to other owners. For many years, a number of independent Apple-user groups have provided a way for interested Mac users to meet, discuss, swap tips, and generally immerse themselves in Apple computers for the whole of a meeting. Although you are unlikely to find many other musical Mac users, you will probably meet graphic designers, Photoshop artists, DTP experts, and even the occasional database designer who can talk SQL like a native. Mac owners are often enthusiastic, even evangelistic at times, and I've always found Mac-user group meetings to be useful, if not essential, events.

So how do you find out where your nearest Apple-user group is? Perhaps the easiest way is to call the Apple Information Centre on 0800 127753 (notice that number? It's an 0800 number, which means that it is free!). When you call the number you will find it an invaluable resource of information on Apple-related topics — like user groups, for example. I have always found them to be helpful and knowledgeable, providing an invaluable resource of information. Please remember, this is not a free support line, so don't try asking them about technical problems you are having — for that, you need to subscribe to one of the many software or hardware support schemes.

whilst a PCI-to-NuBus bridge would give NuBus slots in a Mac. Secondary PCI busses can be hung onto a PCI buss by using a PCI-to-PCI bridge.

PCI busses are short, unterminated, designed to cope with multiple processor architectures, and support simultaneous activity from the processor, input, output, and memory. You may well be familiar with the idea of providing a termination for a buss from SCSI connection to Macs, where the last SCSI device needs to be terminated so that the current flows from the Mac to the end of the chain of SCSI devices. PCI's unterminated design means that signals deliberately reflect back along the buss, which is why the length is defined to be short: short enough that the maximum round-trip delay for a signal must be less than 10 nanoseconds (that's 10 billionths of a second). This places severe demands on the design of the buss and the cards that plug into it.

Next time, I will look in more depth at computer buss performance.

ON THE NET

There's some fascinating discussion on Apple's World Wide Web site on the subject of Windows 95, including a competition (US only, unfortunately) for the best reasons 'why I still prefer my Mac...', and lots of other Windows 95-orientated information. Here are some places to surf:

APPLE NEWS IN BRIEF

BARGAIN MACS

- Just about now, you should find a number of PowerMac 7100s and 8100s appearing on the market. Various described as refurbished and warehouse surplus, these are a combination of clearing stocks and the moving on of old Apple machines to make way for new models. Both models have NuBus slots and ought to be available at bargain prices — especially if PCI-slotted replacements start filling the shelves. Contact your local Apple dealer for more information.

MAX POWER

- The update to *Max 3.0* arrived at the Apple Notes HQ recently, and I'll give you more details when I've had a chance to get to grips with its new features! For your update (only £399.95 inc VAT) contact Lars at MCM on 0171 258 3454.

IN CONFERENCE WITH APPLE

- Apple continue to extend their operating system support into multimedia. After QuickTime Music, QuickDraw 3D, and QuickTime VR, we now have QuickTime Conferencing, designed to make desktop conferencing (document, audio and video conferencing) easy over LANs and the ISDN. It supports industry standards like H.320 (you might have seen the BT adverts for their H.320-compatible videophone on TV and in the press recently) and T.120, and is designed to be independent of transport medium, compression devices and media, as well as offering support for open standards for interoperability. In a word — flexibility!

- www.apple.com
(for an alternative view of Windows 95);
- www.microsoft.com
(for Windows 95 information);
- www.claris.com
(there's rumours of a Beta tester of an E-mail program somewhere);
- www.kaleida.com
(OpenDoc information).



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DMT-8

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8 Track

22 INPUTS IN REMIX

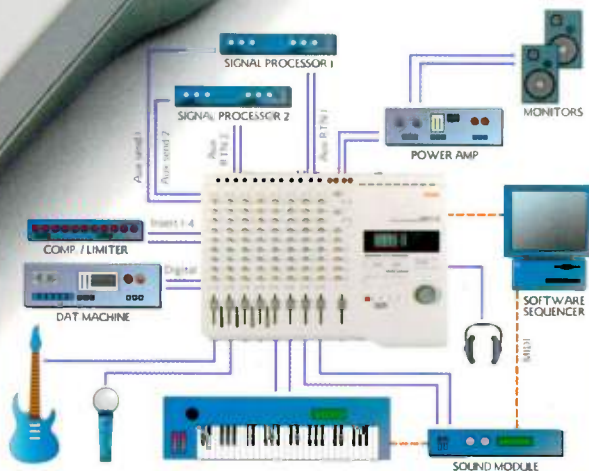
Nice touches include 4 track simultaneous recording, non-destructive audio editing, MTC sync, 3 kinds of timebase, 6 memory locations, a handy dual-function jog/shuttle wheel for digital scrub without pitch change, Auto Locate to ABS 0 and ABS End, archiving via DAT, and individual track outputs.

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.

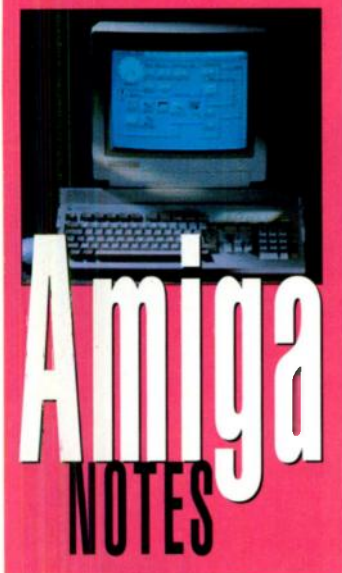
This simple procedure can be carried out on selected tracks or on all eight at once. And with the handy undo feature, mistakes don't have to be final. Note: When copied, audio is written to a part of the hard disk called the 'clipboard', the contents of which can be reviewed at any time with a simple button push.



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Digital Recording

Fostex



More news from PAUL OVERAA on what's been happening music-wise in the world of the Amiga...

As we might expect, quite a few Amiga hardware and software companies are pulling out all the stops in order to get new products out, as Amiga Technologies bring their new Amigas into the shops. On the music front, New Dimensions, for example, have brought out an updated version of their popular *TechnoSound Turbo* sampler. One of the biggest improvements is a move to 12-bit sample processing internally. This both reduces any quality loss when manipulating 8-bit samples and allows the software to be used with the New Dimensions' own 12-bit sampler. Although this looks much like the 8-bit version, the difference is that it connects to both the parallel and serial ports (a built-in Thru connector allows another serial device to remain attached when using the sampler).

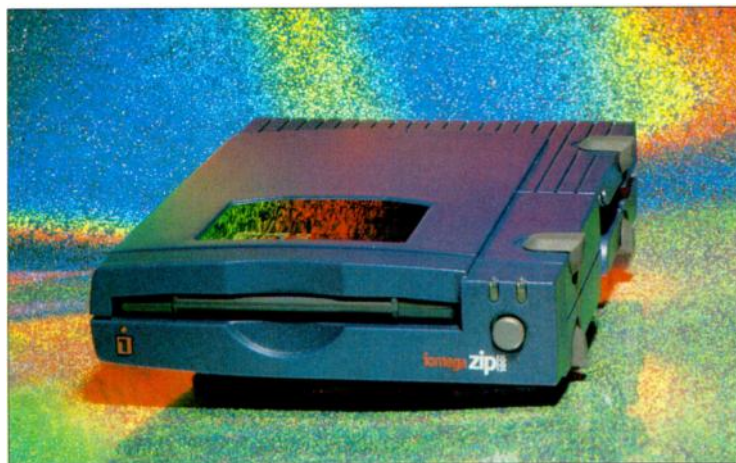
Although the new *TechnoSound Turbo Pro 2* can't sample directly to disk in 12-bit mode, it does have advantages in other areas, namely in that you do not need a PCMCIA port. This, of course, makes the package accessible to a wider range of users, than say HiSoft's (admittedly excellent) 12-bit *Aura* package. Software-wise, there are not just internal improvements — you'll also find a clever software-

with its new, higher-resolution internal routines, and it is due to this that the new software is being bundled with 8-bit hardware for £39.99. This is aimed at users who just want an up-to-date 8-bit Amiga sampling package (existing *TechnoSound Turbo* users can upgrade their software for just £10), but if you want to go the whole hog, then a further £49.99 will buy the hardware that provides the full 12-bit sampling capability. For enquires, credit card orders and so on, contact New Dimensions on 01291 690933.

ZIP A DEE DO DAH

A brand new SCSI peripheral — a hard drive called the Zip featuring removable disks with 100Mb capacity — has just been released by HiSoft. The drive itself is manufactured by Iomega, and uses disk cartridges that look much like conventional floppies, except they are a little fatter. The disks are supposed to be able to withstand a 1000G shock without damage to data, and to have an estimated shelf life of at least 10 years.

At the moment the Zip drive is an external one (it comes in a quite stylish, blue box about the size of a portable CD player), but there is a rumour going around about an internally fitting version, appearing perhaps as early as this Christmas. The Zip currently costs £179, including software and a 100Mb disk cartridge. Additional disks cost £15.99, and since this means that you are paying less than 16p per Mb for removable high-capacity storage, this system could prove to be very useful for backing up conventional hard drives. More details from HiSoft on 01525 718181.



Iomega's Zip removable hard drive is likely to create a lot of interest within the Amiga community!

AN UNLIKELY CONNECTION

Someone wrote to me the other day asking why the authors of some Public Domain/shareware Amiga programs and utilities occasionally seem to provide facilities that are seemingly of little use to the Amiga community in general. Often, the utility was not actually written

based filtering system, and a range of new sample manipulation functions.

The *TechnoSound Turbo Pro 2* software alone makes for an excellent 8-bit sampling package,

with the Amiga in mind, but has been ported to the Amiga from some other platform. References in the documentation to strange file formats (as used on Sun workstations, DEC machines, and

AMIGA NEWS IN BRIEF

• SPEEDY CD

Silica have released a new CD-ROM drive called the Overdrive Quad Speed which is capable of transfer rates of up to 600K/sec. It's aimed at A1200 users, and plugs into the PCMCIA slot. The drive costs £249. For more details contact Silica on 0181 309 1111.

• SLOTTING IN NICELY

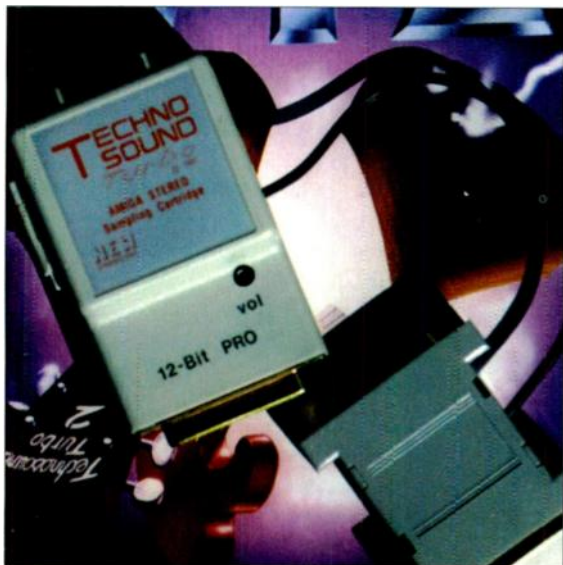
Some A1200 users who already have their PCMCIA slot occupied may find a new 16-bit adapter from Siren Software useful. It costs £69.99, fits internally to the IDE connector, and contains a thru port for your internal hard drive, as well as an additional port which fits to the back of the machine. Contact Siren on 0161 796 5279.

• A GIGA BARGAIN

A 2 Gigabyte collection of around 10,000 IFF format pictures has just been released. Called the 'Giga Graphics' library, the material comes on four CDs containing pictures, graphics objects, fantasy art, rendered images, texture shots, and so on. The price is £25, and you can get more details from PDSoft on 01702 466933.

• ICPUG MEMBERSHIP

From the 1st September to 31st December, ICPUG (the Independent Commodore Products User Group) are reducing the price of membership to £9.50. Application forms are available from Tim Arnot, 17 Colne Drive, Oakfields, Didcot, Oxon OX11 7RZ.



New Dimensions' 12-bit hardware cartridge.

so on) are one such typical giveaway, as are other heavyweight system references. Once you've read the documentation, you'll often find that the program started life running under an operating system called Unix.

Unix is a popular O/S on many large, multi-user computer systems, and it has a particularly strong following amongst academic and research institutions around the world. Most universities, for example, have sites which run under Unix, and nowadays there is an amazing amount of freely distributable software available on this platform. Whilst programs written to run on high-powered mainframes might at first sight appear to have little relevance to the Amiga, in reality, nothing could be further from the truth. A great many Unix-oriented utilities are written in the C programming language, and because they deliberately use simple command line-style arrangements for their program input and output (rather than fancy gadget/menu-based ones), such programs are often relatively easy to port, not only to the Amiga, but to many other computer environments as well.

This, of course, is exactly what happens as Amiga coders come across Unix programs that look as though they might be useful. The source code gets downloaded to the Amiga, and then, perhaps after a few modifications, it is recompiled to run as an Amiga Shell utility. Once it has proved useful, someone will probably write a program, providing an 'Amigatised', easy-to-use front end for the utility, and bingo — yet another Amiga utility program is available.

ENTER AMISOX AND SOXGUI

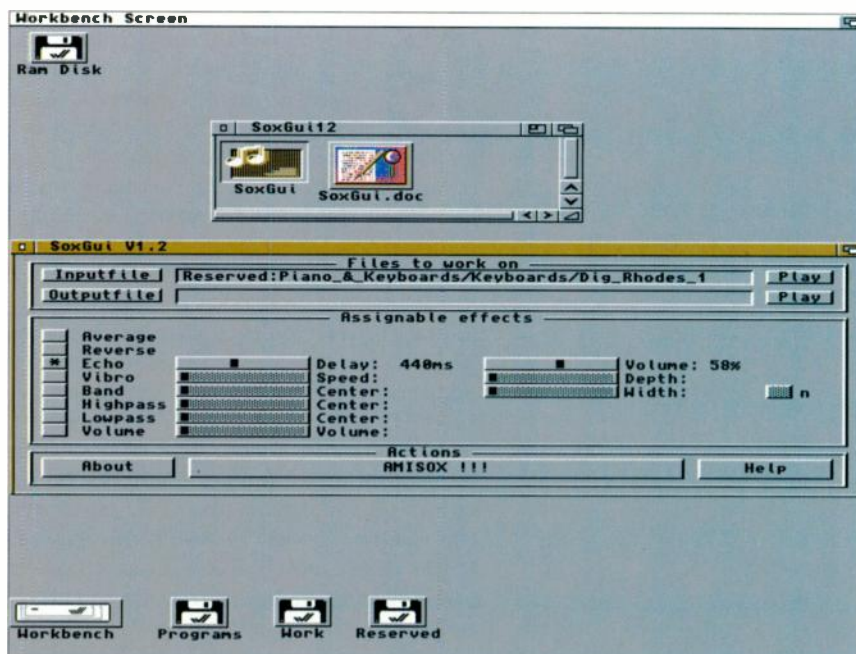
The reason I've mentioned this Unix connection is that there's been some interest of late in an Amiga sound sample conversion program called *AmiSox*, and as you've probably realised, *AmiSox* didn't really start life on the Amiga at all. It is, in fact, the port of a Unix program called *Sox* (SOund eXchange), and, needless to say, it can work with a far more exotic range of sample formats than

you normally find in the world of the Amiga. The following raw formats are currently supported: IRCAM Sound Files, SoundBlaster (VOC), SPARC .AU, Mac HCOM, PC/DOS .SOU, Sndtool, and Sounder, NeXT .SND, Windows 3.1 RIFF/WAV, Turtle Beach .SMP, CD-R and Apple/SGI AIFF and Amiga 8SVX.

As well as copying and translating files, *AmiSox* can also apply various effects to a sample, including rate alteration, signal averaging and sample reversal, echo, a vibro effect (which adds the famous, but somewhat dated, Fender Vibro-Champ sound effect), and low/high- and band-pass filtering. You can byte swap 16- and 32-bit sample data (which you need to do when using samples created on some other machines, like PCs), and even statistically examine it!

Of course, all this sounds great, but *AmiSox*, like the original *Sox*, employs a Unix-like command line interface, which makes it a bit of a nightmare to use. This is where *SoxGui* enters the scene. *SoxGui*, written by Stephan Klein, is a graphical user interface, allowing the less experienced (or simply lazy) Amiga user to access the most useful features and functions of *AmiSox* just by clicking with the mouse. *SoxGui* is not brilliant — it was churned out quickly in order to make the underlying *AmiSox* facilities accessible to a wider audience. In this respect, though, it does its job well enough, and if you like the idea of being able to perform some rather more esoteric sound sample format conversions than most common Amiga utilities can handle, then the *AmiSox/SoxGui* combination might provide the answer. Incidentally, I believe that the programs first appeared on the AmiNet, but by now they should be available from at least some of the larger Amiga PD/shareware suppliers.

SOS



The SoxGui interface makes using AmiSox very straightforward.



Rabbit joining The Who full-time in 1979.

The demand for Rabbit as a session player has led to a string of credits with Bob Marley, Joan Armatrading, Jethro Tull, Phil Collins, Elton John, Eric Clapton, Mick Jagger, Dave Gilmour, and Steve Winwood — the list goes on. He's recently had two solo albums released on Red Steel Music. The first is the new age instrumental LP *Dream Jungle* (conceived in the late '80s and originally released in limited quantities on Luminar Records), which has been remastered and enhanced by the addition of six extra tracks. The second, the rockier *Run for Cover*, features Rabbit not only on keyboards, but also on vocals. I met up with Rabbit at his surprisingly compact home studio for an update on his music and future direction.

WORKING WITH WHO?

I know you're currently writing your next solo album; is there anything else you're working on at the moment?

"I'm collaborating with John Ashley, who recently did an album of the Rolling Stones music using, I think, the London Philharmonic Orchestra. He's now doing the same with The Who's back catalogue. In the last month, I've been called in to two sessions — not involving The Who members themselves, but the musicians that Pete Townsend and Roger Daltrey use in their solo work.

At home with...

ROB PARRETT catches up with veteran musician Rabbit, also known as John Bundrick, who's still in demand as a session keyboardist after more than 25 years in the business.

JOHN BUNDRICK

Born into a musical family in Baytown, Texas, John Bundrick — better known to many musicians as Rabbit — began playing piano at the age of seven and continued to take lessons through high school and college. In 1970, he moved to Stockholm, where he worked alongside Bob Marley as Johnny Nash's musical director and composer, before moving to England in late 1971. Rabbit first came to the attention of the British public after the break-up of the band Free in 1971, when he joined Paul Kossoff, Simon Kirke and bass player Tetsu Yamauchi to form a collective catchily named Kossoff, Kirke, Tetsu, Rabbit. When Free reformed for their *Heartbreaker* album, Rabbit became their keyboard player, whilst also keeping up his work with Johnny Nash. Two solo albums (*Broken Arrows* and *Dark Saloon*) followed. Rabbit's time as part of Free was succeeded by a period playing with Back Street Crawler (a band co-founded by him), and the recording of several albums. It was during this time that he met Pete Townsend, and it was their friendship which led to

They've combined as the backing band for this orchestral album: we go in and cut the music as a band, then John Ashley brings the orchestra in to play over the top. He'll be bringing in guest artists for the vocals, but I can't tell you who they are yet, as not everything has been finalised. There's also a possibility that Roger may do a solo album later on in the year, so I may be involved for some of that session. Then there's a chance of an Australian and European tour."

Because your *Dream Jungle* album is instrumental, it's been put into the new age category. How do you see the new age market in the UK?

"It sucks in this country. When we originally recorded the album, James Asher of Luminar Records described it more as a film soundtrack style of music, but being keyboard-based and instrumental, it automatically got categorised as new age, which immediately limits the market. America is much better. They have a lot of radio

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John Bundrick

► stations that only play new age, and there the term is used to cover a whole range of instrumental musical styles. The immediate reaction here is that it is drifting synth music, whereas in America it encompasses all styles, from world music to jazz, rock and folk."

ON THE ROAD

Do you still enjoy touring?

"When you're touring with The Who, same as the Stones, you just get swept along with it — it's so massive that it's not reality. When you do a smaller tour with one of them as an individual, it's a completely different ball game. But yes, I still

enjoy touring. What I like about it, and most musicians would back me up, is being on stage — the atmosphere, the audience, the applause. What I don't like about it is the travelling in aeroplanes and staying in hotels. But I wouldn't say no to a tour — whoever it is who asks."

You've just released a new album and re-released *Dream Jungle*. Are you planning to promote these live?

"There's no way to reproduce *Dream Jungle* live without using real musicians. I would never go out with a 'Karaoke'-type setup, sitting at a grand piano with everything else MIDI'd up. The only time I would like to go out on a small scale would

LIVE & DANGEROUS

Have you had any disasters with equipment when you've been performing live?

"When I first started playing in Texas, I was in a band called, funnily enough, The The, and I had this Farfisa single manual keyboard — I couldn't afford a Hammond at the time. I was playing away on stage when smoke started coming out of it. All of a sudden it just went pop, and the red plastic lid melted in front of my eyes. Sparks were flying out of it, so in panic I kicked it over, and it just fell to pieces melting and burning. I just stood there thinking, 'Now

I haven't got an organ, I won't buy another one of those because I don't want one, and I can't afford a Hammond'. The start of my career as a professional musician and I hadn't got an instrument — wonderful.

"In the end, I was glad it had blown up, because I managed to find an old Hammond B3 that this woman was selling at a good price to make room for a new three-piece suite! It was so old it didn't even have the percussion buttons, but it was in immaculate condition. I played it all the time until I left America, and as I don't

like to sell anything I left it with my parents. Anyway, it just sat there and rusted away and became completely useless. They live in the country, in the woods, so they let their old neighbour, a tobacco-chewing Louisiana swamp man, to strip the organ of all the metal, then my dad took the shell and buried it in the garden. So my very first Hammond organ is now buried by the river in my mum and dad's garden. They know I don't like selling anything, so what a fitting burial for a lovely Hammond. At least no one else has it."

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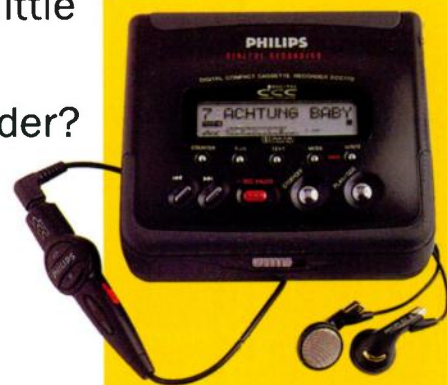
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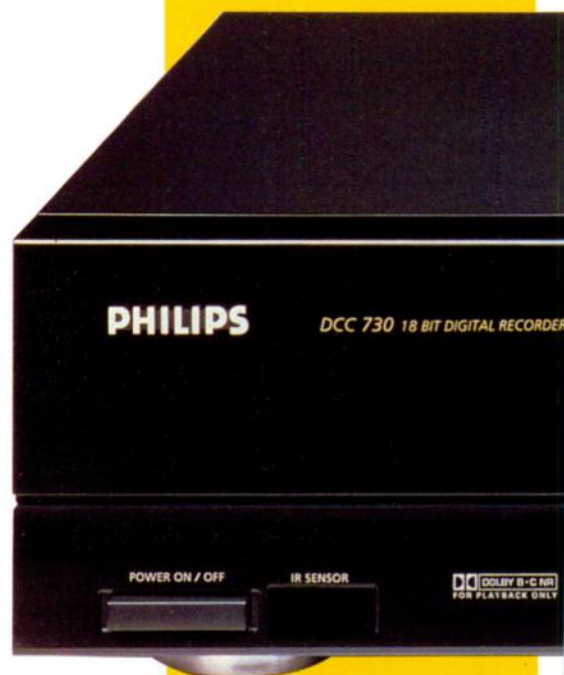
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At home

John Bundrick

▶ he playing my own rock and roll stuff with some friends, just playing on a low-key basis, but not the circuit travelling up and down the A1 in an old van. I suppose I'm a bit lazy, and hope that people will be interested in hearing the albums."

MUSIC THERAPY

How do you approach composition? Do you start from a melody line and build from there or do you come up with a chord sequence first?

"A lot of composers write commercially in order to get their songs recorded by other artists. As I've been writing since I was a kid, I've never trained myself or concentrated my ability on trying to write something specific. I write more as a therapy, because to me it's a way of expressing a lot of things I feel. There's no set way for me to write a song, but I usually start from the piano."

Having worked on various films, including *The Rocky Horror Show* and *McVicar*, do you find it easier to compose when working to images?

"I do like it, even though I haven't done a great deal of to-picture work. *The Rocky Horror Show* was fun — weird, but fun. We were just a rock and roll band, and I didn't know any of the other musicians, so I didn't have anything else to rely on but my ability to play. The producer said, 'Here are the songs, here are the chords, just play some rock and roll'. He didn't even say 'put some Jerry Lee Lewis in here, put some boogie woogie in there'... we just had to play. It was great."

SESSION MASTER

How do you prepare yourself for session work? Do you go in cold, or do the artists give you a demo tape prior to going into the studio?

"Nowadays the trend seems to be to send a tape. Then I usually write out a chord chart — it's a very quick way to learn a song. In Pete's band, I always do that, then

everybody else wants a copy, so it sort of morphed into me becoming the chart writer — for no extra pay, I hasten to add!"

Do you still enjoy session work, even after all this time?

"I enjoy playing other people's music; it's sheer pleasure putting my style into their music. I recently did a session for Barbara Dickson's new album, and I thought I was going to be told exactly what to do, because her music's so smooth and precise, with everything in the right place. I drove up there thinking 'it's only a couple of tracks, and they'll know exactly what they want me to do, so I'll relax and enjoy it', but when I got there, Pip Williams, who was producing, just said, 'Go out there and play the Hammond'. So I just played the way I do, and I stuck a solo in there. When I went in to listen afterwards, I said 'Sorry about the solo', and they said 'No, it's great — that's just what we want'.

"It's funny, I got that session through Pip Williams phoning up Dave Pegg from Fairport Convention and asking him if he knew anybody who played Hammond like Rabbit, and Dave said, 'Why don't you just ask Rabbit?'. Pip replied 'I didn't know he was around anymore!'"

Though you're known as a Hammond player, you also own and play a variety of synths. What was the first synth you ever owned?

"When I was over in Sweden with Johnny Nash, I had a Wurlitzer piano used with an Echoplex and a fuzz box: I was playing Jimi Hendrix on my Wurlitzer! While exploring a junk shop, I found this weird-looking instrument, which was a long black tube with a keyboard on it, called a 'Tubon', or something similar. It made a synth type of noise, a sort of wiry reed sound. I don't think synths as we know them were around then, but this thing was strange, so I played it to Johnny and he said, 'That's weird — let's use it!'. Then I discovered the Stylophone, so we used that on his recordings as well. But I didn't see a true

YOU SPIN ME RIGHT ROUND: RABBIT ON LESLIES

The Leslie cabinet is obviously a major part of the Hammond sound. How do you go about miking up the Leslie in the studio? Or have you found a suitable electronic substitute?

"The best way for me is to close-mike the real thing, whether live or in the studio. To get a good stereo effect, close-mike the high tweeter and the low bin separately. You can get different effects by adjusting the pulley system that drives the bins; these are belt-driven and have three different speeds. I've used these to great effect, especially when recording with the Who, when we had four

Leslies miked up, one not rotating and the other three running at different speeds — it gave a fantastic phasing effect.

"If I have to use an electronic simulation, I have a Korg Toneworks G4, and though it's only a mid-price device, I love it. I mainly use it to process organ-type sounds and it really enhances the stereo spread. Even the Emu Vintage Keys samples, which are already in stereo, seem to get pushed right across the speakers. There's also a control which simulates the effect of mic positioning, and you can adjust the rate at which



PHILIPS



synthesizer until I came to England in '71, and the Minimoog was the first one I came across. Then there was the first string synthesizer — a big blue keyboard that this guy called Ken Freeman said he'd invented. The first time I saw it, it was in his house, spread across the floor in pieces! He was regularly bringing it to Island Records, because everybody was renting it off him. I used it a lot on my solo album *Broken Arrows*, and I worked with him later on *McVicar*."

STUDIO TECHNOLOGY

Do you feel that technology and MIDI has helped expand your ability as a musician and composer?

"If I didn't have all this gear, I'd still be writing on the Wurlitzer and the piano — although in a way, I suppose I wrote more songs when I didn't have the gear. But unless I had a band, the songs would just be shelved; nowadays I can compose the whole thing."

When recording your own material, do you tend to sequence a lot, or do you stick to conventional multitrack?

"I tend to use *Cubase* like a tape machine, so I record everything as a performance with the minimum of quantisation. I try to play each part as if I were the player of the actual instrument — flautist, viola player or whatever. I suppose the only thing I sequence conventionally is my Korg DW8000, which I use for special effects and loops."

What does your setup consist of at the moment?

"I use a Technics SSPX30 as a mother keyboard. I don't use the internal sounds any more, but the keyboard has a lovely feel. As far as the rest of my keyboards go, there's my Hammond C3, an original Wurlitzer electric piano, and an original D4 Clavinet. At the more hi-tech end of things, I have an Emu Vintage Keys and Proteus 2 upgraded



to XR status, and a Kurzweil 1000PX. The Kurzweil grand piano sounds are exceptional, but I'm not so keen on the string sounds. That doesn't really bother me, though, because I never use any string sound on its own. If I want synthy strings, I'll mix the Kurzweil with strings from my Korg M1, or, for a more realistic sound, I'll mix the Kurzweil and the Proteus 2. At the moment I'm considering buying a Kurzweil PC88, as I've heard nothing but good reports.

"If you haven't got a real bass player, I think the instrument to get for basses is the Peavey Spectrum Bass module — I love mine. I also have a Korg MS10, a Korg S1, a Korg DW8000 and the Korg M1. I seem to have a lot of Korg gear, so perhaps they'd like to talk to me about a sponsorship deal!

"Apart from the keyboards, synths, and modules, I use a Yamaha RM50 drum module, an Akai S900 sampler and an Emu Emax 1 sampling keyboard. In the effects department, I have a Behringer Composer compressor/ limiter, a Quadraverb GT multi-effects unit, a Lexicon reverb, a Digitech VHM5 Vocalist and a Yamaha SPX1000 effects unit to handle the processing. My main microphone is the Sennheiser 412D, and I record the whole lot onto an Alesis ADAT. I also run *Cubase Score* on a 4Mb Atari ST, and that's synchronised to the ADAT using a JL Cooper DataSync. Everything runs into a 24-channel Spirit Studio LC24 desk, and I monitor with a Technics amp and Realistic speakers all the way from Tandy, although I also have the obligatory Yamaha NS10 speakers.

"The rest is just bits and pieces, like Sony DATs, and another 16-channel desk. Though I like to use a real Leslie, I have a Korg Toneworks



the speed changes as you switch from slow to fast, to simulate the effect of the real thing. I also use it in the studio for guitar processing."

At home with...

John Bundrick

► G4 Leslie simulator, and there's also this box from the old days that enables you to plug a guitar straight into a Leslie. Nowadays Geoff Allan from Sensible Music builds them, but the original ones were built by Leslie themselves. That leaves just various odd pedals and effects, and, last but not least, a Roland harpsichord — I think it's a CP55 — which is brilliant.

"I suppose if I had to rate my equipment in order of priority, it would have to be Korg at the top, then Emu, and then Kurzweil. I find Yamaha



sounds tend to be over-used — but then again, the Yamaha RM50 drum module is really good."

I see that hidden underneath all the other stuff, there are some interesting-looking guitars...

"Yeah... there's an old metal Dobro and an electric guitar that was made for Pete Townsend in the style of a Stratocaster. There's a Gorian acoustic guitar, and a miniature guitar which a guy in America made and gave to me when we were touring over there."

You can obviously get the quality you require in your own studio.

"If I went to a larger studio and used a real piano and a real Hammond instead of my Vintage Keys module, I'd probably get a better sound, but what I tend to do here is record everything

here, then a friend of mine comes in to help out when it comes to vocals and final mixes. But we still do the final production here in my studio. Apart from perhaps having more outboard gear, there's enough here to get a decent quality sound."

FURTHER INFORMATION

For more information about Rabbit, write to: Red Steel Productions, Red Steel House, PO Box 2296, Cricklewood, London NW2 5JZ.

LIKES AND DISLIKES

Do you tend to use the equipment from your own studio for live performance, because you're familiar with it?

"No, I won't do that any more. I did take some gear to a session for Snowy White, but when I got it there we didn't even use it, so I decided not to do that again. The only problem with leaving it to other people to provide the gear is that you never know what you're going to find when you get there. I always insist on having a real Hammond and a Korg SG1D, and that's easy enough when you're playing England, but we had one gig in Germany when they gave me a Korg M1 to do all my Hammond parts on! In the middle of the set, Snowy turned to me and said 'that sounds crap' — so now I insist on no M1s as substitutes for Hammond organs. I'm a real organ player, and good though the M1 is in its own right, it's a long way from being suitable as an organ substitute."

Are there any samplers or synths that you would use to play organ sounds on?

"I did use the Vintage Keys live once, but you still can't play it like a real Hammond. And you can really only use the presets for solos because they're so beefy — you have to program more subtle pad sounds yourself. If you arrive at a gig where you're not using your own instrument, you don't have time to program new patches. Unfortunately, the Vintage Keys doesn't have a card slot — and I'm not in the habit of carrying a MIDI data filer around with me. Even so, if I can't have a CX3 or a real Hammond, I would use the Vintage Keys, because it will cut through on solos. Emu did a good job on it — my only criticism is that they could have made it a bit easier for a real organ player to personalise the sounds."

What's the next piece of equipment you intend to get?

"I've been offered an Emax II HD, and I could do with another sampler. I'm also really keen on the idea of the Akai DR8. I would like to use one instead of the ADAT, and then I could be completely hard disk based, but the download time is excruciatingly long. I'm told that every time it fills up, you have to stop the session. I spoke to Akai about it and they said there's something coming out to speed it up a bit."

Finally, is there any equipment or keyboards that you had in the past and wish you hadn't got rid of?

"I'm very touchy about gear, and I tend not to get rid of anything. So, for example, the Wurlitzer piano I had in Free is still there, as well as the Clavinet that I used on Bob Marley's *Catch A Fire* album. They all mean something to me."

SOS

"...if I had to rate my equipment in order of priority, it would have to be Korg at the top, then Emu, and then Kurzweil"

BABEL SYSTEMS



SAMPLERS



Akai S2000
Akai S3000 XL
Akai S3200 XL

Kurzweil K2500
Emu ESI 32
Kurzweil K2000 V3

MIXERS

Behringer MX8000
Mackie
Tascam
Soundtracs
Soundcraft Spirit
Studiomaster
Yamaha Pro Mix 01



MULTITRACK

Alesis A-DAT
Akai DR4d
Akai DR8d
Digidesign
Soundscape
Tascam DA88
Yamaha CBX-D5



SYNTHS

Alesis Quadrasynth
Emu Morpheus
Emu Proteus
Emu Ultraproteus
Emu Classic Keys
Korg X3, X5, 05RW,
X5DR, 14, 03RW, X3R

Fatar keyboards
Roland XP50
Yamaha SY35, SY85



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YAMAHA

MUSIC SEQUENCER QY22

Although it offered a GM mode, Yamaha's QY20 Walkstation was not a true General MIDI instrument. With the release of the new fully GM-compatible QY22, have Yamaha rectified the shortcomings of the previous machine? DEREK JOHNSON finds out.

What would you say if it was possible to walk down to your local music dealer and pick up a General MIDI sound module, 8-track MIDI sequencer, and drum machine plus keyboard, all crammed into a package the size of a video cassette, that can run off batteries, for less than £500? If your response is, "Oh, Yamaha must have released a new QY-thingy", then you've obviously been a regular reader of this magazine for a long time! And you'd be right: the latest entry to a family spawned by the QY10 back in 1991 is the QY22 Music Sequencer, which fits nicely into the current range as a sensible alternative to the seriously entry-level QY8, and the seriously serious QY300.

between the QY20 and QY22 is in the sound department: whereas the QY20 had 100 preset AWM voices that used a slight fudge to become General MIDI compatible, the QY22 is the real thing, and offers a full 128 GM sounds, plus eight drum kits. There are also a couple of changes in the preset pattern department, but nothing major.

OPERATING MODES

Briefly, the QY22 operates in three basic modes: pattern, song, and voice.

• Pattern Mode

One hundred basic patterns are provided, made up of drums, bass, and two chord tracks. Each pattern features six variations, such as intro, normal,



YAMAHA QY22 £479

PROS

- Portable
- Easy enough to use.
- Surprisingly powerful sequencer.

CONS

- Buttons can be fiddly.
- Sounds not of the highest quality.
- No effects.

SUMMARY

A useful musical sketchpad which provides auto-accompaniment if you want it, but doesn't make you use it if you don't. Well specified, but make sure you're happy with the sounds first, especially if you're used to expensive synths.

Actually, QY-watchers amongst you will have instantly spotted that the QY22 looks uncommonly similar to the now-discontinued QY20, released a year or so after the QY10 (and reviewed in January 1993's SOS). The two machines are physically identical, and internally there's not much to choose between them either. Both offer a portable, battery-powered, 16-part multitimbral, 28-voice polyphonic sound module, 8-track sequencer, auto-accompaniment facilities, and a 2.5-octave squidgy keyboard (apart for the lack of a disk drive, the QY22 is virtually a workstation!). In fact, the only real difference

variation, and so on (that's a total of 600 patterns), and these form the core accompaniment patterns. They offer instant gratification if you're not too demanding, or are after 'sound-u-like' backing tracks. You're also provided with 100 user patterns, which you can define yourself — these are basically 4-track sequences of up to eight bars in length, with virtually any time signature (1/16 to 8/4). One track must be a drum track, but apart from that, you can record what you like, in real or step time.

• Song Mode

In song mode, patterns are chained together to make a complete piece. Using the preset patterns, ▶

THE LOGICAL CHOICE...

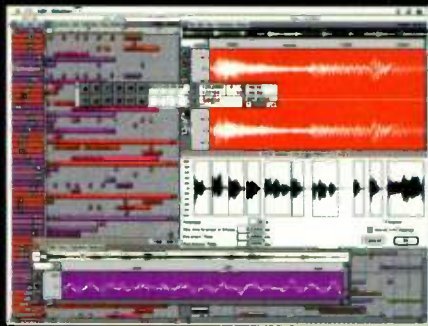


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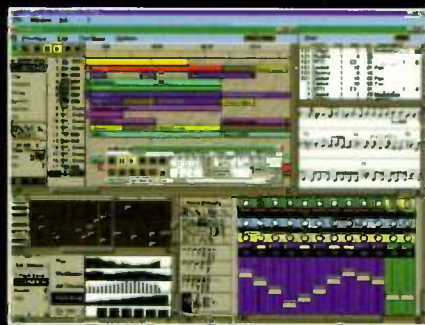
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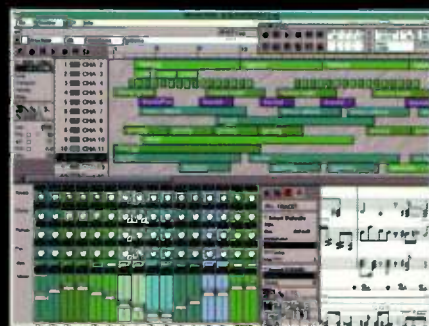
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FEATURES

SEQUENCER

- 8 tracks
- 20 Songs, 100 user Patterns, 600 preset Patterns
- 28,000 notes
- 25 preset chord types
- 96ppqn resolution

SYNTH

- AWM sound generation
- 128 GM patches, 8 GM drum kits
- 28-voice polyphony
- 16-part multitimbrality

STYLE COUNCIL

There isn't space to list all the available preset Patterns, but the collection falls into 10 stylistic groups, as follows: Dance, 18 patterns; Ballad, 13 patterns; Rock & Pop, 17 Patterns; Rhythm & Blues, 14 Patterns; Hard Rock, 6 Patterns; Rock & Roll, 6 Patterns; Jazz, 9 Patterns; Latin, 7 Patterns; Reggae, 4 Patterns; World, 6 Patterns.

Remember that each of the 100 Patterns also features six variations — some of the styles are closely based on recognisable released recordings, and clever use of the variations could easily allow you to recreate these particular songs.

QY22 AS SOUND MODULE

The limit of eight sequence tracks may lead you to presume that the QY22 is 8-part multitimbral. This is not actually the case, as the General MIDI flash on the QY's front panel should remind you. The GM specification dictates that a unit should be 16-part multitimbral, and that's exactly the case with the QY22. This means that it's quite possible to use it as a 16-part multitimbral sound module — it will happily respond to Standard MIDI Files with up to 16 separate tracks being played from an external sequencer —

but sadly it won't allow you to use the extra eight tracks in your own compositions written with the QY22. Indeed, the extra eight parts are somewhat hidden — I could only spot one explicit, but very brief, mention in the manual, and the MIDI spec booklet makes it obvious only if you're looking for it.

One other point to keep in mind is that patch selection, volume, and pan positioning on the eight extra parts can only be controlled externally — there's no way to do it from the QY22's front panel.

▶ the various styles and their variations could be chained to make instant backing tracks in any one of several genres. It is also possible to define chord progressions, using any of the 25 available chord types (major, minor, diminished, 7th sus4, and so on). Song mode also provides you with an additional four 'sequencer' tracks, where you can overdub any other material you like. That makes eight tracks in total (four used by the patterns and four added in song mode).

The sequencer is really quite sophisticated, and offers full event editing, similar to that found in many software sequencers, not to mention a good supply of basic global editing tools, such as quantise, transpose, modify velocity and gate time, and so on. If you record parts with an external sequencer, it's even possible to record velocity, pitch bend, and mod wheel (sorry — no aftertouch).

When choosing the chord sequences to be used by the accompaniment tracks, operation is rather like PG Music's *Band In A Box* software, where you simply fill in squares with chord names and types (plus altered bass notes, if you like). Alternatively, Yamaha offer their so-called ABC (Auto Bass Accompaniment), where any attached MIDI keyboard becomes an instant home keyboard: any 3-note chord played in a pre-defined area of your keyboard is analysed by the QY22 to generate harmonies based on one of the 25 available chord types.

• Voice Mode

Voice mode offers an attractive graphic mixer page, where you can change a given song's voices, alter level and pan positions, and generally have a little fun. You can also mute/unmute individual tracks — but why no solo?

SOUNDS

The QY22's voices come from Yamaha's established AWM (Advanced Wave Memory) library. Versions of this technology feature in rather more sophisticated form on more up-market instruments, such as the SY85 and W5/7. Here on the QY22, AWM takes the shape of an adequate selection of samples that often show signs of being trimmed to the bone — samples are too short, loops buzz, and multi-sampling is not quite as common as it could be.

The quality of the on-board sounds varies tremendously, from very playable acoustic pianos (one or two strange samples aside), to unbearable distorted guitars. The drum kits are a mixed bag, too, with some very short samples being used. The

built-in patterns don't actually help, and successfully conspire to make the QY22 sound like the most average of auto-accompaniment home keyboards — however, a little careful playing when recording your own sequences goes a long way. Treat the QY22 as a phrase-based plus overdub sequencer with built-in scratch sounds, and you won't be disappointed.

IN USE

The QY22's user interface is, for the most part, quite friendly — the controls are generally self-evident, although the display does occasionally seem crowded, making spotting the cursor difficult. Unlike some similar products, the cursor rarely overshoots its destination, or misfires — readers who are familiar with the Alesis HR16 and MMT8 will be nodding in agreement here.

Some aspects of the operating system can be obtuse, with one or two functions requiring seemingly endless (but actually five or six) button pushes to access. But these few shortcomings are easily countered by friendly features, such as the event edit list in pattern and song mode.

An important shortcoming for me is the QY22's lack of effects — voice editing wouldn't be expected on a product of this type, but effects would have gone a long way towards improving the overall impression of the sounds, and would have been useful given the use of effects by many commercial MIDI files written for other GM sound modules.

CONCLUSION

Summing up the QY22 is tricky. Firstly, there's the question of the QY20 — quite why it couldn't have been properly GM-compatible at the time of its release is a mystery. However, releasing the QY22 has given Yamaha the chance to get it right, and also to re-promote what is basically a worthy machine, albeit at an £80 premium (the QY20 retailed for £399, while the QY22 weighs in at £479). Certainly, there's been a year or two of inflation and crashing sterling, but equally, Yamaha have had a couple of years to recoup R&D costs on the original machine. These points aside, there is enough to recommend the QY22. It's hard for me personally to take auto-accompaniment instruments seriously, and I have reservations about the quality of some of the sounds and the lack of effects, but there are many for whom the varied selection of preset styles here will be ideal. The gigging club musician, who perhaps specialises in covers, and is looking for a quick way to assemble backing tracks, will probably find the QY22 a good buy. For the more individual musician, the choice may be more difficult, though the QY22 still has plenty to offer as a totally portable, all-in-one ideas machine. **SOS**

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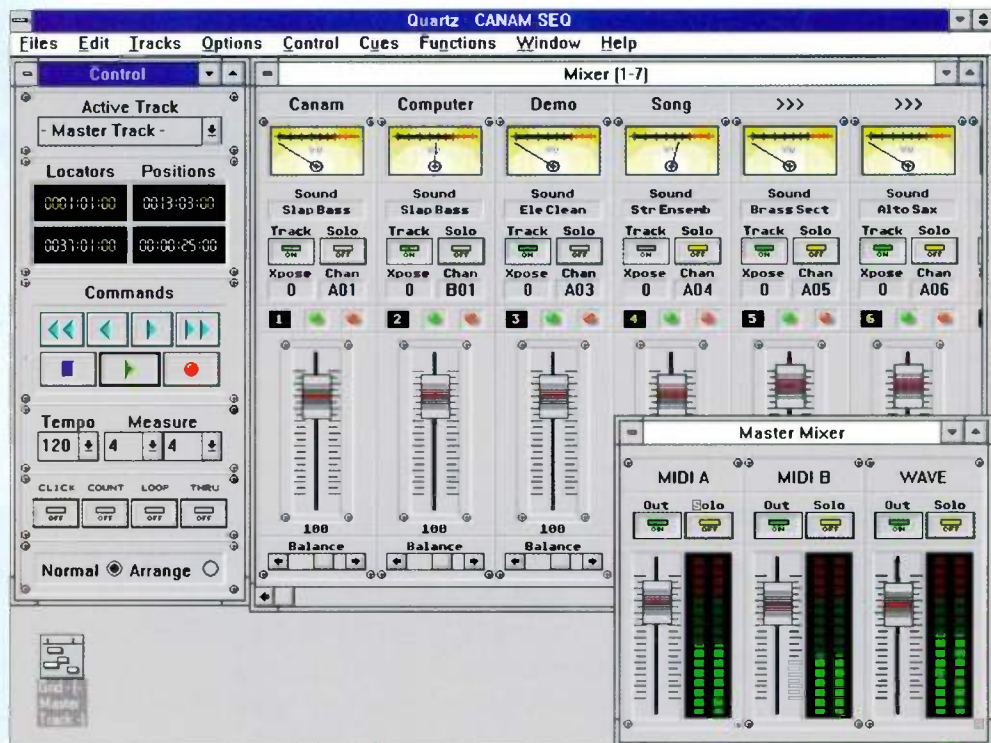
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The Quartz main screen.



CRYSTAL

CANAM QUARTZ PC DIGITAL RECORDING AND MIDI SEQUENCING SOFTWARE

This new French program must be one of the cheapest ways of integrating digital audio and MIDI sequencing. PANICOS GEORGHIADES and GABRIEL JACOBS put it through its paces.

The latest in a series of similar cheap packages appearing at the moment, Quartz is a PC program that integrates MIDI and digital audio recording and playback. Its price makes it an entry-level piece of software, and in terms of features it is indeed in that category. However, you can do quite a lot with it, and depending on your requirements, it could prove to be all you need.

ON THE SURFACE

The program is very simple to use — if you've used other software sequencers before, and if you're familiar with Windows, it shouldn't take you more than an hour or two to get up and running with Quartz. The 50-page manual explains all menus and windows, and includes a section on MIDI basics, but you hardly need to read it to use the program.

Quartz's screen layouts follow standard Windows conventions. The menu bar has the normal File, Edit, Options, Windows and Help menus, as well as specialised ones such as Tracks, Control and Cues. However, the manual incorrectly states that the program uses the Windows MDI (Multiple Document Interface) in exactly the same way as Word for Windows, the File Manager, and many other applications. MDI means that you can load and edit more than one document at the same time, but Quartz doesn't actually allow you to load more than one song at once. This isn't the end of the world, and in actual fact, few music programs adhere to MDI — but why make

CLEAR

inaccurate claims? There are a few other incorrect statements in the manual, which hasn't been updated to reflect certain features of the program.

GETTING PISTES

Quartz is in fact three programs in one: the main sequencer program, a soundcard mixer, and a wave editor.

The main program is a 32-track sequencer. Tracks here are called 'Pistes' (as Quartz is French) and, unlike most other sequencers, this one doesn't give you what is called a track sheet. Instead, you get a tracks mixer, which we'll come to in detail in a moment. Quartz has many windows, three of which are the most important:

- The Control window is where you find the transport controls to play, record, stop, fast forward, and so on, as well as buttons and settings for a number of other parameters. There's a text box that shows the selected active track, while two digital counters display the positions of a pair of locators. These are used for functions such as loop playback, and their positions can be edited on the screen simply by clicking on them. Another pair of counters shows the present position in the song in elapsed time, as well as in bars, beats and

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PROS

- Useful Juke Box feature
- Integrates digital audio with MIDI.
- Easy to use.
- Cheap.

CONS

- The version we reviewed had problems with keeping tempo.
- The manual could be more accurate.

SUMMARY

Although it's essentially a beginner's program, Quartz is good value, and will do most of what many people want.

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EDITING TOOLS

Many of *Quartz's* windows share a common editing toolbox for editing notes or other MIDI data individually. There's a hand to drag notes to a different position, an eraser to delete them, a pencil to add new ones, a frame to select a group of events, and others. Each tool has options depending on what data you're dealing with at the time. For example, if you're dealing with digital audio files, you can jump to the wave editor module automatically.

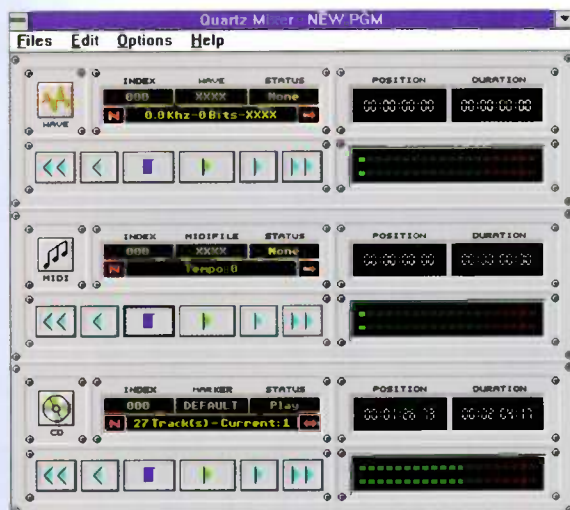
- ▶ clock ticks. Time signature and tempo are also set in this window. Time signatures can have numerators between 1 and 16, and denominators of 2, 4, 8 or 16, while tempo can vary between 60 and 240 bpm.

- The Master Mixer window contains three faders — two for MIDI and one for wave audio. *Quartz* can control up to two MIDI ports, each having 16 channels. These could be two soundcards, or an internal soundcard and an external MIDI instrument setup, for example. For each MIDI port, there's a master fader, and mute and solo buttons.
- The Tracks Mixer window looks and behaves very much like a normal audio mixing desk. Up to eight tracks can be controlled and seen at any one time (if your screen resolution is high enough — we got eight at 800 x 600 pixels). To view other tracks, you scroll right or left of this window.

For each track in this mixer, there's a track name and number and an instrument sound name. The latter can be selected from a dialogue box containing preset lists for General MIDI, as well as for specific synths, including the Roland MT32 and D110, Korg M1, Emu Proteus, and Kurzweil K1000. There are settings for muting, soloing, transposing (over a maximum of plus or minus 24 semitones), MIDI channel and port (A1

(bars/beats/clock ticks).

- The Cues window displays a list of markers that you set in the current song. Each marker has a name, comments and position in bars, beats, and clock ticks.
- The Keyboard window is a piano-like graphic which displays notes during music playback. You can also use it for auditioning sounds and recording. It's worth noting that you can also use your computer keyboard to input notes, instead of a MIDI keyboard, for those times when you're too lazy to switch all your equipment on. A Velocity list box allows volume adjustment (0 to 127) of notes played with your computer keyboard.
- The Arranger window displays the list of parts which make the current arrangement. Each part has an index, a start position, an end position, and comments. You build an arrangement by defining a sequence of parts to be played one after the other. You can create up to 32 parts.
- The Juke Box window displays the list of music files which can be played in a batch. Up to 32 files can be included, though they have to be *Quartz* files — you can't include MIDI files in this list.
- The Score window displays the active track in standard music notation. The number of bars displayed will depend on the score quantisation value selected, but the window is, in any case, automatically updated when the music is played. You can also get a printout of the current track in notation format. Though *Quartz* does have these scoring facilities, we'd stress that scoring is not a strong point of the program — don't expect to print orchestral scores with it. As with some other windows, you can use the program's Edit Tools icons here to perform operations on events (see box on Editing Tools elsewhere in this article).
- The Grid window shows track contents in the traditional piano roll format, with notes represented as horizontal thin bars whose length indicates note duration and whose vertical position indicates pitch. If you select the Master Track instead of one of the 32 MIDI tracks in the Grid window, you'll be able to see the arrangement of the digital audio files in your composition. Here, specific notes represent specific WAV files (assigned by you). The window is automatically updated when the music is played, and you can adjust the zoom in/out value of the grid. Again, you can use the program's tools to edit notes.
- Finally, the Controllers window shows graphs representing the recorded values of MIDI Controller information like pitch bend and aftertouch; using the mouse, you can draw over the existing values to alter them.



The MIDI, CD audio, and digital audio mixer.

to A16 and B1 to B16), and two faders: a vertical one for volume, and a horizontal one for panning. Movements of these two faders can be recorded, and played back automatically. In addition, each track has an attractive VU meter showing volume variations. Clicking the right mouse button over this display brings up a pop-up menu with options to show other windows containing information about that track — such as the MIDI event list and piano roll (called a grid here) windows, and the Score and Controller windows (see below).

A QUICK LOOK THROUGH THE WINDOWS

The program's other windows are all worth at least a brief mention:

- The Event window is where recordings are represented as simple lists of MIDI events in time

STOP PRESS!

Just as *SOS* was going to print, we received news that a Windows 95 compatible version of *Quartz* will be available by the time you read this. At the time of writing, the only available detail was that the tempo problem has been fixed; phone Labyrinth for more information.

and you assign these to specific notes; assignments can be saved to disk. Digital audio is dealt with by a special track called the Master Track. Notes on this track play digital audio files rather than MIDI, and these files are loaded and played at runtime — they're not pre-loaded into RAM. Other programs work in this way, but with *Quartz* you can alter the pan position and playback volume of sound files from within the sequencer (more or less as you do with MIDI notes) which is very handy. The manual states that you can alter volume via the motorised faders, as on MIDI tracks, but this hadn't been implemented in the version we received.

The waveform file editor is very basic and is memory-based, so you can't handle large files. There are cut and paste, volume change, mix and echo functions — nothing sophisticated. In fact, it's only slightly better than the Windows Sound Recorder. But there's also a mixer utility for MIDI, digital audio and CD audio to handle soundcard settings.

It's worth noting here that *Quartz* can send out MIDI clock sync, but can't accept sync, so it can only act as a Master if you wish to synchronise to other equipment.

CONCLUSIONS

Despite our sprinkling of criticisms, there's no doubt that *Quartz* is very good value for money. It's a beginner's product which is pretty to look at, easy to use, and capable of handling digital audio quite well if you're not very demanding. In fact, we only have one major complaint: the program shouldn't have been named *Quartz* (or at least, the version we received shouldn't have been). Quartz is a crystal used in modern watches to keep accurate time, but the early-release version of this program we received had problems with keeping the right tempo when playing some of the files we imported, a potentially serious shortcoming for this type of program. We contacted the manufacturers, who assured us that this will be sorted out in the full release product. We hope it will, because this is a program which deserves to do well. Nevertheless, do check before you buy that this problem has been rectified, as a sequencer that cannot keep time is not, on the whole, going to be much use to you!

SOS

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Nice drumming and drum sound too from Don Graham, who pins it down in an unfussy way — although the engineer seems to have lost the hi-hat along the way. The mix is a bit bass-heavy, but nothing that couldn't be rectified by a little judicious EQ. Swagger have produced a set of pleasant songs that are well-played, but deserve a bit more time in the studio.



Remember, it's better to do one or two songs in a day really well, rather than a whole album very poorly.

SATURNINE:

Adam Young is the man behind this project, and his demo displays a good sound balance with prominence given to the important parts in the mid-

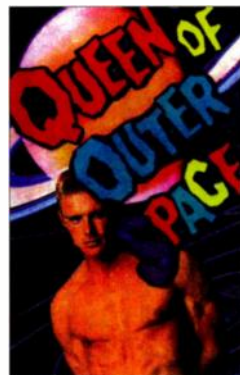
range, and no problems with the bass end. His instrumentals build nicely, although I felt that there was a tendency to ramble on the opening track 'Vendetta'. This tightens up for the second, entitled 'Love', where Adam surprisingly goes for a completely different production sound — the overtly digital sounds are dropped in favour of much warmer synth voices. These include some lush string pads, against which a piano/harp synth patch plays arpeggios over a low bandwidth breakbeat. The third track shows another side of Adam's compositional skills, with some ponderous orchestral textures that sound distinctly Russian to me.

IAN LIVINGSTONE is hoping to break into TV and film composition, and here he flexes his artistic imagination with a synthesized orchestral piece entitled 'Raid On Berlin'. Ian has used various synthesizers, including a Roland U110, Yamaha TG55, and Roland Alpha Juno 1 and Juno 6, but the work is centred around a Roland Sound Canvas SC155 (even though there are some noticeable restrictions enforced by its 24-note polyphony). 'Raid On Berlin' is dynamically excellent, and the kettle drums, harp and woodwind sounds are really effective, but it is the strings that let the side down — perhaps a mix with the Juno 6 would have removed the abrasive edge. Ian claims to have incorporated samples from a TV documentary in this piece, although I didn't hear very much in the mix — perhaps he has his prospective audience in mind! I feel that 'Raid On Berlin' certainly deserves a listen by those in the TV and film industry.

PDQ: Lloyd Scott and Andy Wilsher have put together an excellent demo of pop songs that has already grabbed the attention of one publishing company. The backings are uncomplicated, and the vocals are up front and

clear, showing the quality of the song without the unnecessary trimmings of production — something which both record companies and publishers like to hear. In fact, there are only drums, bass and vocals at some points on the second song 'Dolphins', but the vocal melody is strong enough to carry it. Despite PDQ's remonstrations that the drums and bass could be better (we can all find faults in our own demos), they're actually good enough, given that this is a demo.

TERMINUS: 'Happy house meets handbag meets hard techno (with a dash of ambient)' — you see, no one wants to be accused of working in one area in this market. Still,



Terminus have produced a good demo, with tracks aimed at the over 130's — that's beats per minute incidentally. The sounds are pretty standard but well compiled, with some originals, such as the delayed kick drum breaks — something I

haven't heard in this type of mix before. This album uses the first sample I've ever heard from the film 'Dark Star' — remember where that guy's stuck in the lift and the alien is tickling him? — and the outer space theme is carried further with 'Cosmic Coincidence'. Surely, with material as good as this, Terminus should be able to get a release? It's tight, it's got the right sound mix, and you can trance round your handbag to it. Need I say more?

MRS CAKEHEAD: Tom Winstanley provides a little bit of lo-tech madness to brighten up the waiting rooms of the Doctor, in the form of Mrs Cakehead. In the sort of Northern

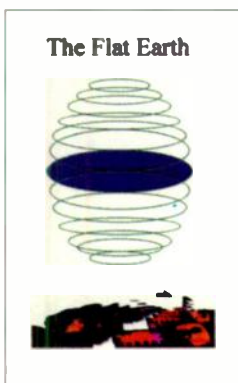


Pensioner's tones we've come to expect from the likes of BBC Radio Four, it's the voice that really makes this demo. Tom waffles on about 'the biz' on the first track, over a backing which cuts between chewing gum pop and avant

garde, eventually settling into some sort of dub groove. The heavy dub bass end and echoing trumpet must hold the key to the title 'Blethered For Nowt' — or maybe it's the robotic delay and modulation treatments? ↴

► **INDIAN HEAD:** Indian Head produce an energetic sound, which I would say is based on their live gigs if the long arrangements are anything to go by. The first song, 'Scary', makes good use of dynamics while moving from thrashy to downbeat and back again. The cassette sounds a little overcooked in places, but there are some gorgeously distorted vocal moments where an old taxi mic is used! The sampled backing vocals and triggered drums work well too, but I would definitely think of treating the hi-hats with a flanger when they're playing 16th-note parts.

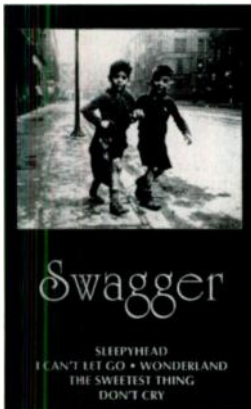
THE FLAT EARTH: Now didn't Thomas Dolby.. nah, that was a long time ago. The Flat Earth have been experimenting with



Soundscape, and enjoying the benefits of working with real sounds, sequencer fashion. The recorded result sounds very promising — like a '90s version of The Bunnymen or early Simple Minds. The vocals are soaked in

reverb, the bass line is a repetitious throb, and a pad keyboard holds the whole thing together. The forays into arpeggiated synthesised harp are good fun, as are the footsteps leading to an opening door before the music begins, even if it is a well-worn trick. Overall, an impressive demo.

SWAGGER: Great name — you can almost tell what they're going to sound like before the tape goes on. It's got to be rapid fire, cheeky pop — and yes, the Housemartins are an obvious influence in vocal style and production. In fact, the lead and harmony voices are the strong points on this demo, despite the sibilance.



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Signal

In an ideal world, studios would function without hum, hiss, glitches, or mysteriously absent signals, but as PAUL WHITE has discovered through experience — they don't!

Failures

SIGNAL PROBLEMS AND HOW TO AVOID THEM

If I had a penny for every time I've heard a sound engineer ask, "Why can't I hear any signal?", I'd have £5.39 by now! While music is most definitely an art, the studio itself remains rigidly bound by the laws of physics, but occasionally, the gremlins from beyond the nameless dimensions break through into what we laughingly call reality, and disrupt our smooth-running, mechanistic world. Signals disappear, distortions creep in, and otherwise pristine master tapes exhibit inexplicable clicks and pops. The aim of this short piece is to show you how to identify

the more common gremlins, and to banish them to their distant domain.

SILENT SIGNALS

The most common cause of a disappearing signal is through console routing (or being switched to 2-Track Monitor when you're trying to listen to the stereo mix). Before you check anything, make sure everything is switched on, and that the power lights are glowing, indicating that the mains fuses are intact. I know this sounds obvious, but nearly everyone, myself included, falls for it at some time or other. A particular favourite is to have a mixing console that's switched on, but a device plugged into the master insert points that's switched off.

When trying to track down a missing signal, solo the mixer channel to confirm that something is definitely getting into the desk. Then, check your routing, including anything that might be plugged into the channel insert point — getting the inputs and outputs swapped around on a piece of outboard gear is a great way to lose your signal. By using the Solo buttons, and checking any metering along the signal path, it shouldn't be too difficult to identify where the signal stops — but don't start panicking and unplugging lots of leads.

If you feel you *must* change something, then take it a step at a time, and if you suspect a lead, check it out with a cable tester first. If you don't have a cable tester, buy one now — they're not expensive. (I have one of the EMO models which costs under £50, and also doubles as a fuse tester and junction box.) All dubious leads should be clearly labelled and put to one side, so that when that elusive spare five minutes finally shows up, you can sit down and fix them.

Always retain a healthy suspicion of insert points, or normalised patchbay connections, and ensure that the socket hasn't gone intermittent, by temporarily linking the patchbay send and return points using a patch cable.

If a mic is producing an inexplicably quiet signal, double check the mic/line selector, and make sure the mic has phantom power if required. Also,



A studio gremlin.

check to see if the mic is fitted with a switch, and if this is the case, turn it on! If you're not sure whether the problem lies with the mic or the wiring, simply plug in a spare mic and check the circuit that way. Only this week I spent several minutes scratching my head at the non-appearance of a drum mic signal, only to find that the drummer had knocked the head off the otherwise neat and effective clip-on mic. Fortunately, it was his mic!

SPURIOUS SIGNALS

So much for tracking down a missing signal, but what about signals that were never intended to be there in the first place? Undesired audio signals can usually be traced to mains hum, circuit hiss, or radio frequency interference, which may either be airborne, or carried on a dirty mains supply. Hum is often due to ground loops, although it can also be caused by using cables where the screen has been wrongly wired, or become disconnected (see 'Overcoming Ground Loops' box). It may also be caused by inadequate mains power adaptors, so if you are using a mains PSU that didn't come with the piece of equipment in question, try to eliminate it from your enquires by using a different one. Yet another source of mains hum is electromagnetic radiation from transformers or mains cables, so make sure that mains cables don't run alongside signal cables, and if they must cross, try to arrange it so they do so at right angles. Keep sensitive equipment, such as mic preamps, away from power amplifiers or mixer PSUs, and also be aware that the neon lamps in distribution boards can cause a buzzy kind of hum if brought near to sensitive cabling.

Fluorescent lamps, light dimmers, and computer monitors all radiate significant amounts of interference. Electronic dimmers should *never* be used in studios, and fluorescent lights should really only be used for maintenance work. The new generation of energy saving bulbs don't seem to cause any problems, but I can't guarantee them to be safe in all situations. Interference from fluorescent lamps and dimmers can usually be differentiated from that of a ground loop, as their brand of hum contains a large element of buzz due to the high harmonic content of the interference source.

CRACKLES AND POPS

Crackles and pops are often caused by mains-borne interference, such as thermostats and heating systems switching on or off. Running your studio from a separate ring main will help reduce the risk of these glitches getting onto your recordings, but if the problem is severe, the best answer is to get a qualified electrician to fit suppressor components to the offending devices. It can also help to use mains filters, but from my experience, these seldom offer a complete solution.

A related source of crackles and bangs can often be traced to loose wires, fuse holders in plugs, or cheap extension boards where the spring socket contacts have lost their spring. It's always good practice to check your mains plugs on a regular basis, as wires have a habit of working loose, even if they've never been disturbed. Personally, I blame it on those gremlins.

Other areas to watch out for are poor

connections in signal leads, and crackly pots or faders. Once a fader has gone crackly, you can try to clean it with spray cleaner, but in my experience, the only long-term cure is to replace it.

You may also experience radio frequency interference, but an improperly grounded studio system, or badly designed equipment is the usual cause — unless you happen to have a radio ham living next door, in which case both the law, and the inverse square law are on his side, not yours! Of course, you could always charge a capacitor up to a thousand Volts or so, ground one end, and discharge the other onto his aerial using very long piece of wire and a fishing rod — I'm told this does the trick, but you didn't hear it from me!

HISS

Finally comes hiss. Excessive hiss is nearly always due to a lack of attention to gain structure (see my article in last month's *SOS*). Aside from making sure that the gains are optimised, it's also important to ensure that nothing is being routed into the mix that isn't needed. Unused channels should be de-routed from the mix buss, and all unused sends turned down, or routed to an unused aux send output. If recording electronic instruments, you should also be aware of the amount of noise that's being produced at the source. Electric guitar amps, for example, tend to be noisy, so gate the track while mixing if you can. Similarly, a lot of synth modules are quite noisy, so to make the best of them, work with the MIDI volume set high, and a reasonably high note velocity level. The loudest notes should be reaching the maximum velocity level of 127 — if they're not, then you're not achieving the best possible signal-to-noise ratio.

The other major cause of excessive hiss comes about when using insensitive microphones to capture low level, or distant sounds. There's no real cure for this problem, other than using the right mics for the job, or getting the mic closer to the sound source. If you try to record something like remote birdsong with a basic dynamic mic, then it's no good blaming the mixer mic amp for being too noisy.

I hope these few simple spells and incantations will help you banish your own studio gremlins back to the twilight dimension from which they came. If you don't make the effort, I can guarantee that they'll breed, and become even more difficult to remove!

SOS

“Undesired audio signals can usually be traced to mains hum, circuit hiss, or radio frequency interference...”

OVERCOMING GROUND LOOPS

Don't try to cure ground loops by removing mains grounds, because this is obviously dangerous — instead, ensure that all your mains leads are plugged into one distribution board, rather than spread right around the room, and follow the wiring recommendations that came with your mixer as regards external connections. A full investigation of ground loop problems is beyond the scope of this article, but the general rule is that if a loop does cause problems, try to make sure the offending piece of equipment is grounded via one path only (see my article in *SOS* August 1994 for further information). If the piece of gear runs from an external power supply, the chances are that it is not grounded via the mains, so you should use a

connecting cable where the screen is connected at both ends — in other words, a conventional instrument lead. However, the casework of the unit might also be grounded to another unit via the rack metalwork, so try unbolting it from the rack to see if the hum situation changes. If removing it from the rack cures the hum problem, use plastic screws and washers to isolate the unit from the rack metalwork. Studiospares market a special kit for this very purpose.

If the unit is grounded via the mains, it often helps to disconnect the screen from one end of the connecting cables. I favour leaving the screen connected at the mixer end of the lead, but I know that others prefer to do the exact opposite

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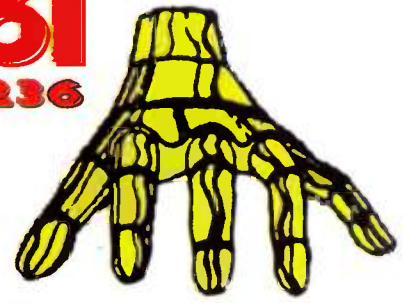


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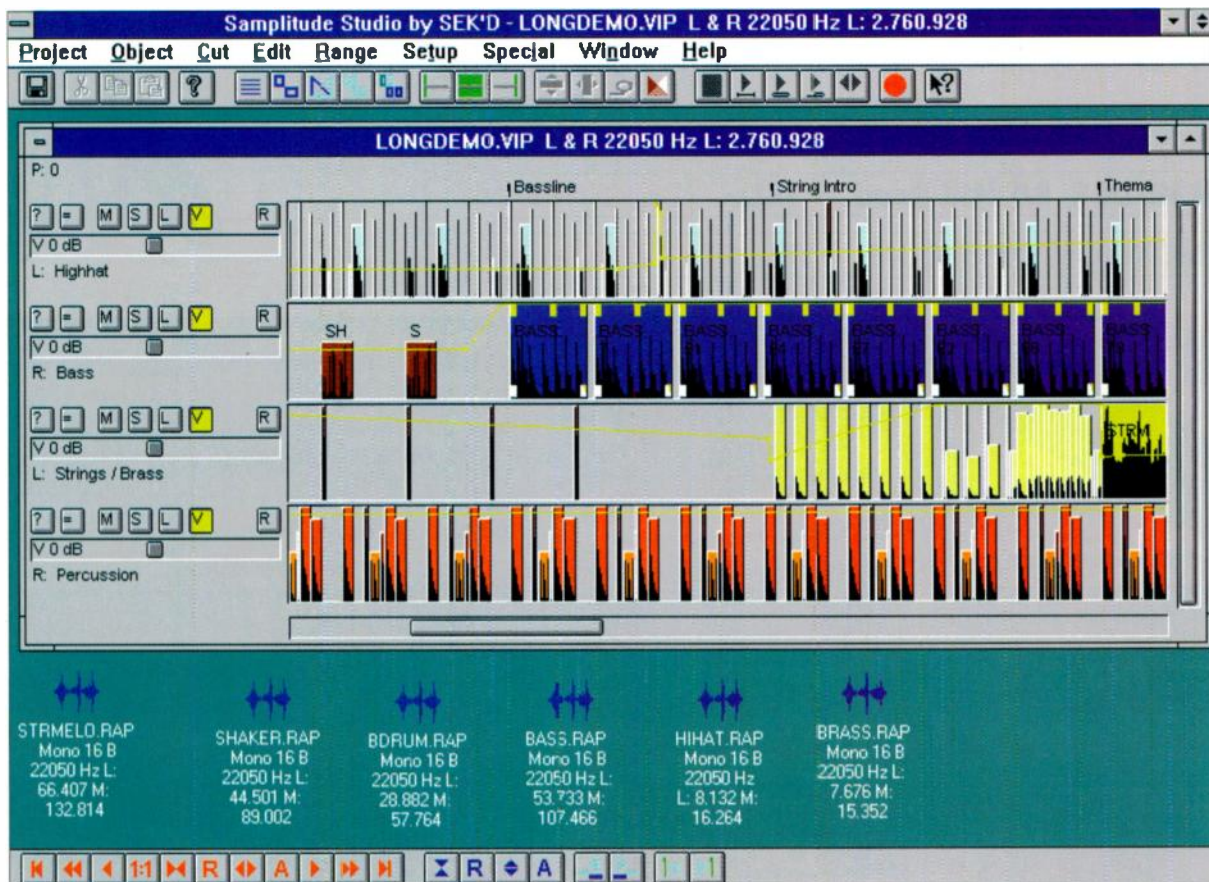
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HARD DISK WITH Attitude

SEKD SAMPLITUDE STUDIO PC HARD DISK RECORDING SOFTWARE

Keen to get into PC hard disk recording? Samplitude Studio, the top of an impressive range of programs from German manufacturers SEK'D, is one of the cheaper options available — but it's certainly not short on features. PANICOS GEORGHIADES and GABRIEL JACOBS are mightily impressed...

Adding to the ever-growing pile of such programs now available, *Samplitude* is a multitrack hard disk recording system for the PC running under Windows, manufactured by a German company called SEK'D, which started life writing music software for the Amiga. SEK'D stands for Studio für Elektronische Klangerzeugung Dresden, and if your German isn't up to much, that translates as Dresden Studio for Electronic Sound Processing. The original version of the program was more like a sample editor than a digital multitrack, but due to recent developments, it now also offers comprehensive multitrack hard disk recording facilities, and is available as one of the following three packages:

- *Samplitude Multimedia* — a 4-track system providing virtual editing and MID/AVI integration.
- *Samplitude Pro* — an 8-track system with functions as advanced as resampling and time-stretching, MIDI sample dump, and so on.
- *Samplitude Studio* — a 16-track system with features such as external sync and various digital filters.

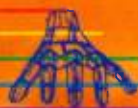
It is *Samplitude Studio* that that is under review here, but the differences between the three versions can be seen in the 'Samplitude Versions' box.

PROJECTS

When you double-click on the program icon, *Samplitude* automatically opens a virtual project and puts the recording window on top of it. A project consists of one or several samples or wave files which must all have the same sampling rate, and which are always treated together as a group.

There are two types of project: physical and virtual. Physical projects are so called because every edit move is carried out on the original sound data, which can either be handled in the computer's memory (RAM), or on the hard disk. When a physical project is handled in RAM, operational

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Studio Vision adds CBX-D5 support

Following on from last month's news that Logic Audio 2.5 will have a special driver for the Yamaha CBX-D5, Opcode have just announced that Studio Vision will also support this system. Mac owners now have a choice of software to run on less powerful Macs with this excellent 4-channel system with 4-band parametric EQ per channel and studio quality effects. **Only £1499 per four channels.**

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SEKD Samplitude Studio

SAMPLITUDE STUDIO £400

PROS

- Excellent value for money.
- Wide range of features.

CONS

- Unconventional Windows interface.
- Panning and sound positioning facilities could be improved.

SUMMARY

A well-specified hard disk recording program at an impressive price, *Samplitude* is highly recommended.

▶ speed is increased, but size is then a limitation. On the other hand, hard disk-based physical projects can be as large as the remaining free space on your hard drive, but will be handled more slowly.

Virtual projects are always handled on the hard disk, and all the edit moves are stored on a To Do-type list, while the original sound data remains intact. This is generally known as non-destructive editing. Samples in virtual projects can be processed as Objects — an object being an image of a sample, or a range marked within a sample. The object contains no audio data itself, but is merely a reference to the physical sample stored on the hard drive.

In fact, virtual projects are the main plus point of *Samplitude Studio*. In a virtual project, you can use a section more than once without taking up extra memory: you simply refer to the same section of audio again.

Samplitude supports the Windows MDI (Multiple Document Interface) — in other words, it can handle multiple projects open at the same time (up to as many as your machine can handle before it crashes).

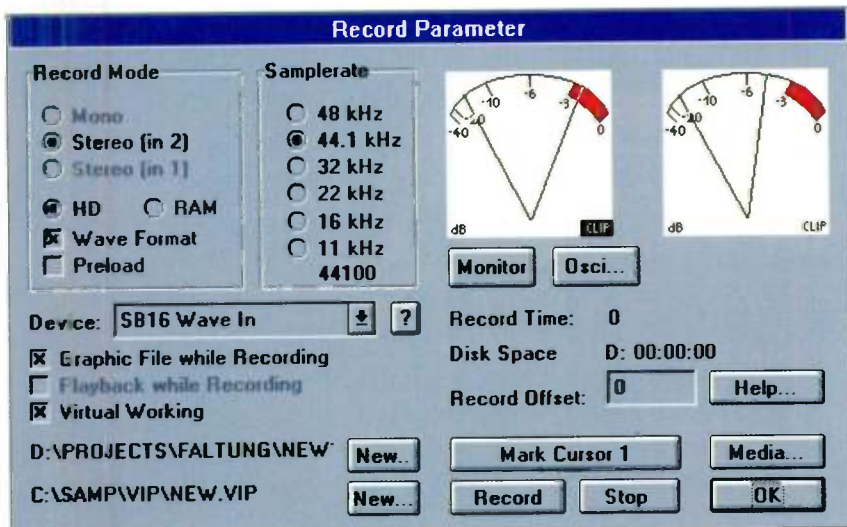
Any number of individual recordings can be combined into complex arrangements of 1 to 16 tracks, and positioning, cutting, volume fades, crossfades, and the like are all performed without altering the original data. They are processed in real time during playback, and because the routines are in low-level assembler code, the program works quite rapidly.

Having decided which kind of project you wish to work with, you can either import sounds from existing disk files, or record them using *Samplitude's* Record facility. Sounds can also be imported via MIDI from an external sampler, if you wish to use *Samplitude* as a sample editor.

RECORDING

In order to record a sound, you first select the sample and bit rates. The program provides a monitor facility featuring VU meters with dB markings and clipping level indicators. Since *Samplitude* uses the Windows MCI drivers to

The sample and bit rate settings window.



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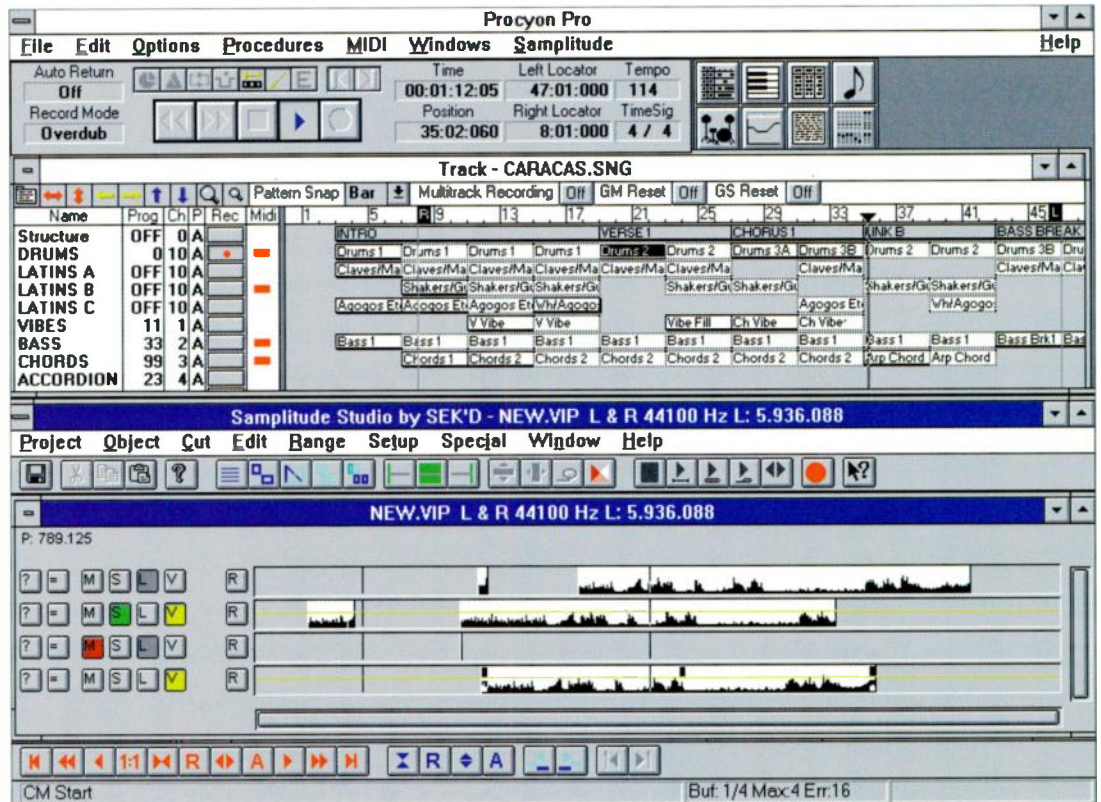


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PROMIX-02R

PROMIX-01



Running Procyon Pro in tandem with Samplitude Studio.

► access soundcards, you need to use your soundcard's mixer program to alter the input signal in order to get the correct level, but fortunately there's a real-time window which allows you to view the incoming waveform, making the level-setting task a bit easier. After selecting the sample and bit rates, you simply click

the Record button and you're away. Recording can also be triggered via external sync from a sequencer, even with an offset setting.

Samplitude provides a setup window where you can alter the size of the recording buffers (temporary recording memory areas) to suit the power and configuration of your machine, although you only need to alter them if you have problems with recording or playback.

After recording a section and leaving the recording window, the recorded material appears as a waveform ready for playing, and editing if this is required. Samplitude provides a veritable wealth of editing features for manipulating samples or waveforms — see the box elsewhere in this article for full details.

POSITIONING AND EDITING

As previously mentioned, once you have recorded or imported a section, or opted to work with a part of it, it becomes an object, which can be positioned within a virtual project. Such objects can be dragged and dropped using the mouse, although unconventionally for the PC, the program uses the right mouse button for many operations, so you either have to get used to using it this way, or change the default settings. A neat feature is having the choice of grid scale for tracks — you can have either samples, milliseconds, SMPTE (at either 30, 25, or 24 frames per second), or bars and beats. Configurability doesn't stop there — apart from screen colours, font types and sizes for various labels can also be selected. After positioning the different sound clips in time,

WAY TO GO, 'TUDE: SAMPLITUDE VERSIONS

SAMPLITUDE MULTIMEDIA

Samplitude Multimedia has the following features:

- Hard disk recording/playback with any Windows-compatible 16-bit soundcard.
- Virtual projects with up to four tracks.
- Support for mono and stereo projects.
- Support for RAM or hard disk projects.
- So-called volume rubberbands for real-time mixing of the virtual tracks.
- Real-time crossfades in virtual tracks with various curves.
- Linking to MIDI and AVI files.
- Real-time surround effect.
- Fast physical sample processing (eg. cutting, normalisation, fading, crossfading, echo, hall effect, filter, and so on).

SAMPLITUDE PRO

In addition to those available on Samplitude Multimedia, Samplitude Pro has the following features:

- Real-time, non-destructive fade-in, fade-out, and volume on every object.
- Multiple projects running simultaneously.
- Automatic loop optimisation.
- Autoscroll mode while playing.
- Virtual projects with up to eight tracks.
- MIDI sample dump for sample transferring with MIDI samplers.
- Resampling, timestretching and pitch-shifting.
- Track bouncing (converting virtual projects into a physical file — up to 16 tracks can be combined).

SAMPLITUDE STUDIO

Lastly, Samplitude Studio, in addition to all the features included in the other two versions, offers:

- Virtual projects with up to 16 tracks (16 mono or eight stereo).
- Record while playing if supported by the soundcard(s).
- Support for up to four soundcards for genuine eight outputs.
- External sync via SMPTE/MTC/MC (slave) or MC (master).
- High-quality digital filters (graphic EQ and parametric EQ) with real-time preview.
- Dynamics compressor/expander/noise gate with real-time preview.
- Convolution for enhanced effects like reverb, echo and filter.

their levels have to be adjusted to create a mix. For this, *Samplitude* provides so-called 'volume rubberbands'. These are volume curves implemented by the program in real time (so, again, your original data stays intact). The program uses a variation on this theme in order to do crossfades and fades, though a fairly powerful processor, such as 486 66MHz or a Pentium, is required for this function.

Unfortunately, the same type of rubberbands are not available for panning sounds in real time in the stereo field, so the volume levels have to be adjusted in order to get the required effects, or to position sounds. This is neither intuitive nor straightforward, but nevertheless possible.

Among the most important aspects of programs such as this are the transformations and effects that can be applied to a waveform (again, see the 'Edit Functions' box for a complete list of these). Note, however, that these do constitute physical changes to the data on the hard drive.

Normally, on playback, the program mixes the data of the separate tracks from the hard disk or RAM into a stereo track in real time, and outputs this to your soundcard. If you wish to have multiple physical outputs, you need to have more than one card. This is possible in Windows, provided the card's installation procedure allows it, and doesn't delete the installations of the previous cards, in which case you may have to dabble with the Windows SYSTEM.INI file. In any case, *Samplitude* allows you to allocate tracks to be output on specific cards, so if you want to have simultaneous record and playback, you either have to use two or more cards (record on one while playing on the other), or a single card that allows this feature by using a specialised processor, such as the Roland RAP 10.

For managing projects, apart from the obvious Open and Save, you can rename, delete, import and export samples, and do MIDI Sample Dumps. There's also a facility to sync to MIDI or AVI files, and although the manual makes a fuss about this, consider it as a little extra rather than a main feature — the built-in facility is pretty basic in comparison to what you get in a true multimedia presentation package.

PROCYON

If you are truly interested in synchronising MIDI to digital audio, Evolution, the suppliers of *Samplitude* in the UK, have provided a much better solution, called *Procyon*. Not only is *Procyon* a very good sequencer (see the mini review in the article 'Budget Sequencing on your PC', SOS October 1994), but it also includes code specifically written to interface with *Samplitude*, turning the two programs into a more-or-less integrated package. If you choose to run both *Samplitude* and *Procyon* at the same time, you have the option of splitting your computer screen in two, with one program running at the top, and the other at the bottom. The two programs then run linked together, even when you zoom in or move to a different position.

HARDWARE REQUIREMENTS

You need a minimum of a 386 PC with 4Mb of RAM, Windows 3.1, and a compatible 16-bit soundcard to run *Samplitude Studio*.

For real-time filter preview and volume rubberbands on more than four tracks, you need a 486 PC with a minimum clock speed of 66MHz, or a Pentium processor.

To use MIDI sample dump or to connect to MIDI devices, you must have a Windows-compatible MIDI interface.

For external sync via SMPTE, you need a special SMPTE interface, though for sync via MIDI Time Code or MIDI Clock, you can use any Windows-compatible MIDI interface.

Typical number of tracks (mono) in virtual projects:

- 386/40MHz with AT hard drive: four tracks at 32kHz
- 486/66MHz with AT hard drive: four tracks at 44kHz, six to eight tracks at 32kHz
- 486/66MHz with SCSI hard drive and PCI controller: six to eight tracks at 44kHz
- Pentium with PCI, SCSI controller: 12 tracks at 44kHz and 16 tracks at 32kHz

Using stereo tracks instead of two mono tracks increases the performance. The hard disk transfer rate should be 176.2 kilobytes per second for every stereo track at full CD bandwidth. This is a theoretical value, however — in fact, you are advised to have a rate between 1.5 and two times higher.

There are two versions of *Procyon* (*Lite* and *Pro*), which means that if you already have another sequencer, you could buy *Procyon Lite* at only £40 and just load final versions of your MIDI files simply to sync to the digital audio. If, however, you don't have a sequencer, you should certainly consider *Procyon Pro*, as it compares well with its competition, and weighs in at only £99.

CONCLUSION

Samplitude offers many worthwhile features, and the various options are reasonably priced compared with similar products on the market. It works well, is fast, and didn't crash once during our tests.

However, the fact that the interface doesn't follow standard Windows menu conventions is irritating, and means that you have to constantly refer to the manual, whereas most Windows programs let you get started right away. Another complaint is the lack of a more straightforward panning and sound-positioning facility — but these are just niggles. Generally, we can highly recommend the program (and the *Procyon* bundle). Together, they represent one of the best deals on the market.

SAMPLITUDE EDIT FUNCTIONS

Set Zero	.....	creates silence
Invert	.....	inverts sample data
Backward	.....	reverses sample data
Fade in/out	.....	fades using adjustable linear logarithmic and exponential curves
Normalise	.....	optimises amplitude
Amplitude / 2	....	divides amplitude by two
Amplitude x 2	....	doubles the amplitude
Compressor	.....	dynamic functions like Compressor, Limiter, Expander, Gate
Sampledata / 2	...	divides the number of samples
Sampledata x 2	...	doubles the number of samples
Resample	.....	resampling and timestretching
Convolution	.....	provides effects like reverb, echo and filters
Echo	.....	an echo effect is calculated
Reverb	.....	a reverb effect is calculated
Filter	.....	High-pass, Band-pass, Low-pass
Graphic EQ	.....	graphic 5-band equaliser
Parametric EQ	....	parametric 3-band equaliser
Build Loop	.....	a smooth loop is calculated
Undo	.....	undoes last operation(s)
Redo	.....	undoes last Undo operation(s)
Note that in virtual projects, the Undo function can hold up to 100 changes.		

FURTHER INFORMATION

£ *Samplitude Studio* £399.99; *Samplitude Pro* £249.95; *Samplitude Multimedia* £99.99; *Procyon Pro* £99.99; *Procyon Lite* £39.99; *Sound Studio* (a bundle containing *Samplitude Multimedia* and *Procyon Pro*) £149.99. Prices include VAT.

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PART 3: QUANTISATION • THE MASTER TRACK • SYNCHRONISATION

The first two parts of this guide have explored the major working areas of Cubase. However, the system is also packed full of smaller, but equally useful, facilities which help in the routine manipulation and control of MIDI data. Many of these facilities may be called up from the menus, while others are specific to certain areas of the system. In the last

two parts of this series, we will take a look at some of these features and their uses.

QUANTISATION

The 'Quantise' functions found in the Functions menu are among Cubase's most used features, and deserve some detailed consideration. Far from being a mere timing correction facility, quantise on Cubase is a creative tool in its own right.

It's clear from the menu items that various different kinds of quantise operations are possible, but the principle is the same for all of them; Quantise moves notes onto or towards the quantise value, as set in the 'QUANT' box. How this is done depends on the type of quantise chosen. 'Over Quantise', ('Q' on the computer keyboard), simply shifts notes onto the nearest quantise value, but it also has the ability to detect if the playing is consistently behind or in front of the beat, and act accordingly — in other words, it will quantise chords intelligently.

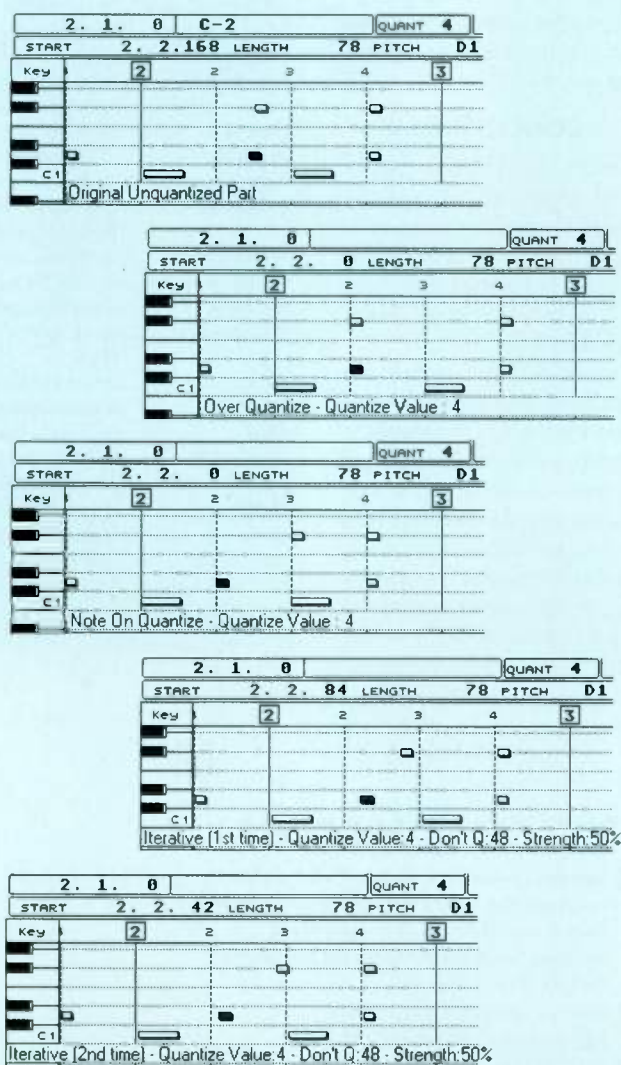
'Note On Quantise', ('W' on the computer keyboard), is the least musical quantise method. It uses the Note On element of notes to shift them onto the nearest quantise value with no regard for their particular context, and the original Note length remains unchanged.

'Iterative Quantise', ('E' on the computer keyboard), takes things one stage further, since the user can set up a 'Strength' percentage and 'Don't Q' (don't quantise) parameter to govern the manner in which notes will be shifted towards the Quantise Value. 'Don't Q' tells Cubase the range in ticks around the quantise value within which no 'Iterative Quantise' action will take place, while the 'Strength' percentage tells Cubase how far to shift notes that are outside this range. Due to its progressive nature, 'Iterative Quantise' may be selected a number of times in succession.

'Analytic Quantise' intelligently corrects timing errors according to an analysis of the music based on the quantise value, and the actual characteristics of the contents. This is best suited to rhythmically complex input or solos, and is worth trying if none of the other Quantise methods seem to do the trick.

'Match Quantise' is a special kind of quantise function provided in the Arrange window toolbox ('Match Q'). It is designed to impose the timing

Figure 1: The effect of the differing types of quantise.



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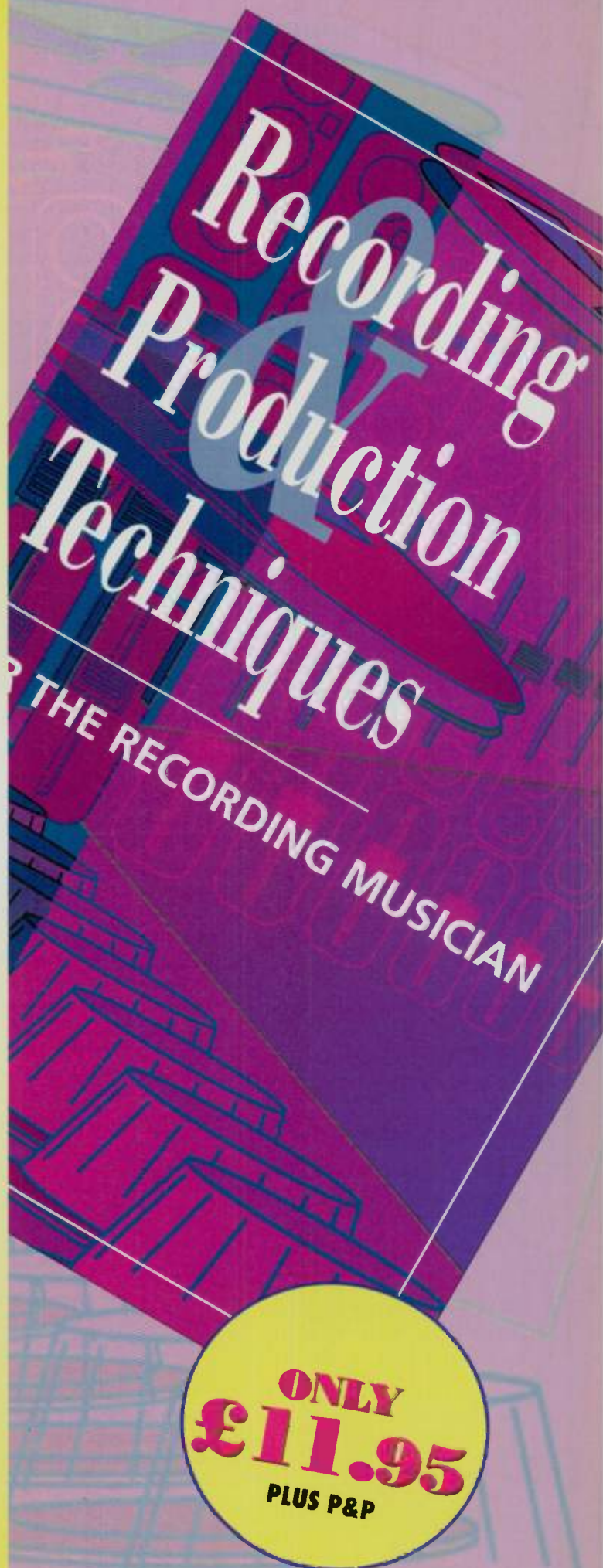
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GETTING TO GRIPS WITH CUBASE

► and accent characteristics (or feel) of one part upon another. This could be used to tighten up the feel (say) of bassline and bass drum parts, by using the bass drum part as the 'feel' part. To do this, you simply drag the part using the match Q tool, and let go over the target bassline part. A dialogue box will ask you if you also wish to match the velocity values. In this example, you would



Figure 2: The Synchronisation settings window.

probably select 'No'. The quantise value you have selected for this operation will govern the capture range. If you have selected a coarse quantise value, such as 4, more data in the target part will be dragged to the positions of the notes in the 'feel' part, which, in this case, would probably not be desirable. Selecting a quantise value of 16 or 8 would ensure that the bassline remains fairly intact, with most of the notes slipping through unchanged — only the notes closest to those in the 'feel' part will be shifted back or forth in time.

'Groove Quantise' takes 'Match Quantise' one stage further, since it allows the user to store a number of 'Groove Maps' for creating rhythmic feels. A selection of 'grooves' are supplied with *Cubase*, but these may be updated or completely replaced by new sets of grooves designed by the user or third-party companies. Using preset grooves on existing material can produce startling results. A detailed explanation of 'Groove Quantise' is beyond the scope of this series, but it is worth making the effort to understand the details if you have the time.

As with most *Cubase* processing, the final judge of whether something is working or not is the ear, and this is certainly true of quantise. However, the maze of quantise parameters involved may obscure what is actually going on and what you are trying to achieve. Visual feedback may help clarify matters; Figure 1 shows the results of various kinds of quantise on a very simple drum part in Key Edit. The snare drum (D1) and the hi-hat (F#1) on the second beat of the second bar have been recorded very inaccurately, and the displays show how each quantise method changes the data. Note that the hi-hat has been

recorded nearer to the third beat of the bar than the snare, and thus gets pulled across to this beat rather than onto the desired second beat if both Note On and Iterative Quantise are used. Only Over Quantise produces a satisfactory result, since this method treats the snare and hi-hat events as a kind of chord and shifts them to the same position. Note also that Iterative Quantise will have no further effect on the data after the second selection, because all notes are already within the chosen 48-tick 'Don't Q' zone. Of course, the quantising of more sophisticated data may prove much more complicated and only experience and experimentation will help perfect the process.

Users should note that Quantise works on notes alone, leaving other kinds of MIDI messages unchanged. In addition, Quantise does not permanently change the data, and except for Iterative Quantise, the original notes are always used for calculating subsequent quantise actions. 'Undo Quantise' will return a quantised part to its original state. Remember also that *Cubase* provides Quantise values of any resolution between 64th (or smaller in some *Cubase* versions) and whole notes, with triplet and dotted options for each. The choice of quantise value is crucial to a successful result.

Finally, 'Freeze Quantise' makes the current quantising status permanent. This could be used to permanently lock the quantise into parts that you are sure you will never need to reprocess.

STRUCTURAL EDITING ACTIONS

Cut, Copy and Paste are found in the Edit menu, and will already be familiar to anyone who has used a word processor. Note that these functions may also be selected using the standard [Control] and 'X' for cut, [Control] and 'C' for copy and [Control] and 'V' for paste. As with your word processor, the chosen cut or copied data is stored in a temporary, invisible 'clipboard', ready to be pasted to a new location.

In the Arrange window, parts or whole arrangements may be cut or copied into the clipboard by simply selecting the parts required and then choosing cut or copy from the Edit menu or from the computer keyboard. The chosen data may be pasted back into the same Arrange window at a new position, or into a different Arrange window, where new Tracks will be automatically created for the pasted parts. You can paste from the clipboard as many times as you need to, since data is copied from the clipboard, not moved from it. Groups of notes and other MIDI data can be similarly manipulated in the Edit windows. Note, however, that data may be selected from a number of different parts but it is always pasted into the active part at the Song position pointer.

The 'Repeat' function is also concerned with moving data around. This is found in the Structure menu (or selected with [Control] and 'K'), and allows you to repeat parts and/or groups of parts in the Arrange window. Activating repeat brings

WARNING!

The features described in this series are those found on the latest Atari Score version of *Cubase*, 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.

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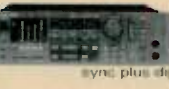


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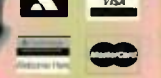


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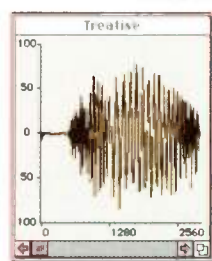
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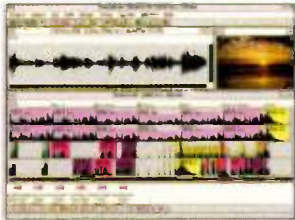
Software : Alchemy 3.0
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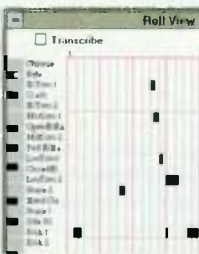
Software :	MIDIQuest
Author :	Sound Quest Inc.
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Software :	Musicator 2.1
Author :	Musicator A/S
Computer :	PC Windows
R.R.P. :	£299.95 inc VAT

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HOT PRODUCTS FOR SUMMER 1995

GETTING TO GRIPS WITH CUBASE

► up a small dialogue box where users may select the number of copies required and choose whether the copied parts are to be ghost or real tracks. The resulting copies will be automatically pasted onto the display immediately after the original.

For the bulk manipulation of data in the Arrange window, 'Global Cut', 'Global Insert' and 'Global Split' can be useful. Using the left and right locators to mark the positions of the appropriate section of music, 'Global Cut' will simply completely remove all data on all tracks between these points, and join the remaining music together where the section has been taken out, rather like removing a section of recording tape with a razor blade. 'Global Insert' is the opposite, and, to continue the tape analogy, simply inserts a piece of virtual 'blank tape' between the locators. The music is shifted forward from the left locator by the blank insert. 'Global Split' simultaneously splits all Parts at the left and right locator positions, rather as the scissor tool does for individual parts. In all three cases, muted tracks will not be subjected to the editing action.

All three global functions provide invaluable editing power when the arrangement is complex,

channel part or track. In other words, if you have recorded an arrangement into Cubase from an external sequencer, and all the data has ended up on a single track, irrespective of MIDI channel, 'Remix' allows you to separate the data onto different tracks according to the MIDI channel of each event. Reasons for doing this might include the need to process or edit different parts of the arrangement separately, or to simply obtain a better overview of the actual contents of the arrangement. Before performing the remix, ensure that you have set up the left and right locators to the start and end positions of the target sequence. Upon selecting 'Remix' from the menu, all data between the locators will be copied over to separate tracks according to their MIDI channel. New tracks are created automatically as required, and the MIDI channel column is automatically numbered according to the MIDI channel of each separated track's contents.

'Mixdown', also found in the Structure menu, performs the opposite function of 'Remix'. In other words, it allows the merging of all data on a number of tracks into one single composite part on a new track. Simply set the left and right locators to the required section of your Song, create a new

EDITING PITCH AND VELOCITY

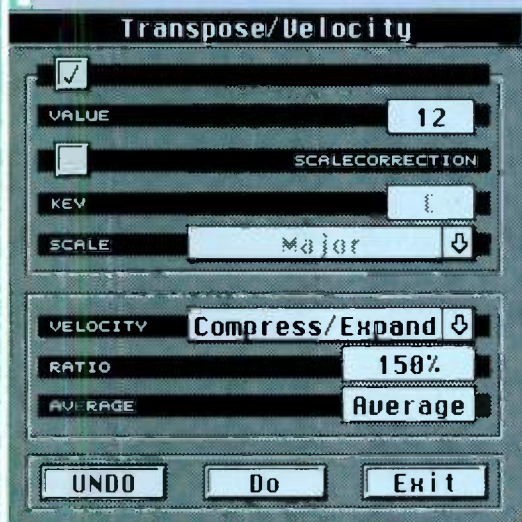
'Transpose/Velocity' (selected in the Functions Menu or by pressing [Control] and 'H' on the computer keyboard) is for the fine manipulation of the pitch and velocity of notes. When selected, a small window presents you with the options of changing either the pitch, the velocity, or both at the same time (see screenshot). The transpose section is

The Transpose/Velocity settings box.

fairly straightforward, as the chosen data may be pitch-shifted up or down in semitones, or corrected according to a number of chosen scales using the 'Scale Correction' option. The velocity options, however, are slightly more complicated. These include the following: the addition or subtraction of a set amount from all chosen notes, the limiting of velocities between a set lower and upper limit (which has the effect of raising or lowering the velocities outside this range) and the compression/expansion of velocities according to a percentage and centre point. This last option requires some explanation. The compression/expansion ratio is in the range -100 to +300 percent. Ratios above 100 percent produce expansion, while those below produce compression. The 'Centre' setting is used to calculate the level from which the expansion or compression will occur. It may be set to average (where the program finds its own setting based on an average of the velocities of the chosen data),

or to any user setting. Velocities with exactly the centre value will not be affected by the operation. When expanding, all velocity values lower than centre value will be lowered and all those above will be raised, both according to the percentage amount. When compressing, all velocity values lower than the centre will be raised and all those above lowered, once again according to the percentage amount.

Remember that Transpose/Velocity produces a permanent effect on the data, but this may be undone as long as the edit remains in the clipboard. As a general precaution, it is probably best to work with Transpose/Velocity from within one of the Editors until you have mastered the options thoroughly. If you work this way, updates to the data will only be committed to memory if you leave the editor and choose to keep all the changes you've made, for which you have to select 'Keep' in the dialogue box that comes up when you leave the editor. In the case of an undesirable result, using 'Escape' to leave the editor will return the part to its original form.



for example when last-minute changes demand that the middle eight becomes a middle 16, or when the Intro needs to be four bars longer!

'Repeat', 'Global Cut' and 'Global Insert' deal with the linear manipulation of data, but there is still the question of splitting and mixing data vertically between tracks to consider. 'Remix' and 'Mixdown', found in the Structure menu, provide the answer for structural editing requirements of this kind. 'Remix' is used to automatically extract a number of separate tracks, based on the MIDI channel of events, from an original composite multi-MIDI

track and select it. Then activate 'Mixdown' from the menu. All tracks will be merged into a new composite part, entitled 'Mixdown'. Any tracks which you don't wish to include in the mixdown should be muted via the Mute column before you perform the mixdown; they will then be omitted. To enable the new composite track to play back normally, its entry in the MIDI Channel column should be set to 'Any'. Note that any of the Inspector's playback parameters, such as transpose or velocity changes, will be permanently written into the mixdown part.

'Mixdown' is useful for producing composite drum or percussion parts, or bringing together disparate tracks or harmony lines on the same

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GETTING TO GRIPS WITH CUBASE

► MIDI channel. It can also help to tidy up a disorganised arrangement.

SYNCHRONISATION

A vague relative of the 'Master Track' is *Cubase's* Synchronisation facility. *Cubase* can, of course, run by itself in sync with the computer's internal clock, but as with most computer-based sequencers, it can also be sync'ed up to external units. In such cases, *Cubase* will usually be slaved to an incoming time code of some kind via an additional hardware interface, or to MIDI Time Code or MIDI Clock via the MIDI In. Selecting 'Synchronisation' in the Options menu brings up a dialogue box where the essential parameters may be adjusted (see Figure 2). However, if you intend to use a hardware interface, such as Steinberg's SMP24 or SMP2, you must activate the 'driver' file for the unit. A driver is a file type used to provide *Cubase* with the necessary data to link up with the interface in use. The driver file is active when it has a full file extension; for example, on an Atari, .DR means the file is inactive, and .DRV means the file is active. On a PC, .DL represents an inactive file and .DLL an active one. The chosen interface will appear in the Synchronisation dialogue box as one of the options in the 'SMPTe Sync' and other pop-up boxes.

The default setting of the Synchronisation dialogue box when you first open it is Internal mode, where no synchronisation to an external source is possible.

To take a practical example of *Cubase* synchronisation, imagine you wish to sync Atari *Cubase* to a tape recorder via a Steinberg SMP24 interface. The SMP24 is linked directly into the computer and *Cubase* via one of the Atari ports.

To readers not familiar with the Steinberg SMP24, it is a rackmounting interface with SMPTe read/write, two MIDI Ins, and four MIDI Outs. It may be directly controlled from within *Cubase*. If your SMP24 Driver has been correctly

activated, the 'SMPTe Sync' panel in the Synchronisation dialogue box (see Figure 2) will now contain 'Intern', 'MTC' and 'SMP24' settings; the 'From Input' panel will provide the choice of receiving MTC from MIDI Input 1 or 2 of the SMP24; the 'Tempo Sync' panel will also provide the choice of SMP24 MIDI Inputs 1 or 2 for MIDI Clock tempo data; and the 'Send Sync' panel will offer the option of sending out MIDI Time Code or MIDI Clock information from any of the SMP24's four outputs. This kind of sync will be sent when *Cubase* is put into Play mode. SMPTe code will also be sent out of the SMP24 if the 'Write SMPTe' option is activated. This initiates the striping of the tape with SMPTe code at the rate set in 'Frame Rate' (usually 25 frames per second in Europe) and at the start time set in the 'Write SMPTe' box (indicated in hours, minutes, seconds and frames).

Once the tape has been striped, you can test *Cubase* to see if it syncs perfectly to the incoming time code. Adjust the Synchronisation dialogue box so that 'SMPTe Sync' is set to 'SMP24', and select the desired frame rate which should, of course, be the same as the rate on the tape. 'Tempo Sync' should be set to 'Internal'. Next, select the Song 'Start Time' in the 'Offsets' section. This is the SMPTe value which *Cubase* will treat as the starting point for the Song. It is probably a good standard procedure to set 'Time Display' to the same as the 'Song Start'. This ensures that

Cubase's main time position readout on the transport bar matches the SMPTe time being received from tape, and is desirable as all the machines in your setup will then display the same SMPTe time. Note that the Offsets display the time in hours, minutes, seconds, frames and sub-frames.

Finally, activate the 'Sync' option on the transport bar using the mouse or 'X' on the keyboard. Rewind the tape machine to

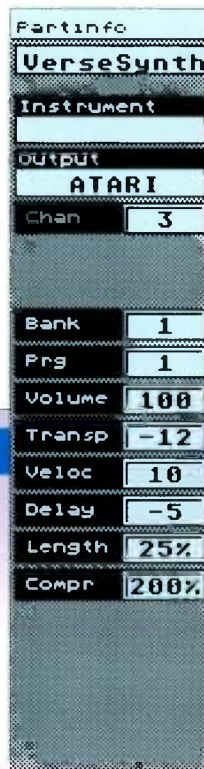
THE INSPECTOR & PLAYBACK PARAMETERS

The Inspector (mentioned in Part One of this series, page 90, *SOS* September '95) is specific to the Arrange window, and is simply a mini window which appears to the left of the Arrange columns (see screenshot). To open and close the Inspector, you can either click on the square-shaped icon in the lower left corner of the Arrange window, or press [Alternate] and 'I' together on the computer keyboard. The Inspector is important because it contains a number of parameters which can be changed to affect the playback of the currently selected part(s) or track. These changes are not recorded into the data in any permanent form, so the Inspector provides an excellent facility for quickly experimenting with the data without permanently changing it. The immediately useful functions are shown in the screenshot in this box. This outlines the functions, gives some example settings and shows their effect on the MIDI data.

Most obvious are the 'Bank' and 'Program Change'

parameters, which simply change the bank or program number in the target unit. These functions are useful, firstly for flipping through the patches available on a synth to find the one you want, and secondly, for automatic program changes between parts. 'Volume' is useful for setting up a basic 'mix' of the current arrangement by changing the level of each part or track while the sequencer is playing. 'Velocity' and 'Compression' both affect the dynamics of the MIDI data, 'Velocity' in the simple sense of adding or subtracting a value and 'Compression' by dividing or multiplying according to a percentage. The two can be used together to 'flatten out' the dynamics of an over-excited part (try settings of +50 for velocity, with 50

percent compression), or for adding dynamics to a static-sounding part (try -30 for velocity, with 175 percent compression). 'Transpose' is useful for trying out simple harmonies or shifting the octave for any given sound. 'Delay' could be used for changing the 'feel' of the chosen part(s) or track in relation to the others by shifting the data backwards or forwards in time by a number of ticks. One possible use might be for changing a snare or hi-hat part or track to be late or early, to give the drum arrangement a special feel. 'Length' might be used to increase the staccato feel to a part by using a setting of 25 percent, or to increase its legato feel with a value of 150 percent or more.



The Inspector, containing the playback parameters.

GETTING TO GRIPS WITH CUBASE

► before the selected SMPTE start time of the Song and put it into play mode. When the SMP24 receives code on or after the start time, *Cubase* will go into play at the appropriate position.

Those who have already used SMPTE will know that *Cubase* automatically chases and locks up to each new tape position selected. In the 'Sync Options' section of the Synchronisation dialogue box, the 'Locktime' setting dictates how fast *Cubase* will lock up to the incoming code, while the 'Dropout Time' setting determines how long a tape dropout will be tolerated before *Cubase* stops. 'Locktime' is expressed in the number of correct frames of time code received, while 'Dropout Time' is displayed in incorrect received frames. *Cubase* can be set to accommodate changes in the frame rate of incoming timecode.

Many synchronisation configurations are possible in addition to the one in the above example, the most popular of which are MTC (MIDI Time Code) or MIDI Clock setups. MTC is a particular kind of timecode which is sent down an ordinary MIDI cable. The synchronisation setup for MTC involves setting 'SMPTE Sync' to 'MTC' and, as with the SMP24 example, 'Tempo Sync' to 'Internal'. The choice of MIDI Input for the MTC is made at the SMPTE Sync 'From Input' panel, and will depend on the interface (or other unit) which is sending the code into *Cubase*. Once again, select the appropriate frame rate and activate 'Sync' on the transport bar. You should now be able to sync *Cubase* to the external unit using MTC, and the handling will be much the same

as with SMPTE.

Note that both the SMPTE Sync and MTC Sync options described above do not dictate the actual tempo of *Cubase*. This is still governed by the tempo indicated on the transport bar or by the tempo (or tempo changes) in the master track when it is activated. However, synchronising *Cubase* using MIDI Clock is a different story.

MIDI Clock usually contains messages called Song Position Pointers, as well as tempo information to keep *Cubase* in sync with the external unit. For this kind of configuration, the parameters in the Synchronisation box should be set as follows: 'SMPTE Sync' to 'Internal', 'Tempo Sync' to 'MIDI Clock', and 'From Input' to the MIDI Input into which the MIDI Clocks are being fed. This time, the external unit governs the basic tempo and any *Cubase* tempo changes. This means that any tempo changes you may have programmed into the Song will have to be re-programmed into the controlling device. Whilst this is all rather awkward and inconvenient when compared with other synchronisation methods, it can be useful if you are simultaneously synchronising several MIDI devices to a common tempo.

SOS

Next month, in the last part of this series, we'll take a look at *Cubase's* Preferences, MIDI Filter options, and Notepad.

TEMPO MANAGEMENT

The 'Master Track' (see screenshot) is *Cubase's* tempo and time signature manager. It is, in fact, another track like those in the Arrange window, but it contains specialised data. It also has its own unique display, which can be opened by selecting 'Master Track' from the Edit menu, or by pressing [Control] and 'M' on the keyboard. It contains tempo and time signature information alone.

Cubase usually runs at the tempo set on the transport bar, but when the Master Track button is activated (by clicking on it or pressing 'M' on the keyboard), *Cubase* follows the tempo(s) and time signature(s) set in the Master Track display. Even if the Master Track button has not been activated, all time signatures in the display will still be present in the Arrange window. However, tempo changes will only occur when the button has been activated.

The 'Master Track' display is managed using various commands in the local Functions menu in the top left of the window. The time signatures and tempi may be changed directly in the display by using the left and right mouse buttons. The position of inserted time signature or tempo events is decided by adjusting the 'Master Track' window's 'Song Position' before the events are added to the list using 'Insert Signature' or 'Insert Tempo'. Neither the bar number nor the SMPTE position are adjustable directly in the display list; the current value of the Song Position Pointer in the Arrange window is always the same as the default in the 'Song Position' display on the 'Master Track' window.

The 'Master Track' may be updated in a number of ways. It is always a good idea to enter the definitive tempo for your latest finished Song into the 'Master Track', just in case you accidentally change the tempo on the transport bar and cannot remember the precise tempo setting. If you wish to up the pace on all the choruses and return to the original tempo for the verses, this may be achieved by manually entering the tempi into the list at the appropriate positions.

If you wish to repeat certain sections of the tempo changes, 'Copy Range' in the local Functions menu may be of help. This copies the master track data between the left and right locators to a new position according to the current value of the Song Position Pointer. Whether the data replaces what is already there or is placed alongside it is determined by the 'Record Mode' status on the transport bar, which can be set to either 'Replace' or 'Overdub'.

To really 'feel' what tempi are required in a more musical context, try activating 'Record Tempo/Mutes' in the Options menu. If you then put *Cubase* into record, and change the tempo, each change will be recorded into the 'Master Track'. This results in tempo changes which feel more natural and musical. The

data may, of course, be edited in the 'Master Track' window as before, but you may find that the amount of entries in the list becomes unmanageable, particularly if you need to delete 16 bars of tempo, for example. The delete facility in the 'Master Track' window is slightly awkward to use, and you may find it easier to set the left and right locators to a suitable length of blank space in the Song and use 'Copy Range' with the record status on the transport bar set to 'Replace'. The Song Position Pointer should be set to the start of the section that you wish to delete. The result is that all 'Master Track' entries for the appropriate section will be replaced with blank space and thus deleted.

A final point to note about the 'Master Track' is that it always contains at least one initial tempo and one time signature at the beginning of the Song.

MEASURE	SIGNATURE	TEMPO	SMPTE TIME
1. 1. 0	4/ 4	120.000	0: 0: 0: 0: 0
2. 1. 143		119.000	0: 0: 2: 8: 44
3. 1. 130		118.000	0: 0: 4: 11: 54
4. 1. 28		117.000	0: 0: 6: 11: 55
5. 1. 103		116.000	0: 0: 8: 17: 70
6. 1. 74		115.000	0: 0: 10: 28: 35
7. 1. 203		114.000	0: 0: 13: 3: 40
8. 1. 130		113.000	0: 0: 15: 4: 42
9. 1. 131		112.000	0: 0: 17: 8: 11
10. 1. 129		120.000	0: 0: 19: 11: 51

The Master Track Window.

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Music

USING MIDI WITH CONTEMPORARY DANCE

I started Cassiel early in 1990 as a fairly hi-tech keyboard-based project playing Berlin-school electronic music, but after a live appearance at the 1990 Electronica festival, I became concerned by the lack of visual impact that keyboard-based acts generate. I knew I wanted some artistic visual focus, but didn't believe that the answer lay in a bigger light show or a rack of slide projectors. I hit upon a solution later that year after attending a breathtaking contemporary dance performance: I became determined to combine electronic music with this kind of dance. By 1992, I was Artistic Director (as well as composer/performer) for a programme of dance at a major venue during one of Edinburgh's spring arts festivals. However, this shift to working with dancers meant a considerable change in my attitudes to gear and how I used it.

and

THE TROUBLE WITH COMPUTERS...

Contemporary dance is concerned with swift, fluid physical movement; but with computer-based sequencers, it can take three hours to sequence a five-minute piece. Furthermore, a lot of the appeal of working in dance is the potential for interaction and improvisation between musician and dancer. The notion of parallel tracks of raw data on different MIDI channels, playing back at a fixed tempo and duration at a specific point in a piece, was totally inappropriate for my new kind of work. I needed the ability to bring parts in and out of the sound score, and control timbres, notes, delays, and effects, at any time, immediately and on cue. Unsurprisingly, my dissatisfaction with sequencers grew rapidly as I became more involved with dance work, and by late 1993 I had abandoned sequencers as compositional and performance tools. My ancient copy of MOTU's *Performer* is still wheeled out for recording performance data, but that's all.

PROBLEMS WITH KEYBOARDS...

Similar problems arose when I tried to adapt my keyboard rigs for use in dance performances. Keyboards provide a row of switches, suitable only for triggering notes. The lack of real-time controllers is an oft-voiced criticism, but where that becomes serious is when you need to play and control several sounds or parts of a composition at once. In contrast, consider the performance of percussionists, pianists, guitarists, flautists or vocalists — they all have immediate access to any aspect of performance that their instrument can deliver.

RIGS AND PORTABILITY

Live work with dance companies requires a rig that is portable and easy to put together — setup and breakdown times can be very short. If the rig comprises a half-dozen keyboards, 50 cables and requires two hours work to set up, nothing is going to get done. If it's a 6U rack and a fader box and can be put together in five minutes, things are much more relaxed and hassle-free.

For major performances, I have two CP Eurorack 500 6U rack cases. The first contains my mixer and effects: a Mackie CR1604 is mounted across the top of the case, with the rotopod arranged so that the jacks point upwards. Directly behind the Mackie is an MTR 80-way jackbay which patches the mixer's aux sends, returns and inserts, allowing the effects to be configured quickly and flexibly. At the front of the case I have my BBE 362NR Sonic Maximizer and noise reduction (usually patched

into the main mix), my Lexicon LXP1 and LXP5 side by side, and my Peavey QFX 4 x 4. I leave 1U spare for any other modules I might need.

The second case contains the synths: the Wavestation A/D and SR, the Waldorf Microwave, and another MTR jackbay to snake audio to the Mackie. There's a 400-series case, converted to a 3U, for my PowerBook and an Opcode Studio 4 MIDI interface/patchbay; the top comes off the case when using the PowerBook. Performance is via the Peavey PC1600 fader box, and I also have a small (4-octave) Roland PC200 keyboard for situations where I absolutely have to play keys.

That's the full rig, pretty much, and I prefer to use much less; the minimum is probably a 3U for the UltraProteus with Lexicons patched into its send/return jacks (and probably the BBE on the output), and a 3U for the PowerBook and Studio 4, plus the fader box.

In 1990, the Cassiel rig had been fairly conventional: two Ensoniq VFXs, two Roland D50s and a Juno 106, some outboard modules (a Roland MKS70 and D110, and a Waldorf Microwave), and assorted effects. Back then, the idea had been simple: play everything possible, and sequence the rest (or put it on tape).

But because of problems like those mentioned above, I gradually found myself selling off the gear I had been using, and replacing it with equipment more suited to my new-found requirements. In 1992, I sold my VFX (largely because of its tendency to crash during rehearsals) and changed my working methods considerably.

...AND THE SOLUTION

The solution I adopted to all my problems was a combination of hardware and software. The hardware is a Peavey PC1600 fader box (16 faders and 16 buttons) which, for all but the most complex performances, is the only instrument I actually play. And the software is Opcode's object-orientated MIDI applications generator, *Max*. It was exactly what I needed to gain proper control of the synth modules and effects I was using, and allowed me to change the nature of my live performances from

working (when I bought my PB140, it was on the understanding that Apple were "working on a fix" to the MIDI problems, while issuing press releases of non-functional workarounds. Three years on, nothing has been fixed, and I doubt it ever will!).

I use two Korg Wavestation racks — an A/D and an SR are the main synthesis engines. The Wavestations are powerful machines (apart from some blind spots like the weak filtering and naive voice allocation), with good real-time control and excellent onboard effects, which can be programmed on the fly via SysEx during performance (all done in *Max*, of course). I have two units in order to get 64 voices and four effects processors, because when I use the vocoders I tend to consume both voices and effects very rapidly.

I do all my programming on the A/D, and have *Max* code for bouncing patches from there to the SR. I also retain my Waldorf Microwave, since I love the PPG sound, although I've had it for five years and am *still* learning how best to programme it! Effects are courtesy of a Lexicon LXP1 and LXP5, which are programmed from an MRC controller or *Max*. A Peavey QFX 4 x 4 effects unit takes care of the bread-and-butter effects — you can have four running at once, totally independently. I also took

NICK ROTHWELL had a problem; although he owned an impressive MIDI setup, he found much of it useless when his musical project Cassiel came to provide the music for live dance performances. Here he explains how he solved his problems and adapted his setup to fit in with new requirements.

movement

playing over backing sequences to having an environment of total control, where I could access and play any part of the score in any way I wanted, at any time. Instead of firing up a sequencer and recording linear tracks, I could bolt together software objects and patch panels, mapping faders and buttons to MIDI events and systems in a process of interactive composition (see the 'Get the *Max*' box for more on using the program live).

THE NEW SETUP

Reliability is a key issue in the kind of live work I do. My performance computer is a three-year-old Apple PowerBook 140 (with 170 CPU board), which is fine as a *Max* engine, apart from being rather RAM-limited; I don't need frills. There have been terrible problems running MIDI applications on some Macs in the last three years, but my heroes in this area are not Apple, but people like Doug Wyatt at Opcode, who reverse-engineered the PowerBooks' ROM to get the machines

delivery of an Emu UltraProteus recently — it attracted me when I realised that it was an Emu Morpheus with double the sample ROM (including some lovely Proteus 3/World ethnic stuff) and more filter cubes.

FRINGE BENEFITS

During the summer Cassiel appeared live at the Edinburgh Fringe performing two pieces. For both, I had the *Max*-based control system, four rack synths (two Wavestations, the UltraProteus and the Microwave) and a few effects processors. Most of the performance was via the fader box, but I did also make sparing use of the Roland PC200 (see the 'Rigs and Portability' box). Audience numbers were respectable, but won't make us rich...

SOS

Cassiel can be contacted on the World Wide Web at the following address:
<http://www.vt.com/~cassiel>

SAMPLING: A NOVEL APPROACH

I no longer own a sampler. Samplers still lag behind synthesizers when it comes to real-time control, though I have plans to get something like an Roland S760 to use for reproducing audio elements from the synths and effects live; basically just as a digital playback machine, although I confess I'm also attracted by its real-time-controllable filtering and parametric EQ...

GET THE MAX: USING OPCODE'S MAX IN PERFORMANCES

My use of a bank of faders for performances might suggest that all I do is mix the volumes of different sounds, but *Max* allows a lot more than that. For a recent performance I had *Max* mapping faders to the following: controller data (vector mix, effects), chords (with ranges of the fader selecting different groups of notes), arpeggiation (with faders controlling tempo and note velocity), virtual tape loops (faders acting as record/playback

switches), pedal notes (faders turning notes on and off), melodies (fader values mapped to notes in a modal scale), drum machine pattern selection and so on. And since this is all built from an interactive toolkit, I can change mappings, sounds, and mixes during rehearsals and soundchecks, or even in the middle of a performance.

To take an example, in a recent piece I had a fader controlling the level of a MIDI

note loop which ends the piece, so that I could fade it manually. Just before the performance, the choreographer decided that the stage should be empty when the music ends. Thirty seconds later, I'd rigged up a ramp generator which I punched in at the end of the piece to allow the dancer and myself to walk offstage during the fade-out.

The pieces I perform tend to be quite long (maybe 30 minutes) and require new

patches and programs to be called up and configured, and new fader routings established, several times during the piece. Needless to say, this can get quite complicated, and while the *functionality* of the fader box is about right, the ergonomics are not ideal. Accordingly, I am currently looking very seriously at Don Buchla's Thunder MIDI controller as a performance instrument.

BOOT IT!

FATAR MP1 MIDI PEDALBOARD

Best known for their low-cost controller keyboards, Fatar have now released a new kind of controller — the MP1 MIDI pedalboard. PAUL WARD brings his lower limbs into the sonic fray...



FATAR MP1 £250

PROS

- Lightweight and portable.
- Polyphonic.
- 9-octave transposition range.

CONS

- Unfriendly binary display of octave and MIDI channel information.
- External PSU and no battery backup.
- Budget build quality.
- No display of currently selected program number.

SUMMARY

The MP1 is a reasonable option for triggering sounds by foot — providing you can live with its idiosyncrasies. If your pedals are likely to be given a hard time by the road crew, you ought to consider a more robust alternative.

BUILD QUALITY

This unit seems to be the unhappy victim of a little too much cost-cutting. The plastic panelling bends easily, and the rubber button tops had a nasty habit of flying off when my foot slipped from a control — not much use on a darkened stage! The controls give no feedback as to whether your selection has taken or not, leading to firmer and firmer pressure just to make sure. The thin plastic of the note pedals didn't fill me with confidence either — especially given that they extend three or four inches past the end supports, leaving them exposed in the event of the unit being dropped. Assuming that bass pedals are likely to find more use in a live situation, I would prefer a sturdier product.

Unlike synth pedalboards of yore such as the Moog Taurus (featured *SOS* June '95), the Fatar MP1 pedalboard only transmits MIDI note data, and has no tone generating circuits of its own. Aside from the power socket, the only other connection on the rear of the unit is a MIDI Out, which carries the data generated by the pedals and preset buttons.

The MP1 review model did not come with a power supply. Oddly, when I plugged a 9V mains adaptor into the MP1's (supposedly) 9-12V rear socket, the unit did some very strange things indeed. Everything was fine at 12V, but be warned, those of you hoping to use 9V effects pedal power supplies!

Other than the 13 C-C pedals, the MP1's control surface sports just four buttons, and a row of four LEDs. The Octave button, situated furthest on the left, allows transposition across a generous nine octaves. Selection is performed by pressing this button and then, within three seconds, pressing any note pedal from low C to G sharp. The octave selected is indicated by the four LEDs to the left of the control panel.

The MIDI transmission channel is selected by pressing the Ch MIDI button, and then an appropriate note pedal from low C to B, representing MIDI channels 1 to 12 (channels 13 to 16 appear to be inaccessible). Again, the four LEDs have the task of indicating the chosen MIDI channel, but unfortunately they do not do this at selection time, only when the Ch MIDI button is subsequently pressed. It might have been better had the display shown the newly-selected MIDI channel for a second or so before returning to the octave display. The other two controls are a pair of preset up/down buttons, allowing you to step ('scuse the pun!) through 100 programs on a connected sound module. If your favourite pedal patches are outside the MP1's range, you have to select them at the sound source itself. Worse, there is no display of the currently selected preset on the MP1, so you have to examine the sound source to check your selection anyway!


IN USE

In the MP1's defence, I can say that the triggering is lively and reliable. The polyphony is also helpful, especially when triggering samples

or sound effects. There didn't appear to be any polyphony restrictions, although I found it physically impossible to hold down more than 10 pedals at once. The unit generally behaved well, but I did manage to confuse it with some strange combinations of buttons and pedals, which made the top four pedals play in the wrong octave.

The MP1 is not velocity- or pressure-sensitive — the velocity output is preset to 64, and sadly, this value is not adjustable. When the MP1 is switched off, it loses all current data, such as MIDI channel, octave and last transmitted preset. This could prove embarrassing in a live situation where a sudden power blip might leave you playing the wrong synth at the wrong octave.

The real *bête noire* of the MP1 has to be those four LEDs. These form a binary display for both octave selection (their default display status), and MIDI channel. Each LED represents one of the numbers eight, four, two and one, so, for example, if the middle two LEDs (four and two) are lit, then the total is six, corresponding to octave six. I'm quite at home with the concept and use of binary information, but it hardly makes my job as a musician any easier if I have to go through mental arithmetic for an instrument as seemingly simple as a set of bass pedals! A two-character alpha-numeric LED display would have been much friendlier.

This is a device that you either have a need for, or can happily ignore. I certainly could make use of it, but I find myself frustrated by so many niggles in a relatively simple instrument. I hate to end on a cliché here, but do 'try before you buy'. 

FURTHER INFORMATION

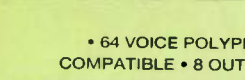
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909 Lives!

ROLAND TR909 RHYTHM COMPOSER

**DEREK JOHNSON and
DEBBIE POYSER** examine the
*rise and rise of Roland's most
sought-after beatbox, the TR909.*

There can be few hi-tech instruments which still command a second-hand price only slightly lower than their original selling price 10 years after their launch. Roland's now near-legendary TR909 is such an example — released in 1984 with a retail price of £999, they now fetch up to £900 on the second-hand market! The irony of the situation is that barely a year after its launch, the 909 was being 'chopped out' by hi-tech dealers for around £375, to make way for the then-new TR707 and TR727. Prices hit a new low around 1988, when you could often pick up a second-user 909 for under £200 — and occasionally even under £100. Musicians all over the country are now garrotting themselves with MIDI leads as they remember that 909 they sneered at for £100 — or worse, the one they sold for £50 (did you ever hear the one about the guy who gave away his TB303 Bassline — now worth anything up to £900 from true loony collectors — because he couldn't sell it? He knows who he is...).

THE TECHNO CONNECTION

Even as UK second-hand prices for the 909 slumped in the early to mid-'80s, this durable machine was beginning its phenomenal

renaissance. Almost by chance, the fledgling Chicago house movement had adopted the 909 as its beatbox of choice, with Chicago DJ Frankie Knuckles weaving 909 rhythms into his live mixing shows at the seminal Power Plant club. The sound caught on, with other local DJs clamouring for 909s of their own, and causing something of a local shortage around Chicago and Detroit. Meanwhile, the pioneers of Detroit techno were making the 909 the rhythmic basis of their sound, and setting the stage for the rise of Roland's vintage Rhythm Composer.

While the 909 was on its way back into favour, second-hand prices for its non-MIDI predecessor, the TR808, were peaking at around £500-£600, fuelled by its popularity with hip-hop musicians. If hip-hop rejuvenated the 808, as some maintain, it was certainly techno which breathed new life into the TR909. Second-hand gear watchers marvelled as 909 prices reached and then surpassed the level attained by the 808, which itself had been a source of amazement. It seemed that the bubble must burst, but no-one had reckoned with the now mainstream appeal of the 909's distinctive sound, which had moved out of the confines of techno and into the pop charts. Indeed, UK techno duo LFO are on record as remarking that "even Kylie's using TR909". The result of this continued popularity is that the people who own 909s are, for the most part, hanging onto them, and those who want one seem prepared to go to almost any lengths to obtain one of the finite number available on the second-hand market. We've

THE SOUNDS THAT ROCKED THE HOUSE

An early TR909 brochure claims that the instrument sounds "have been created through computer analysis of actual drum sounds". In practice, each voice is produced by what amounts to a little synth circuit — a la TR808 — a fact confirmed by a quick look at the main printed circuit board (don't try this at home, kids). Each section of the PCB features references to VCO, Noise, Env1 and so on. The exceptions here are the hi-hat and cymbals, which are actually samples — a first for a Roland drum machine. Although the handclap sounds like a sample of that found on the TR808, it actually appears to be generated by a circuit as well.

The quality of the sounds is surprisingly good, and constant chart exposure means they sound contemporary — just check out the profusion of 909 or 909-clone sounds amongst the soundsets of many modern synths, samplers, drum machines and their libraries. If you can't stretch to current asking prices for the genuine article, countless sample CDs feature typical samples, and Roland also made a 909 ROM card for their own R8 drum machine, which sometimes becomes available on the second-hand market.

The kick and snare are the heart of the 909 sound, and, due to the aforementioned array of knobs, can sound as naff or as sophisticated as you like. In fact, the kick drum has a surprising amount of what can only be described as 'oomf' — the bass energy can be lethal at high volumes. The toms sound a bit 'syn tom'-like, but have a nice woody feel to them, the handclap is a classic (shared with the 808), and the hi-hat is crisp with plenty of presence in a mix. Surprisingly, for such early samples, the cymbals are actually quite good, if a little abrupt in the fade.

even heard of German and Swedish buyers competing for UK-sourced machines!

WHAT'S IT ALL ABOUT, ROLAND?

So, what's all the fuss about? A certain amount of the 909's popularity can undoubtedly be explained by the vagaries of fashion, but there's more to it than that. Physically, the 909's chunky beige console-style design flies in the face of current trends for increasing miniaturisation and sleekness, but it certainly feels like a substantial instrument as a result. The front panel is spacious, to say the least, and the buttons and dials have a weight and solidity which underline the quality of components used — an impression confirmed by both independent service expert Mike Swain of Panic Music Services, and Roland UK's own service department. When questioned about the reliability of the 909, both attested that they rarely turn up with problems, being generally stable and trouble-free machines.

Central to the 909's appeal could be its emphasis on real-time control and spontaneity, demonstrated by the fact that almost all functions have a dedicated button, with just a few requiring a punch of the Shift key first — this clearly strikes a chord with dance musicians. Like pre-MIDI analogue synthesizers, the 909 allows you to tweak individual sounds while a



pattern or song is playing, and select individual patterns at will — all without needing to access layers of hidden software. All 10 of the TR909's sounds feature a volume control, so individual instruments can be dropped out whenever you like. In addition, the kick drum, snare, three toms and two cymbals can be tuned over a fairly wide range. In common with the TR808, there are a few extra parameters for the kick and snare drums: the kick has Attack and Decay knobs, and in tandem with the tuning parameter, it is possible to produce anything from a tight, aggressive slap, to a resonant, flabby punch. Similarly, using the Tone and Snappy controls lets you vary the snare between woodblock, a blast of white noise, or a fairly realistic simulation of the real thing. The toms also have adjustable Decay controls, as do the open and closed hi-hats.

As befits its status as Roland's then-flagship drum machine, the TR909 is kitted out with 10 individual audio outputs, allowing you to treat sounds externally — the sounds are pre-panned at the main stereo output.

AND THERE'S MORE...

Other facilities add to the 909's continuing usefulness. First off, there's a built-in tape synchroniser — no Song Position Pointers, but welcome and usable all the same. Not surprisingly, given the 909's appearance virtually at the birth of MIDI, Roland equipped their new beatbox with a couple of pre-MIDI options: a DIN Sync input allows the TR909 to be sync'd by something like an MC4 sequencer, and a Trigger output (programmed using the rim shot) can be used to drive certain older drum machines and sequencers, as well as the arpeggiators found on many analogue synths.

On the MIDI side, the TR909's simple MIDI spec mean that sounds can be played over MIDI on any MIDI channel — with full velocity response, but not with pitch bend — and the machine can sync, or be sync'd, to MIDI clock. External storage is limited to a primitive but fairly reliable cassette tape dump, or M64C cartridges (one cartridge holds the equivalent of the memory of two 909s). We've heard that early TR909s may have operated in Omni mode only, although we personally haven't found one where this is the case. Be warned, though, that the basic MIDI settings have to be set each time you turn the machine on, since the 909 does default to Omni mode and internal sync.

THE RHYTHM METHOD

In a world dominated by ever smaller, ever more powerful sound modules, and sophisticated computer-based sequencing software, why use an old drum machine like the TR909 for programming your drum patterns? Well, if I'd just paid £900 for a TR909, I'd want to use everything on it — and to be honest, part of the charm, not to mention all of the feel, of a TR909 is obtained

through creating drum parts with the on-board sequencer.

The process is fairly logical, and consists of programming a series of patterns, which can then be chained into completed songs (called Tracks by Roland). There are 96 patterns and eight tracks, divided into two banks. Each bank of four tracks has access to 896 bars, which are assigned as they are needed until the supply runs out. Patterns created in one bank can't be used by tracks created in the other, although they can be freely copied between banks should the need arise. Of course, you could simply choose to select individual patterns in real time, an interactive approach adopted by many a live remixer or house musician.

Programming patterns uses one of two methods — step or tap. Step is a more sophisticated version of the method found on the TR808, where you write one drum sound at a time, using the row of 16 buttons at the bottom of the front panel. With a pattern running, you press a button where you would like a drum to sound, press it again to give it an accent, and again if you want to remove the event. An LED in each button lights to show the presence of a drum hit, and an accented event is shown by the LED glowing brighter. You move onto another drum sound using the Instrument Select button. In tap record mode, you record a pattern in real time using the 16 buttons as pads. There are two pads each for the kick, snare and three toms, since each is available in an accented, and non-accented version. Each method is quick and intuitive, and you can switch between methods depending on what you want to achieve.

It may appear that there is a limit of 16 steps per pattern, giving a nominal time signature of 4/4, but this isn't the case. It's possible to alter a pattern's 'scale' to accommodate 32nd notes (a pattern featuring 32nd notes will be half as long as a normal pattern), and 8th, or

SPECIFICATION

SOUNDS

- Bass Drum
- Snare Drum
- Low, Mid and Hi Tom
- Rim Shot
- Hand Clap
- Open/Closed Hi-Hat
- Crash Cymbal
- Ride Cymbal

CONNECTIONS

- 2 x MIDI In/MIDI Out
- DIN Sync In
- Tape Sync/Tape Dump In/Out sockets
- Start/Stop Footswitch Socket
- Trigger Out
- Master Stereo Output
- 10 x Individual Outputs

16th note triplets. You can even define how long a pattern is, as long as it's between 1 and 16 steps (you can have it in any colour, as long as it's beige...). More complicated patterns can be created by using block pattern play. Select two (or more) consecutive patterns, and they will play sequentially. For example, give patterns 1 and 2 a time signature of 2/4 and 3/4 respectively, and, using block pattern play, you'll have a 5/4 bar. A little planning goes a long way with the 909.

Apart from triggering the on-board sounds, each TR909 pattern also features an external play option. Here, a further 16 tracks can be programmed as part of a pattern, and transmitted

over MIDI only. Designed to allow external drum sounds to be incorporated into TR909 patterns, what this actually gives you is a very simple sequencer, with a range from bottom C (on a 61-note keyboard), to the E flat 16 notes above. Although limited (for example, the gate time is fixed), this facility can lead to some very interesting results. One anomaly worth pointing out is that when you clear a pattern to start from scratch, the external instrument tracks aren't erased — you need to press Shift/Ext Inst, and erase those tracks separately. This is a minor irritation that joins a few other small problems. For example, in order to change between patterns in either of the two banks, the 909 needs to be stopped, and the same goes if you want to switch between step or tap recording. You also only get a tempo readout when you push the Tempo button. For an instrument that's over 10 years old, though, there's not too much to complain about.

Unlike many of the instruments that appear in SOS retrospectives, the TR909 is not an unsung instrument waiting to be rediscovered, but in spite of its ubiquity, it does have a lot, both sonically and creatively, to offer the discerning (and, unfortunately, rich) musician.

SOS

MACHINE-AGE FAN CLUB: FAMOUS 909 USERS

The following musicians (amongst many others) either own, or have owned a TR909:

- 808 State
- Les Adams (LA Mix)
- Adamski
- A Guy Called Gerald
- Juan Atkins
- Bizarre Inc
- Cabaret Voltaire
- Coldcut
- D:Ream
- Future Sound Of London
- Simon Harris (Music Of Life)
- Michel Huygen
- Phil Kelsey (DMC remixer)

- Nigel Lewis (Dina Carroll's producer)
- Derrick May
- Will Mowat (Soul II Soul)
- Orbital
- Rhythmic
- Kevin Saunderson
- Tim Simenon (Bomb The Bass)
- Three Wise Men
- David Toop
- Unique 3

Countless musicians also use TR909 samples, including LFO, and top remixers Brothers In Rhythm, whose Steve Anderson has been quoted as saying: "As much as you can try to get away from it, there's nothing like a 909 snare." (SOS February 1994)

STANDING ROOM ONLY

DIY Speaker Stands

PAUL WHITE indulges in a spot of woodwork therapy, and comes away with two very cost-effective speaker stands.

Those of you who read my articles on monitoring and studio construction will already know that it's better to mount your monitors a little way behind your mixer, rather than on the meter

find any one-metre high speaker stands anywhere, and even the smaller ones seemed rather expensive. So, in the true spirit of Blue Peter bravado, I decided to make my own. As the result was inexpensive, relatively simple to make, and above all didn't subsequently collapse, I felt obliged to pass on the design details — just in case any of you are in a similar predicament.

WOODN'T IT BE NICE?

Apart from the flat platform at the top of the stands, which can be made from 0.75-inch ply or pine, the rest of the structure is built from planed wooden battens, nominally 1.5 x 3 inches, although in the interests of international harmony, I've dimensioned the diagram in millimetres. As you can see from the illustrations, the stands follow a simple Z-shape, the base being in the form of a 'T', to provide a three-point contact with the floor. In order to get the base to stand properly on less than perfectly even surfaces, it helps to fix small feet, or hi-fi spikes, near the ends of the legs.

A SAW POINT

As any 12-year old can tell you, working out the cutting angles is a matter of simple trigonometry, but as I've forgotten just about everything I knew when I was 12, especially the simple trigonometry, I opted to cut out a paper rectangle representing the height and depth of the finished stand, and used this as a template against which to mark the cutting angles. The angles will

vary, depending on the height of your stand, so I've omitted them from my diagram. The only fancy tool I used was a variable angle mitre saw (17 quid from Texas), but even this is a bit of a luxury — any half-decent saw along with a drill and screwdriver is about all you will need.

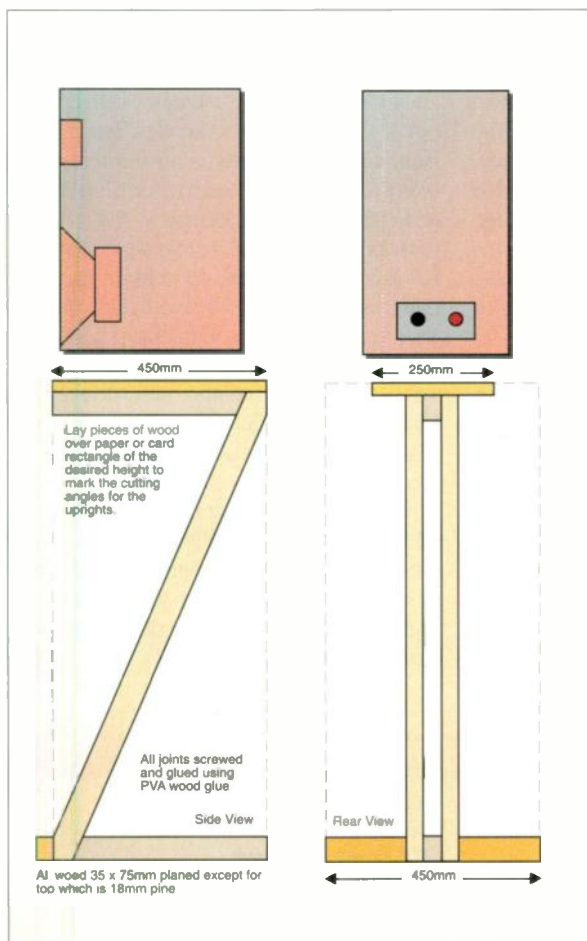


A PERFECT FINISH

Once the two base pieces, the two uprights, and the top piece have been cut, they should be assembled by applying PVA wood glue, and then screwing with at least two screws per joint. Once the screws are in place, stand the thing upright to check that everything is where it should be, and once the glue has dried (in an hour or so), the top platform can be fixed using glue and a couple of screws. After a light sandpapering, followed by a liberal coat of antique Briwax, you have an instant pair of stripped-pine speaker stands.

The finished stands have actually turned out to be very strong, and should be able to support any near- or mid-field monitors without a problem. I used a sheet of Spectra Dynamics' polymer (see SOS October 1995) to isolate the speakers from the stands, but if you want to take the cheap option, you can always use dense foam rubber, or lumps of Blu-Tak. The stands certainly look very nice — my only disappointment is that being situated behind my mixer, they're almost totally invisible!

SOS



bridge, simply because it reduces the severity of reflections from the console's surface. So, when it came to redesigning my own studio, I thought I'd better get some stands to put behind my console, so as not to get caught with my early reflections down! This turned out to be easier said than done, as I couldn't

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KEYBOARDS

ALESIS QUADRASYNTH £625 ono, Zoom 9010 monstrous FX box, originally £1,499, only £450; Casio CZ5000 with case £150, 2Mb Simms, £30, Wanted Roland D50. 01980 653719

ARP 2500 Offers. 0171 923 1459 (London)

ARP ODYSSEY synthesizer recently serviced and calibrated gate, and CV, 2 oscillators, great filter, a true classic manuf 03 08 73. 01535 645233

ANALOGUE KEYBOARDS Chase Bit 01 with case, £260; Roland 48-channel rack mixer, £690; Juno 106, £595; TB303 with sync box and overdrive pedal, £690 ono; RY30 drum box, £230. Contact: Mr Marlow, 242 Beechfield, Hoddington, Herts, EN11 9LU

BOSS DS330 sound module, VGC, £220 ono; Yamaha TG100 sound module, VGC, £175 ono. 01202 657787

CASIO CZ101 £80; Yamaha F801 sound module, £80; £150 for the pair. 01386 47275 (Worcestershire)

CASIO CZ1000 synth, mint condition, boxed, manuals, RAM cards, 100's of sounds, feel the power, £180 the lot. 01582 416405 (Beds)

CASIO CZ5000 keyboard with custom flightcase and manual, £225; Yamaha CS20M analogue monosynth, excellent condition, offers. 0181 330 1249 (Surrey)

CASIO FZ1 Boxed with manuals, £600; Roland D110, manuals, £200. Both in excellent condition. Possible swaps for Jupiter 6, Deep Bass Nine, TR909 or other analogues. 01438 365348 (Herts)

CASIO MT70 personal keyboard, hard case, manuals, £65; Casio VK1 cult micro keyboard, soft case, £5. 01329 663048

CHASE BIT 99 analogue MIDI keyboard, in showroom condition, mint, boxed, with manuals, plus Cubase V3.1. Will swap for Pro One, Moog Source, R8M. 01942 602124 leave message. (Lancs)

CHEETAH MS6 analogue rack synthesizer, polyphonic and multitimbral, 320 sounds in ROM and 96 in RAM, one of the last batch made, £240. 01732 462318 (Kent)

CHEETAH MS6 analogue polyphonic rack mounted synthesiser with MIDI, with manual, £200. 01535 645233

CONTROL SYNTHESIS Deep Bass Nine rack module, emulates TB303 bassline, 4 months old with manual, box & guarantee, £350. 0117 949 2989 (Bristol)

CRUMAR ROADRUNNER Electric Piano c/w soft case, £75; Vestax micro chorus and flanger, Yamaha phaser and flanger pedals. Guyatone chorus/dist. pedal, all £40 each. Swap WHY? 01235 534152 eyes (Oxford)

EMU E111XP sampler 24Mb RAM, 8 Outs, latest software reads 51000 samples & programs, £2200; Moog Rogue £200; Roland SH101, VGC, £230; Sequential Prophet vs Vector Synth, £900. 0171 221 2214

EMU PROTEUS 1 sound module with orchestral upgrade, boxed with manual. £370. 0115 938 2468 (Notts)

EMU PROTEUS 1 Mint condition. Boxed with manual etc £270. 01204 693893 (Lancs)

EMU PROTEUS 2 Orchestral module, 16-bit stereo sounds from the E111 library, 6 months old, immaculate, manuals, boxed, £500; Emu Performance 2 + Piano module, £200. 01622 694252 days 01732 762467 eyes (Kent/A25)

EMU ULTRA PROTEUS rackmount synth module, mint condition, as new, unused, boxed, manual, will send Securicod COD. £900. 01stair 0141 337 3206 (Glasgow)

EMU VINTAGE KEYS £495; Korg M1 Steinberg editor, £25; RAM card, £25. Contact: Terry Hudson, Flat 1B, 37 Grove Ave, Moseley, Birmingham, B13 9RX

EMU VINTAGE KEYS with plus expansion, 16Mb of classic and analogue sounds, home use only, in perfect condition, boxed, £690. 01892 535820 or 0860 529821

(mobile)
EMULATOR III 8Mb, built-in sequencer, arpeggiator, SMPTE, SCS1, internal hard-disk, immaculate condition, never giggered, £1800 ono. 0181 340 2850

ENSONIQ VFX synthesizer, £540, hard case, £50; flight case, £75. Contact: B R Miller, 5 Goldsmith Road, Friern Barnet, London, N11 3JG

ENSONIQ VFX SD £500. 0191 281 7361

FENDER RHODES, Stage 54, small, very portable, VGC, £359; Stage 73 Mark 1 ex condition, fitted wheels, lovely tone, £575. 01386 831859

FENDER RHODES Stage 73 piano. £200 ono. 01227 834329

GEM S2 turbo synthesizer. Fantastic sound, plays Akai sample. Box, manuals, flightcase and library included. One year old. £975. 01293 526298 after 6pm (Essex)

GEM S2 turbo workstation, 2Mb sample RAM to load Akai or WAV samples, £750; Mackie CR1604 mixer, £600; Korg Polysix Analogue, £300; All mint, bargain prices. 01745 338094

GEM S3 76-key workstation, £995; Roland U110, £175; Alesis 16:2:2 mixer, £299; Masterscore V2 for Atari, disks, dongle, manual, £50. 01535 654852 Mobile 0421 607473

HAMMOND ELECTRONIC ORGAN Church model, working but may need slight attention, reasonable offer accepted. 01293 526298 after 6pm (West Sussex)

HAMMOND LIZZ Organ, a classic valve amplified tone wheel organ fitted with switching kit for connection to Leslie 145, £400. 01832 734950 (Northants)

HAMMOND ORGAN T series, all of the tone wheels, plus 760 100W Leslie cabinet, £450. 0121 327 8982 (Birmingham)

HAMMOND XB2 organ plus Korg G4 Leslie effects, £950; Roland D50 synthesizer, £450; Yamaha TG77 module, £500; Alesis Quadverb GT effects, £300. All ono. 01792 466573 (Swansea)

JEN SX1000 analogue monosynth, in mint condition with factory preset charts, £100. 01535 645233

KAWAI K1 synth, excellent condition, all manuals plus some PC software, £220. 01905 772812 (Worcestershire) or 0374 465588 (Mobile)

KAWAI K1 + Ram card + 1000 sounds on Atari disk, £300. 01509 416418 (Leics)

KAWAI K1 keyboard, £225; Roland D10 keyboard, £250. Both in good condition, both with lots of sounds on disc for ST. 01502 531360 (Lowestoft) after 8pm

KAWAI K1, manuals, £200; Yamaha F801, manuals, £85; £260 the pair; Korg VC10 Vocoder, VGC, original screw in mic, £375 ono; Roland TR606, manuals, case, £110. 01903 821126 (W. Sussex)

KAWAI K4 synth, £350; Korg 05RW module, £320. Both mint, boxed, with manuals, Also Roland U220 module, good condition, with manual, £250. 01244 376446 eyes (Chester)

KAWAI K4R16-bit synthesizer module, excellent condition, £420. 0181 518 7079 (London)

KAWAI K4R £350 ono. Kawai SX210 vintage synth, £150. Roland S10 sampler, £300. Cheetah MS800 module, great for techno, £100. 01202 721191 (Dorset)

KORG BX3 organ and BXP3 pedal system. Both in excellent condition and flightcased. Includes original wooden stand and manuals. Collectors items, £1,100 the lot. Genuine offers only. 01705 828587 (Hants)

KORG DW6000 £230; Yamaha RY30 £250; Yamaha F801 plus Atari editor, £90. All in excellent condition. 01724 711629

KORG DW8000 K/B with flight case, £350; without £250; Roland MKS-20 Piano module, £300 and two Yamaha K550 keyboard combos, £80 each. 01923 239103

KORG EX8000 rack synth, swap for Roland MKS7 super quartet or £375 ono.; Frontline x-2 duel drum synth (2U), mad sounds, £250; Roland CSQ600,

£120; Roland SH1 Rare monosynth, £500; All open to swaps. Wanted: Digitech Mod 80, Maplin kits, EMS synths, Moog Source, Multimoo, Korg SQ10. \Rightarrow 01202 734739.

KORG i3 interactive workstation. Splendid voices and automatic rhythms plus sequencer. £1,150. \Rightarrow 01597 810712.

KORG i3 workstation, home use only, boxed, manuals, style disks etc, £1,300. \Rightarrow 01609 775396.

KORG M1 plus sound editor with over 1000 sounds for Atari £550. \Rightarrow Eric 01753 643886 (Bucks).

KORG M1 Excellent condition, complete with flightcase, video tape and manual. Also about 2000 extra sounds and librarian on Atari disk. £670 ono, or part exchange for 01W/FD. \Rightarrow Peter 01388 601919 (North East).

KORG M1 Mint, boxed, manuals, stand, video manual, £650, no time wasters. \Rightarrow 01484 843729.

KORG M1 200 brand new sounds just programmed, kicking sounds, most are filter-controlled analogue synths, fat basses, new kits on MIDI file ST disk. £30. \Rightarrow 0121 443 1922.

KORG M1 + cards + discs, £690; Kawai K5 + cards + discs, £390; Roland Organ/Strings, £110; AKG D190E mics; Boss DR55, Wem Copicat, Teac A3440s, Roland TR505, offers. \Rightarrow 01981 550542 (Hereford).

KORG M1EX for sale, T-series sounds as well as classic M1 sounds, 18 months old, excellent condition, including case and manual, £750 ono, or possible swap. \Rightarrow Dave 0171 833 2895.

KORG M1R £415; Tascam MM1 20-2 MIDI mutes, £325, Roland U50, £385; E70, £425 with cases; Akai arpeggiator, £65; Shure Unidyne, £35, all VGC will post. \Rightarrow 01261 832898.

KORG M1R with six sound cards and video, as new condition, £425. \Rightarrow 01423 712484.

KORG M1R Mint condition, with instruction video, £425. \Rightarrow 01423 712484.

KORG MINI700 analogue monophonic synthesizer, absolute mint condition, very versatile for ambient or dance. Will post. £100. \Rightarrow 0114 248 2760 evenings or leave message (Sheffield).

KORG MONO/POLY Classic 4 VCD monster. Manic sounds. Selling due to upgrade to modular, £350 or swap for M56 and Midex + or either + £180. \Rightarrow Chris 01235 534152 eves (Oxford).

KORG MONOPOLY with manual, boxed, mint, 4-oscillator analogue synth, £325 ono; Casio V210M, £150. Wanted: Roland S330 sampler, cash waiting for best price. \Rightarrow Mark 01782 49019.

KORG MS10 with manual. Great condition, £120. \Rightarrow Dave 0161 626 8586.

KORG MS10 Original analogue synth with MIDI patchbay. Strange sounds guaranteed, fun to master, £120. \Rightarrow Robin 0171 794 3843 (London).

KORG MS10 with manual. Great condition. £180. \Rightarrow Dave 0161 626 8586.

KORG 01W Pro X. 88-note fully weighted keyboard, full flightcase, mint condition, £1,600 ono. \Rightarrow Glyn 01782 374039, mobile 0973 441089.

KORG 01RW sound module (01WFD in 2U rack version) in very good condition, comes with manual, new costs around £1200, will accept £740 ono. \Rightarrow 0171 720 3702.

KORG 01W/FD workstation keyboard. Home use only. Boxed with manual and cover. Offers around £1,050. \Rightarrow Warren 0181 943 1462 (Middlesex).

KORG 01W/FD complete with manual, in flightcase, over 1000 sounds on disk. Absolute mint condition, never gigged. £895. \Rightarrow Jason 01977 706488 (W Yorks).

KORG 01W/FD excellent condition, home use only, £1000. \Rightarrow George 01717 700 3271.

KORG SOUND CARDS Six sound cards and one RAM memory card, £100 the lot. \Rightarrow 01423 712484.

KORG T3 synth, excellent condition with disks and manuals, multitrack M1 with disk drive and sequencer, £650 ono. \Rightarrow Jonathan 01204 63949.

KORG VC10 VOCODER Twin of MS10/MS20 synths, VGC, £375 ono;

Kawai K1R, manuals, £200; Yamaha FB01, manuals, £85 or £260 the pair; TR606, manuals, case, £110. \Rightarrow 01903 821126 (W. Sussex).

KORG WAVESTATION Very good condition. Limited home use. Complete with two sound cards and manuals. £650 ono. \Rightarrow Andy 0191 273 1439 (Newcastle Upon Tyne).

KORG WAVESTATION Good condition, £600 ono or might swap for rack version. \Rightarrow Chris 0181 748 4631 (London).

KORG WAVESTATION Pristine, boxed, manuals, cards, £700 ono; Casio FZ10M immaculate, boxed, manual, £695 ono; Revox A77 VGC, £200 ono. Wanted: Atari hard drive adapter. \Rightarrow 01482 648846.

KORG WAVESTATION £560. Owned from new, excellent condition, software and manuals included. Will deliver to London area. \Rightarrow Ian 01703 789518.

KORG X5 Immaculate condition, £500 ono. \Rightarrow Phil 01260 275390 (Cheshire).

KURZWEL K2000 16Mb RAM, 500Mb HD V3, £2,650; Sony TCD3 DAT walkman, Japanese model with UK converter, £215; JX3P MIDI analogue synth, cosmetically tatty, £165; PG200 programmer, £120. \Rightarrow Robin 0171 794 3843.

KURZWEL K2000 keyboard V3 software with sequencer. SCSI interface. Beautiful sounds with 16Mb RAM and 500Mb internal hard-disk drive. Fan kit fitted, boxed. £2,495. Serious callers \Rightarrow Robin 0171 794 3843 (London).

KURZWEL K2000 keyboard, orchestral ROM expansion, plus 32Mb RAM sample memory, CD ROM drive + large library of CD ROMs, all perfect condition, £2,950. \Rightarrow 0171 581 0257.

KURZWEL K2000 keyboard V2.07, fan kit, 4Mb sample memory, huge sound library, £1,475. \Rightarrow 0181 660 0522.

1974 MARSHALL valve amp for organ. Very good condition, £200 ono. \Rightarrow Zak 01229 463309 (Cumbria).

MOOG MUSONICS Minimoog VGC, offers or swap for Emu Morpheus plus suitable MIDI keyboard. \Rightarrow Dave 01952 501603 (Telford).

MOOG PRODIGY £230; ARP Odyssey (White), £375; Roland U220, £275; Patch Bay 32 x 1/4", £20; Roland Dimension C, £50; Aphex 'C' aural exciter, £100; QX21 sequencer, £40. \Rightarrow 01726 66715.

NOVATION BASS STATION keyboard version, as new, boxed, manual, £270. \Rightarrow 0171 627 5980 (London).

NOVATION BASS STATION Boxed with manuals, £285 or swap for Pro 1. \Rightarrow Dean 01206 852729 (Essex).

OBBERHEIM 088 analogue polyphonic synthesizer, excellent condition, includes manual. Early non-MIDI version with A8 software, £700. \Rightarrow 01274 620004 (West Yorkshire).

PEAVEY DPM4 workstation, excellent condition, home use only, powerful workstation with 10Mb on-board sounds, 512K sample RAM etc. Will accept £800 ono. \Rightarrow James 01132 633829.

POLYMOOG synthesizer (very good condition), plus poly pedal controllers (mint). Both flightcased including chrome legs and manual, but needs attention, hence £400 the lot, no offers. \Rightarrow 01705 828587 (Hants).

RHODES ELECTRIC STAGE PIANO MKII 73 keys, in immaculate condition and perfect working order, this piano has never been gigged, has an original and beautiful classic sound. £150 ono. Can deliver. Contact: Mr M Manning, 31 Fawdon Park Road, Fawdon, Newcastle Upon Tyne.

ROLAND ALPHA JUNG 1, PG300 programmer, MKS30 (rack JX3P), PG200 programmer. Offers. Wanted: JV1080. \Rightarrow Glen 01932 567614 (Cheshire).

ROLAND A80 just serviced by Roland, manuals, £750; ARP Odyssey with case, manuals, £450. \Rightarrow Jeremy 01892 521582 (Kent).

ROLAND A80 MIDI master keyboard, excellent condition without one single scratch, reason for sale 'too good for me', price £750, absolutely no offers! Comes with original manual. \Rightarrow 0171 720 3702.

ROLAND A80 master keyboard, £750; Also Korg 01RW prof sound module, £750, or together, £1,350. Both devices

are in a superb condition and with manuals. \Rightarrow 0171 720 3702.

ROLAND CM32P sound module including additional cards, £140. \Rightarrow 0161 881 8781.

ROLAND D10 + manuals, 3000 extra sounds, librarian + editor for Atari ST, £300 ono. SCSI Hard drive 300Mb + 1000's of Akai samples or just formatted, £200 ono. \Rightarrow Lee 0151 284 0363.

ROLAND D50, D5, JUPITER 4, Juno 6, 60, 2, JX3P, JX1, SH09, SA09, RS09, RS101, SH3A, Trident MK1, MS10, 700, Poly 800, Poly 601, Monopoly, K1, K4, CZ101, CZ3000, DX7, DX100, C55, Jen SX1000, ARP Omni 2, Opus 3, many more. \Rightarrow Gordon 01670 523363.

ROLAND D50 £420; MT32, £150; Evolution EV51 with Atari editor, £70; Kawai K5 with RAM cards, £500. All sensible offers considered. \Rightarrow Simon 01482 326767.

ROLAND D50 £450; Yamaha TG500, £540; ES132 SCSI sampler, £950; Mackie CR1604 mixer, £750; Alesis Midiverb 4, £265; Voyetra V22, £70; Cubasis, £75, all new. \Rightarrow John 01543 360686 7pm.

ROLAND D110 Excellent analogue-style digital synthesis. 9-part multitrack, 8 outs. PD10 programmer, real time, SysEx control of every D10/D110 parameter. Both excellent condition, boxed, manuals. £260, £60, £30 the pair. \Rightarrow Chris 01275 560243 (Bradford).

ROLAND D110 + PG CM64, P3 + symphony card, KLM + card, KIR + card, TX7, TX216 upgraded to 4 modules, EMT10, TG33, Akai S612 + DD, VX90. \Rightarrow Gordon 01670 523363.

ROLAND D110 synth module, (mint), £190; Sound card, £30; Roland U110 samples module (mint), £220; plus sample cards, £30 each. \Rightarrow Alec 01282 416136 (East Lancs) early eves.

ROLAND D550 with PG1000 programmer, ROM card and manual. £550. \Rightarrow 0171 352 3323.

ROLAND E56 intelligent synth, GM/GS, 62 styles, fade In/Out, Intro/Ending functions, 61-note keyboard, 6-track sequencer, 64 user programs, £700 ono. \Rightarrow Adam 0121 445 4451.

ROLAND E70 keyboard, as new, many extras, £650 ono. \Rightarrow Barry 01205 353093.

ROLAND J800 synth, one year old, hardly been used, boxed, with manuals, as new. Excellent for faders over MIDI and dance music. £950. \Rightarrow 0151 353 0394.

ROLAND J800 Mint condition, home use only, many extra cards, dust cover and protective case. A truly classic synth. £1,250. \Rightarrow 0860 636146 (Norwich).

ROLAND JD990 Perfect condition, hardly used, £975 ono. \Rightarrow Chris 0181 748 4631 (London).

ROLAND JUNO 6 £190; Bit 1, £190; Pro 4, £399; ETI 3800, £390; CV + gate + filter sockets for your monosynth, separate outs for your Matrix 12. \Rightarrow Tom 01372 745494 or 0956 381 695.

ROLAND JUNO 6 polyphonic analogue synth, full MIDI retrofit by Groove Electronics, beautiful sound, built-in chorus, immaculate, manual, £295. \Rightarrow 01329 663048.

ROLAND JUNO 60 with groove MIDI (In, Out + Thru), immaculate condition, includes all manuals, £350. \Rightarrow 01274 620004 (West Yorkshire).

ROLAND JUNO 60 keyboard, good condition with manuals. Offers. \Rightarrow Dave or Steve 01228 23451 or 01228 29474. Can deliver.

ROLAND JUPITER 6 Powerful analogue synth with MIDI, very rare, £740; Roland Juno 106, £370; Yamaha DX21, £180; sounds for K4 sound canvas Atari disk, £7. \Rightarrow 01261 832898.

ROLAND JV3016-part multitrack synth, home use only, great condition, £450. \Rightarrow Adam 0181 980 5963.

ROLAND JV880 Excellent condition, boxed, with receipt and guarantee, also Boss SE70 multi-effects, also less than a year old with receipt and guarantee. Offers on both these. Cubase 2.61 for PC and Saw 8-track audio for PC, offers again on these. \Rightarrow Paul 01302 538304.

ROLAND JV1000 Excellent condition, boxed, home use, £1,100. \Rightarrow John 01480 890014 (Camps).

ROLAND JV1000, NEW unused with flight case, genuine, cost over £1,600,

offers close £1,250. \Rightarrow 01227 721269.

ROLAND JV1000 keyboard. Voice expansion board, world board, orchestral board; MC500 Mk501 sequencer, 76-note keyboard. £1,500 ono. \Rightarrow Kevin 01925 243100 daytime, 0161 281 7210 evening (Manchester).

ROLAND JV1080 professional sound module, fantastic sound, 16 multitrack, 64-polyphony, 6-outs and so on, it's new, never used, with manual, £900; Also synths for Korg M1, £60. \Rightarrow 0171 720 3702.

ROLAND JX3P analogue synth with MIDI, built-in sequencer and original PG200 programmer. Fully functioning, but cosmetically untidy hence realistic £215 (for both). \Rightarrow Robin 0171 794 3843 (London).

ROLAND JX3P Roland Juno 6; Emu Performance Plus; Alesis MIDiverb 2; Ibanez DM1000 digital delay. Swap all the above for either Wavestation EX or AD, Roland JD800 or JV1080, 01W/FD or Tascam 688. \Rightarrow Ian 01539 723631 (Cumbria).

ROLAND JX3P analogue synthesizer with MIDI. Flightcase and manual. £275 ono; Juno 6 polyphonic analogue synthesizer, mint, £200 ono. \Rightarrow 0114 248 2760 evenings only or leave message (Sheffield).

ROLAND JX3P analogue polysynth, MIDI, excellent condition, with manual, £240. \Rightarrow Roland 01243 830697 (West Sussex).

ROLAND JX3P analogue MIDI polysynth with PG200 programme, all leads and manuals, £350 will split. \Rightarrow 01535 645233.

ROLAND JX3P analogue polyphonic synthesizer with MIDI and sequencer, manuals, £250. \Rightarrow 01535 645233.

ROLAND JX3P Great sounding MIDI analogue synth, wicked acid bass and other weirdness with PG200 programmer, manuals, in excellent condition, bedroom use only, £250. \Rightarrow Andy 01524 69966 (Lancaster).

ROLAND JX8P MIDI analogue polysynth; MSQ700 sequencer; CSQ600 sequencer, offers. Replay 16 Atari sampler, £60. Wanted: Tascam 644. \Rightarrow Kevin 01273 327014 anytime.

ROLAND JX8P analogue synth, £450 ono. \Rightarrow Chris 01793 495551.

ROLAND JX8P with semi-flightcase, £450; Korg M1 with semi-flightcase, £600; Studiomastr Diamond 12.2 mixing desk with semi-flightcase, £200. \Rightarrow Tony 01787 227319 (Colchester area).

ROLAND JX8P PG800 programmer, mint condition, all boxed, flightcased, £600. \Rightarrow 0378 774748 6 to 8pm.

ROLAND JX10 mother keyboard, excellent condition, £450 ono. 2x JBL M350 as new, £1000 ono. Home use only. \Rightarrow Chris 01253 347189 (Lancs).

ROLAND PC200 MkII MIDI controller keyboard, boxed, as new, £110. \Rightarrow Andy 01203 384844 (Warks).

ROLAND SC55 sound canvas, light domestic use only, excellent condition, £260 ono. \Rightarrow Phil 0161 773 9003 (Manchester).

ROLAND SC55 sound canvas, excellent condition, 317 sounds, 16-part, 10 drum sets, 9 sliders on front for realtime control, remote control, was £715, sell for £325. \Rightarrow Tom 0161 483 7230 (Manchester).

ROLAND SH5 analogue synthesizer. Excellent condition. 8 static-type sounds, very rare. £500. \Rightarrow Rob 01273 606568 (Brighton).

ROLAND SH101 with Kenton retrofit, offers; Novation Bass Station keyboard, £250; EPS16 +, £750; CV to MIDI converter, only £70. \Rightarrow Derek 0181 950 1574 eves and weekends.

ROLAND SH101, £170; Korg Poly 800, £150; Roland SH09, £150; Yamaha RX15 drum machine, £170. \Rightarrow Herman 01273 620877 after 6pm.

ROLAND SK50 sound canvas, excellent condition, £450; Cheetah MS800 wave module, £100. \Rightarrow 01274 878626 (W Yorks).

ROLAND TB303 classic bass-line synth. £600 ono. \Rightarrow Trevor 01473 680191 (Ipswich).

ROLAND U20 with manual, very good condition, £425 ono. \Rightarrow 0181 859 6951.

ROLAND U110 samples module, mint condition, £220; also sample cards, £30 each; Roland D110 synth module, mint,

£190; sound card, £30. \Rightarrow Alec 01282 416136 early evenings.

ROLAND U110 + 4 cards, Laney 6150 PA + 2 speakers, Ibanez HD1000 effects unit and Hohner professional G3T guitar, all in excellent condition. Offers. \Rightarrow Jonathan 01978 757233 (Eves).

ROLAND U220 sample playing sound module, 30-note poly, 7-part multitrack, drum sounds and digital effects built in, perfect, boxed, manuals, £350. \Rightarrow 01329 663048.

ROLAND U220 VGC, £295; Roland Juno 6 with flightcase, £190; also VGC. \Rightarrow Richard 0181 366 4108.

ROLAND W30 As new, boxed with manuals, several disks plus stand, £700 ono. \Rightarrow Julian 01753 651204 (Berks).

ROLAND W30 excellent condition, 16-track sequencer, very good for sampling, loads of filters and edit functions, various samples, manuals and leads, easy to use, £750 ono. \Rightarrow 0116 291 3995.

SEQUENTIAL CIRCUITS 6-track analogue polysynth with MIDI, good condition with manual, £350. \Rightarrow Geoff 01592 755001 (Scotland).

SEQUENTIAL CIRCUITS Pro One analogue monosynth, excellent condition, with manual, sounds amazing — need I say more? £400 ono. \Rightarrow Matt 01908 610362 eves (Linton Keynes).

SEQUENTIAL CIRCUITS Prophet 600 analogue polyphonic MIDI synthesiser, mint condition with hard flightcase, manuals, factory presets and lots of user sounds, swap for Waldorf Microwave. \Rightarrow 01535 645233.

SEQUENTIAL PRO1 synth, £350; DX11 multitrack synth, £230. Contact: Matthew Hillier, 1 Townsend St, Godalming, Surrey. GU7 1BQ.

STUDIOMASTER P7 24-channel mixer, £1,500; FZ10M sampler, £650; JD800, £950. All ono. Lots more. \Rightarrow Nick 01482 501749.

TECHNICS KN1000 £750 ono or exchange for quality 600W plus stereo PA system, or PC with Cubase. \Rightarrow Philip Robins 01293 410757 (West Sussex).

WALDORF MICROWAVE in excellent condition with two RAM cards, £900 ono. \Rightarrow 0115 985 5242 after 6pm (Notts).

WALDORF MICROWAVE £790; Korg X5, £540; Emu ProCussion, £340; all perfect condition. \Rightarrow John 01778 347673 (Peterborough).

YAMAHA DX7 with flightcase, £300; Roland CM32 multitrack module with Atan editing software, £90; DR550 drum machine, £80. All with manuals and PSUs. \Rightarrow Jules 01823 666813 (Somerset).

YAMAHA DX7 with excellent flightcase, 6 Yamaha ROMs, thousands of sounds in PC/Atari formats, £295 ono; Yamaha KX5 just serviced, £195. \Rightarrow Steve 01753 814230 eves. only.

YAMAHA DX11 FM multitrack synth, stand, headphones, amp, £250; Atari ST, 1Mb, hi-res monitor, Emagic Notator, original, with dongle, loads of games, £250. £450 the lot. \Rightarrow Andy 01203 594478 (Coventry).

YAMAHA DX7 II FD excellent condition, 2 voice cartridges, breath controller, loads of manuals and extra books, classic synth, amazing sounds, £500 ono. \Rightarrow 0116 291 3995 (Leics).

YAMAHA DX100 synth, £90; Yamaha CV510 and AV510 expanders, £185, £175; EMQ1 MIDI disk recorder, £90 all ono. \Rightarrow Dave 01785 662896 (Stafford).

YAMAHA ELECTRIC Grand piano. Excellent action and condition. Offers around £800. \Rightarrow Pete 01203 682001 (Coventry).

YAMAHA EMT10 AWM Module, great sounds, wonderful piano, choir and strings, £110 ono. \Rightarrow Steve 0121 458 3183 (Birmingham).

YAMAHA KX88 (piano action), five years old, £485 ono; Yamaha EMT10 piano module, £95 ono; Two rackmounted Akai EX75N (noise reduction), £85 ono. All mint. \Rightarrow 01392 74804 (Exeter).

YAMAHA KX88 pro mother keyboard, excellent condition, complete with case manuals, etc, £800 ono; Also TX7 Tone module, boxed, manuals, tone banks, 1st class, £160 ono. \Rightarrow 01609 775396.

YAMAHA KX88 plus full flightcase, excellent condition, studio use only, monster of all mothers. £850. \Rightarrow John 01344 750959 (Bracknell).

YAMAHA MU50 GM tone generator module with 737 voices, 128 presets, latest model, one month old. £360 ono \Rightarrow 0191 586 3607 (Co Durham).

YAMAHA PSR320 Full size, touch sensitive, GM, real sounds, expandable, boxed, still guaranteed, £225 inc post/insurance \Rightarrow 01484 541357 (Huddersfield).

YAMAHA PSR400 61 full size keys, stereo, drum pads, 100 voices, 101 styles, multi-track recording, page memory, MIDI, touch response, PSU, manual, boxed, VGC, £325 ovno \Rightarrow 01708 373731 (Romford).

YAMAHA PSR400 61 full size sensitive keys, 100 voices, 101 styles, 28 note polyphony, multitimbral, MIDI, drum kit, excellent condition, boxed with manual, £195 ono \Rightarrow 01200 441335

YAMAHA PSR6700 76-note keyboard, 200 programmable voices with 8-track sequencer and disk drive, complete workstation for only £700 ono, or p/lex Jupiter 6, Oberheim OBXa \Rightarrow 01524 382873

YAMAHA PSR6700 76-note keyboard, 200 programmable voices with 8-track sequencer and DD disk drive, VGC, manuals included, £600 ono, or p/lex for any analogue gear \Rightarrow 01524 382873

YAMAHA SY22 synthesiser + card, Kawai KIM/R synth modules, all immac + PSUs, manuals, good deals on cash, offers, plus AKG414 professional studio microphone, cost £800, bargain £395 \Rightarrow 01788 336863 eves

YAMAHA SY22 Vector synth, boxed, as new, £295 RAM card for SY22, £20 Cubase V3 for Atari ST, dongle, £20 \Rightarrow Martin 0151 708 4300 (Wirral).

YAMAHA SY35 synth, mint condition, boxed and manuals, £350 ono \Rightarrow Mike 0121 378 5545 (Birmingham).

YAMAHA SY35 Dynamic Vector synth, home use only, with PSU and manuals, £350 or swap for master keyboard \Rightarrow 01705 690842 (Plymouth).

YAMAHA SY55 music synthesizer, on-board sequencer and effects, £700 extra sounds on card and ST disk. Excellent condition with all manuals, £500 \Rightarrow Lee 01732 462318 (Kent).

YAMAHA SY77 workstation, hard case, 1500 sounds, £750. Can deliver if you're not too far away \Rightarrow Kaleel 01434 606085 work 0191 265 2170 home or e-mail Zebid@CityScape.co.uk

YAMAHA SY77 stand, rock + pop cards, 1000's sounds, new condition, £670 \Rightarrow Tony 01661 834209.

YAMAHA SY85, boxed, unused, with manuals, disks and stand £700 \Rightarrow 01276 472293 evenings only (Surrey).

YAMAHA SY99 July 1994, 2000 extra sounds, 12 sample disks, full editor, limited home use, as new, boxed, £1,295. Private sale \Rightarrow Bill 01708 223345 (Junction 29 M25 Essex).

YAMAHA TG33 expander. Includes operating manual. Excellent condition. Cost £475 new, bargain at £190. No offers \Rightarrow 0116 267 3650 (Leicester).

YAMAHA TG100 192 AWM sounds, 100 drum kits, 28-note polyphony, GM, excellent condition, £165 \Rightarrow Damian 0956 126629 (London).

YAMAHA TG100 £150, Yamaha TX817, £90. Home use only with manuals \Rightarrow Jim 01782 613011 (Staffs).

YAMAHA TG500 and Kawai MIDI Key II both 1W, excellent condition, hardly used, manuals etc + foot pedal, all for £750 \Rightarrow Gareth 01752 766299 (Plymouth).

YAMAHA TG500 + RAM card + Atari software, £550, Roland R8 drum machine + card, £250 \Rightarrow 01380 830828

YAMAHA TX802 module, £300 for quick sale \Rightarrow David 01483 770379.

YAMAHA V50 FM workstation, with sequencer, effects, disk drive, case, good condition, £500 \Rightarrow 01474 567946 (Gravesend).

YAMAHA YS200 keyboard/sequencer, £190, RK17 drum machine, £60, Roland PR100 Sequencer, £100, Carlsbro Keyboard combo 20W, £80, XR300 SMPTE synchronizer, £135, SY77 Disk, £20 \Rightarrow Gus 01785 227826.

YAMAHA YS200 workstation sequencer 8000 notes + manual, £225, Technics AX7 PCM sound home

keyboard, full manual, £275 \Rightarrow 0181 449 0217 eves

RECORDING

8-TRACK STUDIO Fostex M80, Seck 12 B 2, D50, S900, FB01, Korg P3, Dep 3, Midiverb 2, NS10M Quad 306 SPM 8 2, Atari Notator, Logic tape sync, everything included, excellent condition, £3,750 ono \Rightarrow 01734 424621.

50W COMBO amp Powered by Celestion speaker, with high, mid, low EQ, two inputs, one output, as new, £125 \Rightarrow Steve 01422 350281 (Halifax).

A STUDIO CLEAROUT Ampex 456 tape, 2-inch, used, £40 each, Audiotechnica ATH-611 headphones, £20 each, unused, cost £45, ART SGX Nitro effects unit, £325, Boss DR5 rhythm unit, £200, AKG C3000 condenser microphone, unopened, £230, Studiomaster FCP1 4-channel, phantom power rack unit, £75 \Rightarrow John 0115 924 2088 (Notts).

AIWA HD51 DAT recorder, digital i/o, twin rechargeable battery packs, remote. Limited use. Boxed, manuals, PSU £250 \Rightarrow Chris 0171 732 0013 anytime (London).

AKAI ASK90 8-input audio trigger to MIDI module for Akai sampler, new, in box, unused. Cost over £150, bargain at £65 \Rightarrow Ricky 01482 448767 (Hull).

AKAI DD1000 editor, powerful machine, £4,000 ono. S3200 sampler, top of range, £2,900 ono, S950 unexpanded, £680. All privately owned and in as new condition. \Rightarrow 0181 759 8540.

AKAI DR8 1 Gig HD plus MIDI, as new, under guarantee, £2,500 ono \Rightarrow Rob 01473 289323 eves (Suffolk).

AKAI MG1212 14-track recorder, 12-channel mixer with autolocate and cassettes. Excellent condition, recently serviced, £900. Alesis 3630 compressor/limiter/gate, stereo, £200, Drawmer DS201 dual-gate with LS filter, stereo, £200, Roland RV1000 digital reverb, £100. Neuman KM100 condenser microphone, £700, Multiverb Alpha II digital multieffects, pitch transposer, sampler, £150 \Rightarrow 0181 518 7079 (London).

AKG blue line mics (pair), SE300B with changeable capsules for different polar pattern, now with CK93 capsules, excellent for stereo recordings or overheads, £380 \Rightarrow George 0171 700 3271.

AKG D28E talk-back microphone, or general purpose microphone. Immaculate and as-new, cost £75, will accept £45 \Rightarrow Ricky 01482 448767.

ALESIS COMPRESSOR 3630 Brand new, boxed, £180 \Rightarrow Evan 0181 343 0799.

ALLEN & HEATH System 8 recording deck (16 B 2). Very good condition, £550 ono \Rightarrow 0114 287 5648 (Sheffield).

ALLEN & HEATH GS3V 24-channel automated console with v-edit software, VGC, inc box + manual, £3,250 \Rightarrow Andrew 01202 657787.

AMPEX 456 Two master reels, used once, £80 the pair \Rightarrow Kane 01702 431906 (Essex).

ART MULTIVERB £200, BBE sonic Maximizer, £110, Kurzweil Micropiano, £300, Alice Mic 1 & Preamp, £100 \Rightarrow Eugene 0181 694 6876.

ART MULTIVERB Alpha 2 0 MIDI rackmount 1U effects processor, £199, SKB 4U rack unit, £65 \Rightarrow Adrian 01202 740063 (Poole area).

BBE sonic maximizer, you will not believe the improvement this will make to your mixes, £150, mint, boxed \Rightarrow Stephen 01603 504461 (Norwich).

BEHRINGER multiband exciter, perfect condition, hardly used, £160 ono \Rightarrow Chris 0181 748 4631 (London).

BEYER BT100 headphones. Excellent condition, but one side not working, probably loose wire hence £35 \Rightarrow Ricky 01482 448767 (Hull).

CASIO DA7 DAT recorder, £275 ono, Band in a Box V60 PC not used, £55, Marantz SD415 twin cassette, £80 \Rightarrow Office ansphone 01925 291805.

DESTECH 16:2 mixing desk, 3 band EQ, two aux sends, quiet, smooth operation, excellent condition, never used outside home. Original manual

and packaging, £275 \Rightarrow 01952 260064 (Telford).

DRAWMER LX20 £150, Ultraflex II, £160, Phonic EQ, £120, Art Multiverb LT, £100, Alesis Microverb 3, £100, Fostex X28H, £300, Boss DR550 MKII drums, £110, all in VGC \Rightarrow George 0049 5051 2185 (Germany) 24 hr answer phone.

DYNAMIX 12:2 mixer, 2 aux sends, phantom power, smooth sound, hardly used, genuine reason for sale, £250 ono \Rightarrow Chris 01749 890398 (Somerset).

EMU PROTEUS 1 Pop/Rock module inc manual, £295, Beyer M300 Mic, £65, both excellent condition \Rightarrow 01295 721696.

ENSONIQ DP/4 Four effect units into one, amazing effects and tempo delay, excellent condition with case, £800 \Rightarrow George 0171 7003271.

ENSONIQ EPS16+ rackmount sampler, expanded with flash bank memory and full library, £1,150 ono, Korg CX3 keyboard with case, single manual Hammond sound, £425 ono \Rightarrow Tony 01757 709469, mobile 0831 561012 (Selby).

FOSTEX stereo compressor/limiter/gate. Only £80, Ampex 7-inch reel tape, 457 and 1800, only £4 per reel \Rightarrow Frank 0151 489 5770 (Liverpool).

FOSTEX 280 multitracker, mint condition, home use only, mainly used as mixer, high speed Dolby C, 8-channel input, £350 \Rightarrow Stuart 01895 636437 (Middlesex).

FOSTEX 812 Home use only, mint condition, £650 \Rightarrow 0860 636146 (Norwich).

FOSTEX 4030 synchronizer, £250, Fostex 4010 timecode generator/header, £250, Fostex 4011 VTC reader and timecode inserter, £200. All good condition, with manuals, home use only \Rightarrow 0171 793 7376.

FOSTEX 816 16-track recorder with remote, £1,150 ono \Rightarrow Martin 01202 746049 (Dorset).

FOSTEX B16 16-track half-inch tape recorder with remote and dolby C. Home use only, recently serviced, £450, Fostex condenser microphone, £80 \Rightarrow Phil 01424 713140 (Hastings).

FOSTEX E16 recorder, £1,500, Fostex 8316 remote, £100, Neumann U87, £850, Tannoy DC200 monitors, £150, Reimis rack FX 2x gates, De-esser, compressor, £250 \Rightarrow Jim 01746 862222 (W. Mids).

FOSTEX G165 with 8330 sync board fitted, plus four rolls of Ampex tape, very low head wear hence £3,800 \Rightarrow Tom 0181 340 6191.

FOSTEX G245 with 8330 sync board, home use only, excellent condition, bargain, £4,200 ono \Rightarrow Terry 0181 521 4491.

FOSTEX G245 with sync card including plus 4dB line amps, stand and looms excellent condition, £5,000 for quick sale \Rightarrow 01435 872583 (East Sussex).

FOSTEX R8 8-track recorder plus loom. Excellent condition, hardly used, £850 ono \Rightarrow Mark 0181 392 1010 (Surrey).

FOSTEX R8 Mint condition with MPP1 tape synchroniser plus looms, boxed with manual, £700 \Rightarrow Ray 0378 269650.

FOSTEX X15 multitracker, excellent condition, manual, accessories etc, £110 ono \Rightarrow Ian 01484 646242 (Huddersfield).

JL COOPER PPS2 SMPTE/smart FSK synchroniser, unused, boxed with manual, £95 ono, C-Lab combiner for Atari, immaculate condition, £55 ono, genuine reason for both sales \Rightarrow Matt 01629 636572.

JL COOPER PPS100 SMPTE/MIDI synchronizer/revert generator, £130, Marantz DB82 DCC deck, £170, Yamaha FX550 multieffects, £170, delay, distortion, pitchshift, compression, EQ, etc. £175, all as new \Rightarrow 01933 678608.

JVC XDZ505 DAT machine, perfect working order, home use only, £300, Panasonic SVDA10 DAT player, needs service hence £250 \Rightarrow Ian 01460 656883 eves only.

KAWAI MX16 16-channel audio mixer with built-in noise reduction, just £225 \Rightarrow 01474 567946 (Gravesend).

MACKIE 1604 mixer, boxed, as new, all manuals, home use only, £600, Alesis

3630 compressor/gate, boxed, as new, £150 \Rightarrow 0116 2696568.

MACKIE CR1604 mixer, £450, Yamaha RM50 percussion module, £150, Cheetah MK7VA master keyboard, £190. All in excellent condition \Rightarrow Robin 01454 882500 days, 01454 621565 eves (Bristol).

MACKIE CR1604 16-channel mixing desk, mint condition, boxed, £600 \Rightarrow Ralph 01622 725928 or 01628 584230 (Kent).

MM 8:2 mixing desk, good condition, £50 for quick sale \Rightarrow 01403 270556 eves (Horsham).

NAKIMICHI 600 A highly desirable twin-head, professional, cassette console like this is rarely offered for sale. This one is in immaculate condition and can be yours for £245 \Rightarrow or Fax 01480 395465 (Cambis).

NEUMANN U87 with clip, £650 ono \Rightarrow Steve 01482 644203.

PICO RAM 12 2 mixer, £200 ono \Rightarrow Mari 01564 774514.

PHONIC PMX1600A 16 2 rack mixer, 3 sends and returns, inserts and 3-band EQ with swept mid-band, as new, £550 \Rightarrow Lee 01732 462318 (Kent).

POWER AND MM electronic 200W stereo, good condition, ideal for mixing or live work, £100, Dynamix 12 2 mixing desk, 3 band EQ, two sends/returns, bargain £160 \Rightarrow 01933 314001.

QUAD 520F power amplifier, 180W RMS per channel, CMR inputs fitted, 3 months guarantee. Offers in region of £500. Other studio equipment for sale also. For details \Rightarrow 01869 245309.

RECORDING STUDIO CLEAROUT Various outboard effects, sound modules, samplers ie 5750, 5550. ADAT hard-disk recorder for Atari system. This will record stereo to hard-disk with any Atari, can be run in synchronisation with Cubase with digital ins and Outs, £300. Also various mixers and drum machines. Call for further details \Rightarrow Justin 01767 631544 (Beds).

REVOX B77 HS half track, over £500 spent on overhaul, domestic use only, large amount of 10 5-inch tapes, £455 \Rightarrow 01708 553843 (Essex).

ROLAND DM80 8-track hard-disk recorder with remote controller and locking resolver to lock with any SMPTE unit. Excellent condition, £3,000 \Rightarrow 0181 986 8066 (London).

SAMSON MPL2242 22-channel mixer, 4-buss, CD quality, rackmounted, £500. ART multiverb 2, £120, Alesis microgate, £50, Alesis microlimiter, £50, Symetrix mic preamp, dual channel, phantom power, £50 \Rightarrow Simon 01296 22395 (Aylesbury).

SANSUI MX12 recording mixer, 12 6 2, balanced stereo in and out, home use only, excellent condition, ideal addition to postastudio, £300 \Rightarrow William 01623 843366 (Notts area).

SCARE YOUR NEIGHBOURS! EV Century 500 studio monitors, £1,800 new, £600 to you \Rightarrow Adam 01635 47722 (Berks).

SECK 18:2 mixer. Comprehensive features, up to 32-channel mix down, excellent condition, home use only, £600 \Rightarrow 0181 660 8020.

SELLING TASCAM studio, M516 with M520 desk, FX rack, all trayed 112 cassette deck, Omniphonics S100 amp, Vocalist II, Alesis 3630, TX81Z, Korg Z3 guitar synth, XR300 MTC, looms, mics, patchbays etc. All excellent, most as new, will haggle \Rightarrow 01394 388124.

SIMMONS SPM 8:2 programmable mixer, 64 programs with autofade between patches, MIDI, 3 band EQ with parametric mid, mic gain on all channels, 2 effect send/returns, perfect, boxed, manual, £225 \Rightarrow 01329 663048.

SMP24 synchroniser 1U rackmount, 2 MIDI ins, 4 MIDI Outs, £300, Midex Plus synchroniser, 4 expansion slots plus 2 ins and 4 Outs, £200 \Rightarrow Bernhard 01844 353904 (Oxfordshire).

SONY DTC690 DAT recorder, very good condition, home use only, with transferable four years extended insurance including accidental cover, £400 \Rightarrow Tony 01222 238670 (Cardiff).

SONY PCM701 A-to-D converter, digital audio for video, mint condition,

£250. Oktava MK219 professional condenser microphone, as new, £195. Remo piccolo snare drum, black/chrome perfect £60 \Rightarrow 0113 268 0331.

SOUNDCRAFT SPIRIT Folio mixer, DAT quality, 3 band EQ, two aux's, two sends, boxed with manual \Rightarrow Hierman 01273 620877 after 6pm.

SOUNDCRAFT SPIRIT Folio SI mixer, 18 2, rackmount, home use only, VGC, boxed, manual, £395. DAC CD-ROM drive, rack, £250, VGC, boxed \Rightarrow Paul 01227 361089 office (Kent).

SOUNDCRAFT SPIRIT Folio SI 18 2, boxed in good condition, £380 \Rightarrow 01295 252792.

SOUNDCRAFT SPIRIT Folio, 10-channel mixer, 3 band EQ with mid sweep, £210, Buss 5200 multieffects, includes vocoder, £220, Korg A4 21-bit floor pedal guitar effects, £195. All VGC \Rightarrow 01909 733049.

SOUNDCRAFT SPIRIT 32 automated desk, mint condition with special Soundcraft update, £4,225 ono, Alesis ADAT, Mint condition, low hours, £1,700 \Rightarrow Robbie 01454 625577.

SOUNDCRAFTS MR series mixing desk, 26 8 16 2, Behringer SNR2000, LA Audio 32-channel MIDI muting with insert loom, £2,200 ono the lot, will split \Rightarrow Richard 01344 429774 or 01344 427272 ext 202 (Berks).

STUDIOMASTER 16 16 2 recording desk, excellent condition, £575 ovno. Peavey Unity 2000 16 2 mixing desk with flightcase, only 12 months old, cost £699, I want £425 ovno \Rightarrow Tony 01757 709469, or mobile 0831 561012 (Selby).

STUDIOMASTER DIAMOND Pro 12 2 mixer, phantom power etc, excellent sound quality, only £295, Phew, what a bargain! Loads of leads, £20. (MIDI, mic jacks — no split) \Rightarrow Derek 0181 950 1574.

STUDIOMASTER DIAMOND 16 2 mixer, £280, Tascam 05H5 4-track, £170, Phonic compressor, £140, ART LTX FX rack, £100, Atari 104051 with monitor and cube, £250 \Rightarrow 01604 403 580 after 6pm.

TAC SCORPION 24 16 16, stand, manual, loom, £2,500, Tascam MS16, serviced, £1,700, Tascam MIDIizer, isyichru, controller, £550, Tascam 238, £550, Quad 520F, £350, TLA vibrite equalizer, £550 \Rightarrow Alan 0171 720 7744.

TANNON SYSTEM 10 DMT speakers, as new, hardly used, £650 \Rightarrow Howard 01462 743013 (Herts).

TASCAM 32 2-track mastering machine in good condition, £375 \Rightarrow Andrew 01202 657787.

TASCAM 38 half-inch 15ips 8-track reel-to-reel recorder, hardly used, as new condition, complete with free reels of Ampex 456 tapes, the only tapes used on the machine, plus looms, £695 ono \Rightarrow Andy 01274 402027 (Bradford).

TASCAM 244 4-track recorder, good condition, boxed, manual, £300 \Rightarrow Nigel 01487 823448 eves.

TASCAM 488 8-track recorder, £695, Roland R8 drum machine with TR909 dance card, £290, D50 with PG1000 programmer, £500. All items in mint condition \Rightarrow Chris 01785 819929 (Staffs).

TASCAM 488 8-track postastudio, very good condition, home use only, box with manual, college course forces sale, beat this, £670 \Rightarrow Brendon 01652 680752 (Lincs).

TASCAM 488 MKI immaculate condition, manuals, cleaning fluid etc. £650, Also Moog Prodigy, studio use only, offers \Rightarrow Mark 01732 362215 (work) or 0973 458238 (mobile) (Kent).

TASCAM 644 4-track MIDI recording studio, mint condition, home use only, with manual, paid £1,000 new, will sell for £550 vno \Rightarrow Dave 0131 443 1360.

TASCAM 688 MIDI studio, absolutely mint condition, hardly used, £1000 \Rightarrow 01423 712484.

TASCAM 688 8-track MIDI studio, £1,300 \Rightarrow Alistair 01227 830050 (Kent).

TASCAM 8516B 1-inch, 16-track multitrack with DBX, balanced line, original stand, full function remote, autolocator, editor block, immaculate low-mileage condition, superb sound

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MOYTERA V-SERIES PCI MIDI INTERFACES
Reliable, Compatible, Affordable

V22 £99 V24s £249
V44 £199 VP11 £115

Recommended by Steinberg, V22 has 2 in 2 separate outs. V44 has 4 in 4 separate outs. V24s has 2 ins, 4 sep outs and an excellent SMPTE unit (all frames rates, click detector, SMPTE free-running and reconditioning etc). The VP11 is the most reliable laptop interface around - with auto-printer thru switching - gpo-switching cables, no constant restarting of windows etc.

OMNIPHONICS FOOTPRINT

RRP £399 **£279**

Superb quality 75w per channel power amp from top studio amp manufacturer omniphonics. Balanced inputs, emergence cut-out and bridgeable to mono, 1U rack-mount case. These are flying! RRP £399

SPIRIT Follo 10 & 12
£POA

3 band mid-sweep EQ, 2 auxilines (1 switchable pre/post) fade professional grade Neutrik connectors, superb clean signal path and compactness make them unbeatable value for money, phone for unbeatable price!

OFF-SE COND HAND EX DEMO + END

PRO-MIX 01	£1375	A&H GS1	£799
Mackie 1202	£299	AKG C1000S new	£199
Alteck Adat	£1999	AKG3000 new	£299
Spirit Follo 4	£379	Spirit Absolute2	£249
J.C. detemaster	£429	Shure SM56 new	£96
Alteck Monitor 18	£299	Sapphyre 28	£999
Alteck RA100	£299	Sounder 1" 8 trk	£348
Taney PB6M 5	£260	Studiom 36 16 2	£749
Sack 1282	£549	Foxtex R8	£399
Yam. NS10m new	£299	Quad 353	£138

YAMAHA CBX-T3

MODULE/INTERFACE/SOFTWARE "HELLO MUSIC" BUNDLE
RRP £399 **£139**

This great starter kit includes: Yamaha CBX-T3 sound module. This General MIDI sound module is basically a TG100 (Original R.R.P. £399), except with separate LED lights for each MIDI channel. It is 28 note poly, 16 part multi-timbral, has 10 drum kits, and on-board reverb controllable for each channel separately. A great music server is the built-in MIDI interface for Mac or for 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 up to a great start with software from one of the world's leading music software houses. Also includes 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 - list come first saved!

KEYBOARD BUNDLES
Fantastic reduction if you buy a touch-sensitive MIDI master keyboard with your CBX-T3:

NOVEL CMK48B 4 oct + game port cable **£279**
GMK-49 4 oct + wheels **£279**
PC200 MK2 4 oct + bander / slider **£399**
STUDIO 610 5 oct + wheels / controls **£299**

Studio Vision A/V **£149**
Top selling integrated Sequencing / Hard-disk recording software for A/V tapes and Autotake cards. RRP £199. Upgrade to Studio Vision Pro 3.0 for only £139.

Mac Sequencing Package
Apple Mac Performa 550 (66MHz 89040, 8 meg RAM, 250 meg Hard Drive, 2x speed CD ROM drive, 14" monitor and keyboard), Claris Works business software, 1 in 3 MIDI interface, your choice of Cubase Logic or Vision. **RRP £2169** **£1399**

TURTLE BEACH TROPEZ
Best / Windows95
RRP £129 **£129**

16 bit sound card with KCS 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 cable for use as a MIDI interface.

THE ACCESSORIES SECOND HAND LIST

Steinberg Cubase	POA	Quadra Studio 4 (FOA)	£399
Cubase Lite	£28	Deck 2.2 2nd	£399
Cubase Score	£399	16 bit Optical	£629
Cubase Audio	£999	230 Mb Optical	£999
Siberig Mixes	£199	SCSI DAT backup	£999
Mac Syncrom	£199	270 Mb Optical	£999
Vision 3.0	£299	1 Gig H. Disk	£399
Vision PC	£149	2 Gig H. Disk	£799
Emagic Notator Logic	Hitech CD-ROM	£99	
new copy at	£399	4 Meg SMMMS	£139
Emagic Notator	£169	8 Meg SMMMS	£395
Emagic Logic	£299	Yamaha CX5-D5 drum	£795

PRICES INCLUDE 17.5% VAT
UK mainland carriage **£9.99**

Please allow 10 banking days for 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.

* Interest Free credit (typical APR 0%) is available on selected items subject to status. Solo Soundhouse is a licensed credit card merchant under the 1974 consumer credit act. Written details are available on request.

FOSTEX DCM100

+ MIXTAB package
RRP £279 **£349**

This has to be the deal of the year! Foxtex's DCM100 is a fully MIDI controllable rackmount mixer with 8 stereo inputs, 2 aux sends, 2 band EQ, mix, pan, level and reverb. An additional 2 stereo aux returns and a stereo master/sub input give a maximum of 22 outputs. This alone would be incredible value for money, but the MixTab also gives hardware control of every function of the mixer via MIDI. The MixTab can store up to 100 snap-shots of all the parameters of the mixer, and multi-colour LEDs allow re-setting of all the hardware controls to the current position. MIDI output from the system can be recorded into any sequencer giving totally automated mixing and recall - come back to exactly the same mix weeks later! Cubase and Logic maps also available. Under half price (Total RRP £779). Very limited quantities - last units ever!

LANGEVIN CR-3A

RRP £349 **£199**

The CR-3A is a professional quality large diaphragm condenser mic, hand-built in the USA by Langlevin Laboratories and has a beautiful and restoring 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.

Until recently, we have been selling this microphone for £599, and in direct A/B comparisons with similarly priced mics, over 85% of our customers preferred it! The high sales volumes have enabled us to cut the price to a staggering £399.

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, madman etc... with sections on everything from mic placement to synchronization 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 £59.95) absolutely free with the units featured herein.

NEW Foxtex XR7 + 4 track pack **£499**
NEW Foxtex 380S + 4 track pack **£399**
NEW Yamaha MT0X + 4 track pack **£399**
NEW Tascam 488 II + 4 track pack **£1149**
NEW Yamaha MT4X + 4 track pack **£499**

TASCAM 424
RRP £699 **£399**

A fantastic new machine from the makers of the Portastudio. Double speed, EQ on each channel, built-in dbx, 4 channel metering system.

FOSTEX 280
RRP £569 **£569**

8 channel mixer, high speed Dolby C transport, optional MTC1 computer synchroniser / MIDI machine control. flexible 3 band mid-sweep EQ, etc etc.

40% OFF SECOND HAND EX DEMO + END

Foxtex 280	£499	Port 07	£275
Tascam Portastudio 24	£185	Yamaha MT4X	£399
Yamaha MT500m278	Foxtex XR7	£429	
Foxtex XR5	£338	Yamaha MT8	£699

EFFECTS

EX DEMO CASH REBATES UP TO

ART Multverb L7	£135	Lexicon PCM80	POA
Alteck Midverb4	£249	Lexicon Alex	£299
Alteck microverb2	£39	Lexicon Reflex	£399
AlteckQuadverb	£299	Roland SRV330	£350
AlteckQuadverb2	£299	Roland SDE330	£350
Alteck 303	£199	Roland RE200	£179
Alteck AEC230	£210	Sony HR-02S	£299
Alteck microverb3	£149	Sony HR-MP5	£399
Alteck C1	£199	SPL Vitalizer Class	£549
Behringer AutoQuad200	SPL Vitalizer Star	£549	
Behringer Compressor200	Sudomaster SP1	£199	
Behringer Intelligent EQ	Symmetry 511a new	£399	
Behringer DualEQ	Viscount EPK1	£179	
Behringer Multicon	Yamaha EMP100	£178	
Behringer PowerPlay2200	Yamaha EMP700	£249	
BBC B22	Yamaha SPX990	£525	
Bose SE70	Yam RevX100	£199	
dbx 1173MSM	Yam FX700 new	£299	
Digitech VHSM1	POA	Zoom 1202 new	£179
Dynatix DP400	£299	Zoom 1202	£169

PHONIC PCL3200

RRP £199 **£199**

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?

LA AUDIO DEALS

CX2 : Dual Compressor Limiter Dp-esser with half-band compression
RRP £249. **MegaDeal £199!**

GX2 Dual Frequency Conscious Noise Gate
RRP £249. **MegaDeal £199!**

4x4 : 2 gates, 2 compressors, 2 limiters, angle-angled noise reduction, half-band compression, 4 ms and auto
RRP £349. **MegaDeal £299!**

4C : 4 channel multi band compressor / limiter ds-esser
RRP £399. **MegaDeal £319!**

4G : 4 channel gate filter and angle-angled noise reduction
RRP £399. **MegaDeal £319!**

PA Systems

SOUNDCRAFT SPIRIT POWERSTATION
RRP £1299 **£1299**

Another winner from Soundcraft, their first entry into the powered mixer market is sure to be a success. Based around the well-known Follo 7-12, and also featuring a 2x300w amplifier, dual 7-band graphic and a built-in Lexicon Alex. Check out these amazing package deals:

Powerstation + 2 x JBL MR825	£1749
Powerstation + 2 x Peavey Hey2	£1999
Powerstation + 2 x JBL M830	£1999
Powerstation + 2 x Bose 802	£2299

Add 4 SMDs - stands, spider stands and cables for £400!

FOSTEX XR7

RRP £399 **£335**

Stunning new double speed Foxtex machine with individual EQ, up to 3 aux sends and 2 stereo returns, 2 inserts & sep tape outs allowing use with an external mixer.

FOSTEX DMT-4

RRP £1499 **£1499**

The personal digital multi-track is here at last, and at a price you won't believe! 8 separate tracks of CD quality audio recorded to half-gig hard-disk (up to 12 minutes). Record up to 4 tracks simultaneously jog/shuttle, sync to MIDI without losing a track. The channel mixer accepts up to 4 mics, 2 band EQ and 2 sends. Separate outputs and S/PDIF optical output.

TASCAM Porta 07

RRP £339 **£339**

A fantastic new machine from the makers of the Portastudio. Double speed, EQ on each channel, built-in dbx, 4 channel metering system.

TASCAM Porta 03

RRP £249 **£199**

High Speed, record on all 4 tracks simultaneously, dbx noise reduction, 2 band EQ on each track, as well as auxiliary send/return.

VISCOUNT STUDIO MULTI-EFFECTS

These have to be the best value to money multi-effects units on the market for pound. Buying direct from the manufacturer brings you a feature-laden quality product at a down to earth price.

EFX1

RRP £199 **£199**

16 bit stereo input, large display, 95 dB dynamic range, 7 sounds - reverb, delay, chorus/flange, phaser/pitch-shift, mix, gate/1, gate/2. Main parameter editable. Footswitch control, 65 dB dynamic range.

LEXICON ALEX 8 REFLX

RRP £119 **£119**

Same processor as EFX1 - 40 presets made from 1 banks of 7 sounds - reverb, delay, chorus/flange, phaser/pitch-shift, mix, gate/1, gate/2. Main parameter editable. Footswitch control, 65 dB dynamic range.

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 bus 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. RRP £279. **MegaDeal £89!**

PA Systems

LA AUDIO
RRP £199 **£99**

Massive saving on this pro-mixer features including 2 long-throw pro line faders. Replaceable cross-taper 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 echo for the mic signal. **DJ STARTER PACKAGE £399** : GMX2 mixer, 2 x BJ1900 decks, free Stanton carts & audio technica C50 headphones.

quality. PWO. Rare opportunity, £2,200. ☎ 0117 951 4035 (Bristol).

TASCAM M216 mixer, 16:8:4:2, made for 8-track recording or live use. Excellent features. £575. ☎ Ian 01702 616961

TASCAM M2516 prof mixer, 16 channels, 8 groups, 4 aux's with sweep EQ, inserts, MIDI muting and so on. Absolutely immaculate condition with original manuals and box, less than a year old, £1,250. ☎ 0171 720 3702.

TASCAM MM1 20:2 MIDI mixer, unused, £200; Atari Mega ST4 with SM124 hi-res monitor and SH204 20Mb ASCII HD, £250; ultimate support Apex keyboard stand, £50. ☎ Andy 0151 336 6657 (Cheshire).

TASCAM PORTA ONE 4-track multitracker, PSU and manual, excellent, £190. ☎ Dave 01734 790122.

TASCAM PORTASTUDIO 424, £350; Yamaha FX550, £200; Alexis Drum Machine HR16, £100. All as new, boxed with manuals and receipts. ☎ 01344 429774.

TASCAM T5R8 8-track recorder and 3 Ampex 456 mastering tapes, little home use only, excellent condition, £1,150. ☎ 01942 817927.

TC ELECTRONIC 1128 programmable 28-banc graphic equaliser/spectrum analyser, feedback search and destroy, MIDI, real response, high- and low-cut filters Rrp £1,750. £995. ☎ Steve 0181 881 1138 (London).

TEAC 15 desk, 24:16, £550; Bel BC48TP noise reduction, 8-track, £200; Otari MX5050, £400; DBX noise reduction, £100; Drawmer DL221 dual compressor limiter, £150; Quad 4052, £150; Tannoy Devons, £150; Yamaha REV5, £400. ☎ 0191 281 7361 (Newcastle Upon Tyne).

TEAC 32/2B 2-track tape recorder. Excellent condition, great analogue twin-speed mastering machine, £225. ☎ Charlie 01392 434759 (Exeter).

TEAC REEL-TO-REEL recorder, number A3300SX master recorder. 10-inch reel, 7.5 and 15 ips, a real bargain at £250. ☎ Gordon 0151 495 3437 (Cheshire).

VISCOUNT FXK1 effects unit with MIDI, 9 months old, as new, with box, £150. ☎ Lee 01732 462318 (Kent).

XRI SYSTEMS XR93 SMPTE synchroniser, good condition, boxed with manual, £100. ☎ 01223 234850 (Cambridge).

YAMAHA DTR2 professional DAT remote, £650; Boss Dr Synth, sound module, £215. All boxed, like new. 16 bit-sampler, rackmount, 20 sec stereo, 40 sec mono, with 4Mb computer, £650. ☎ 0956 934082.

YAMAHA FB01 £90; Simmons SPM 8 2 MIDImixer, £175; Alexis HR16, £175; AKG D12 mic, £90; Sony ECM stereo mic, £50; 7U custom flightcase with lid storage for drum machine etc, £100; Sony MSX computer with Yamaha sound card, (FB01 compatible), 4-octave keyboard and cartridges inc FB01 editor, £100. ☎ Ross 01527 541873 (Eves).

YAMAHA MT120 4-track recorder, boxed, hardly used, graphic equaliser, dual speed with LED monitor, £250. ☎ 01698 428613.

YAMAHA SPX90 £200. ☎ Bobby 0121 706 5652 (Solihull).

YAMAHA 2350 amplifier, 175 Watts per channel, as new, hardly used, £425. ☎ Howard 01462 743013 (Herts).

ZOOM 9002 (plus 9002F pedal board), 16-bit guitar multi fx, fits on strap, mint, boxed, PSU, rechargeable battery, leads, 'finger board', £189. ☎ Dave 0191 3722621 (Eves).

ZOOM 9050 Brand new, £370; ART SGX2000, £380; Seck mixing desk, 12:8:2, £430; Laney line back 100W top and Lancy cab, £160. ☎ John 01326 313541 (Cornwall).

SAMPLERS

AKAI S01 sampler including memory upgrade, very good condition, £550 ono. ☎ Andrew 01202 657787.

AKAI S01 2Mb, 32 seconds sampling, large library, over 100 discs, £600 ono. ☎ Mark 0181 643 8665 after 6pm.

AKAI S900 boxed, library, manual, perfect condition. ☎ Scott 0585 498600 (North West).

AKAI S900 sampler, as new condition, £550; Roland U220 sample player with 4 sound cards, £280. ☎ 01604 403580 after 6pm.

AKAI S950 excellent condition, manual and 80 sound disks, £849; Yamaha TX802, 8 multitim. DX7 II, 5 ROM, 3 RAM cards, DX7 card adaptor, manual, £549; Steinberg SMP II synchroniser for Atari and PC, 2 Ins, 4 Outs, manual, £399. ☎ 0191 584 4426.

AKAI S950 sampler, fully expanded, boxed, with manuals, with library. £750. ☎ Glyn 0151 928 7687 after 6pm (Liverpool).

AKAI S950 sampler, £800, no offers; Roland DJ70 stereo sampling workstation, £800; Emu Proteus effects module, £350. ☎ 01206 768051 (Colchester).

AKAI S950 expanded 2.25Mb, £850; Alexis Microverb III, £125; Alexis MIDiverb III, £165; ART multiverb LT, £100; Boss BX16 mixer/desk, £280, home use. ☎ Simon 01483 730807 (Surrey).

AKAI S950 sampler, expanded memory, 2 years old, boxed as new with manual and cables, £700. ☎ 0171 729 5448.

AKAI S950 1.5Mb, boxed, with manuals, as new, £700, no offers. ☎ Adam 01993 850755 (Oxfordshire).

AKAI S1000 keyboard, 10Mb, version 4 software, sampler and mother keyboard in one unit, £1,780 ono; Yamaha TX802, £400 ono. ☎ Paul 0181 979 4675 (Surrey).

AKAI S1000 keyboard, 8Mb, SCSI plus various editing software for Atari and samples, £1,700. ☎ Tim 0181 292 3408 (North London).

AKAI S2800 sampler, 6 months old, as new, includes 70 HD sound library disks, boxed with manuals, bargain, £850. ☎ Alan 01983 612537 (Isle of Wight).

AKAI S2800 4Mb, SCSI, removable HD, superb library, mint, £1,450; Korg wavestation, mint, £600; Yamaha FB01, £60; Kawai K1 synth, £240; Roland CR68 drums, £70, offers. ☎ 01252 370550.

AKAI S2800 and PC200 master keyboard, home use only with box manuals, etc, £995 ono. ☎ Richard 01482 796712.

AKAI S2800 4Mb RAM, perfect condition and boxed. £900 ono. ☎ Glyn 01782 374039, mobile 0973 441089.

AKAI S2800 10Mb, SCSI, good condition, 12 months old, £1,500. ☎ Wayne 01296 28972.

AKAI S2800 sampler + 16Mb +239Mb hardrive, £1,550; Alexis Quadraverb GT, £170; Roland MC202, boxed, manuals, £250; Tascam MM200 2x8 into 2 rackmount mixer, £150, all VGC. ☎ Phil 01455 282483.

AKAI S2800i 8Mb, SCSI, brand new, unused, boxed with manuals, warranty, receipts etc. Bought in error, £1,400. ☎ 0171 265 8131 (London).

AKAI S3000 SCSI, 10Mb or RAM, boxed with manual, mint condition, home use only, £2,200. ☎ 0181 444 1225.

AKAI S3000 12Mb, SCSI, 80Mb HD, excellent condition, £2,350 ono. no time wasters please. ☎ John 0131 447 3111 after 7pm.

AKAI S3200 with 10Mb RAM and internal 340Mb hard drive, mint condition with manuals and latest OS and large library, £2,650 ono. Contact: Andy McKay 5 Sighthill Place, Edinburgh EH11 4PF.

AKAI S3200 + 128Mb optical drive built in, 32Mb, boxed + manual, £2,995 + VAT. ☎ Curtis 01444 892566 (Sussex).

CASIO FZ1 sampling keyboard, immaculate condition, 8 Outputs, disks available, £500 ono. ☎ Gary 0181 771 1678 (Surrey).

CASIO FZ1 Top USA + UK sample disk library, 120+ disks only, £79 inc postage. Genuine reason for sale. ☎ Mark 01772 792280.

CASIO FZ1 sampling keyboard, 2Mb memory, £650. ☎ Simon 01483 418222 (Surrey).

CASIO FZ10M sampler. 2Mb memory, 8 Outputs, excellent condition with 100+ disk library and a set of future music CDs, £675. ☎ Lee 01732 462318 (Kent).

CASIO FZ10M digital sampling synthesis module, 16-bit, 2Mb, with small library, £620 ono.; Boss DR550 16 bit d/machine, £105; Roland TR626, £95. ☎ Jez 0115 979 0646 6pm onwards.

CHEETAH SX16 V3.0 2Mb/1.44FD, £495; Alexis HR16 drum machine, £110; 2 x 1Mb, 30-pin, 7 ons, Simms, £40; Cubase Win+ CMS101 MIDI card, £145; Akai Sound Library, 150 disks, £80, 3X sample CD's, £45. ☎ 01753 546344.

EMAX 2 turbo keyboard, 8Mb memory, 100Mb hd boxed, manuals, £1,650, 40U tower, steel, £100; DX11, £225, Alexis 16:2:2, £400; Qwiklok 3 tier, £65. ☎ Andrew 0181 675 2848 Laowski @eworld.com.

EMU EMAX 1 HDSE keyboard, excellent condition, includes manuals, + 63 disk library, 3.5 seconds loading time off hard disk, £600. ☎ 01274 620004 (West Yorkshire).

ENSONIQ ASR10 sampling workstation c/w 500 disks five sample CDs 10Mb upgrade and latest v3.5 software 16-bit sampling 24-bit effects and much more, £1,800 no offers. ☎ 01689 891135.

ENSONIQ EPS 16+ Excellent condition, onboard effects, 20-disk library with manual. £875 ono. ☎ David 01382 623040 (Scotland).

ENSONIQ EPS 16+ sampler/workstation with onboard fx, brilliant machine, oro £750, over £600 worth of sample CDs for only £250. First call secures. ☎ Derek 0181 950 1574.

ENSONIQ EPS 16+ sampler, keyboard, home use only, excellent condition, all manuals and disks. ☎ Rod 01772 752368 (Preston).

ENSONIQ EPS16+R Mint condition, complete with disks + manuals, home use only, £925 ono. ☎ Andy 01924 264027/0973 115948 (West Yorkshire).

ENSONIQ EPS16+ sample library, 300 original third party disks mostly from USA and Canada, ASR10-compatible, for sale as one lot only £260, no offers. ☎ 01689 891135.

PEAVEY SP/FX2 sampler, memory expandable to 32Mb, four individual audio outputs, sample conversion to high-performance 16-bit sampling, extensive editing features. £900. ☎ Stephen 01355 238991 after 6pm (Scotland).

ROLAND S10 sampling keyboard. 75 disks. £500. ☎ 01942 742919 (Wigan).

ROLAND S550 sampler with monitor, mouse and manual. £795 ono; Boss DR660 drum machine, £220. ☎ Shak 0181 800 8944 after 6pm.

COMPUTERS/SOFTWARE

AMIGA A1200 120Mb hard drive, 68030 50 MHz accelerator, mouse, sampler package bars + pipes, Prograb 24RT video grabber, loads of software, all excellent condition and boxed, offers? ☎ 01279 861082 (Harlow).

AMIGA A1200 210Mb hard-disk, Blizzard accelerator, 6Mb of RAM, excellent WP package, music software, loads of games, all leads included, very good condition, with box, £500 ono. ☎ Tony 0114 268 2522 (Sheffield).

APPLE CLASSIC II 440, Stylewriter inkjet printer, EZ Vision sequencing software, £400. Ideal starter package, can split. ☎ Matt 01525 240429.

APPLE MAC MIDI interface, 1 In, 3 Out, cost £70, sell for £45. As new, fits straight into serial port, either modern or printer. ☎ Mark 01274 611343 (Bradford).

APPLE MAC QUADRA Centris 660AV 8/500 CD-ROM 14" colour monitor, Cubase sequencer deck 2.1 hard disk recording, and other sequencers and other software, 1 year old, pristine condition, £1,300. ☎ Steve 0171 813 0401.

APPLE POWER CD It's a CD-ROM, an audio portable CD player with remote control and also a photo CD player on your television, £100. ☎ Stephen 01603 504461 (Norwich).

4Mb ATARI STE Star 24-pin printer, stereo replay sampler cartridge, manuals, boxed, software: Concerto, 3D Construction Kit, Quartet, plus some games, £350 the lot. ☎ 01827 60797 (Midlands).

ATARI COMPUTER with high res mono monitor, excellent for sequencing, £220 includes mouse, leads, and manual, 16 bit d/machine, £105; Roland TR626, £95. ☎ Jez 0115 979 0646 6pm onwards.

ATARI CUBASE Version 2. £50; Passport Mac sequencer, £40; Opcode Mac MIDI interface, £20; Atari ST disk-drive and copy program, £20; 20Mb SCSI hard-drive, £20. ☎ Martin 01453 833245 (Glos).

ATARI S20M 4Mb memory with OverScan and TOSS upgrade, SM124 hi-res monitor, games and copy of Cubase, excellent condition, £300. ☎ Lee 01732 462318 (Kent).

ATARI S20 STE with 4Mb RAM Notator Logic (v.1.7) Epson Stylus 800 printer, complete MIDI sequencer package, just £600. ☎ 01474 567946 (Gravesend).

ATARI MEGA 1 computer with SM124 hi-res monitor, mouse, leads, and sequencer one plus software, all boxed and perfect condition, £200. ☎ 01403 270557 (Horsham).

ATARI MEGA ST computer with high-res monitor, boxed as new, £210; hard drive for Atari, £90, C-Lab Creator 3.1 SL, boxed with manual and dongle, £90. ☎ 01908 233520.

ATARI 1040 with SM125 monitor. Steinberg Pro 24 sequencing software, First Word Plus WP and games. £195 complete. ☎ Peter 01256 471979 (Hants).

ATARI 1040 with hi-res monitor, excellent condition, £170; TR70, £80; Roland W30 with loads of library disks, £790; Yamaha TX7 module, £80. ☎ Jon 01736 68253.

ATARI 1040 ST with large screen SM144 monitor and mouse, sequencer and loads of other discs, immaculate condition with all leads, £250. ☎ Naz 0181 571 1490.

ATARI 1040 STE plus hi-res monitor, mouse, leads, manuals and sequencing software. Perfect condition. £250 ono. ☎ Mike 0121 378 5545 (Birmingham).

ATARI 1040 STE Plus SM124 monitor and Steinberg Pro 24, good condition, £150 ono; Also Kawai K1M, £120. ☎ Dave 01245 329385 after 6pm. (South Woodham Ferrers).

ATARI 1040 STE 2.5Mb plus SM124 monitor, plus Cubase v2. Boxed with other software, £300. ☎ Andy 01203 384484 (Warks).

ATARI 1040 STE plus SM124 hi-res monitor plus Cubase sequencer with dongle, all manuals, leads, boxed as new, £240. ☎ 01392 433533.

ATARI 1040 STE 3Mb RAM, 260Mb SCSI drive, Pro 24 and other MIDI software and monitor, £295. ☎ Tony 01661 834209.

ATARI 1040 STF 4Mb, internal 32Mb HD, SM124 mono monitor, Cubase V3, extras, home use only, genuine reason for sale, can also deliver, £350 ono. ☎ Matt 01629 636572.

ATARI 1040 STFM plus SM125 hi-res monitor, plus Epson LX880 printer, plus wordprocessing software, £250. ☎ Danny 01273 685329 (Brighton).

ATARI 1040 STFM + 125 high resolution monitor, includes sequencing software, manuals etc, £220 ono. ☎ 0161 881 8781.

ATARI 1040 STFM 1Mb SM124 monitor, mouse, manuals, software, good condition, £250. ☎ Simon 01295 261705.

ATARI 1040 STFM 2.5Mb upgrade, SM124 monitor includes sequencing software, manuals, etc, £280. ☎ 0161 881 8781.

ATARI ST computer, hi-res monitor, mouse, sequencing software, WP, DSSD, all leads, cables, etc. Boxed, in mint condition, quick sale £250. Wanted TR909, TB303, Moog. ☎ 01252 370550.

ATARI STE 1Mb, LC10 printer, loads of software and magazines, £150. ☎ Dave 01482 807612 (Hull).

ATARI STE computer and hi-res mono monitor, excellent for sequencing, £240, includes manual, mouse, leads, has only been used in home studio set up. ☎ 01908 233520 (Bucks).

ATARI STE sequencing set up inc hi-res monitor and leads etc, home studio use, excellent condition, £235 ono; Atan mega hard-disk system, £340 ono. ☎ 01884 257487 or 0589 195071.

ATARI ST 1Mb with monitor, £150; C-Lab Creator, brand new, £80 ono. ☎ Richard 01482 796712 (Hull).

ATARI ST SOFTWARE Arranger real-

time MIDI accompanist for Atari ST, and Improviser from Creative Sounds, £200 for both or will split. ☎ Chris 0181 748 4631 (London).

ATARI 2Mb STE SM124 monitor, 80Mb Datapulse hard drive, Cumana floppy, secondary MIDI out, scanner, superb software e.g. That's Write, Neode SK 3, all excellent condition plus documentation, £550 ono. ☎ 01629 56801.

AUDIOMEDIA 11LC £450 ono. Can be used with any PDS Mac. Sound designer 11 inc, 6 months old, boxed. ☎ Alistair 01494 726233 (Bucks).

C-LAB EXPORT (Atari), gives Notator/Creator 48 extra MIDI channels, perfect condition, boxed, manual, £85. ☎ 01329 663048.

C-LAB NOTATOR c/w unit, export, human touch, manuals, Digidesign soundtools for Atari Mega c/w analogue in/out, board, manuals, £500 ono the lot. ☎ Michael 0161 434 6296. (Manchester).

CUBASE VERSION 3 Atari. Complete with manuals, £150. Can deliver. (London area). Contact: N.Gayanilo 4 Stanhope Place London W2 2HB.

EMAGIC NOTATOR Logic Audio V2.0, new, unopened, includes registration cards, free upgrade to v2.5, perfect condition, genuine reason for sale, £500 ono. ☎ Dave 0141 331 2209 (Macintosh).

FALCON COMPUTER 4Mb, 130Mb internal, external hard-drive, co-processor fitted, practically unused, nearly brand new. Offers. ☎ 0161 232 9300 (Manchester).

HOME STUDIO Quick sale. Atan 4Mb ST with Cubase V3.1 and monitor, £350; Roland U20, £200; Alexis D4, £150; MIDI patchbay, £30. Smartsync synchronisation unit, £40. ☎ Neil 01705 736217 (Portsmouth).

KORG AUDIO GALLERY for Macintosh, GM sound module (05R/WV type sounds) with MIDI interface, TRAX sequencer and sound editor only £120. ☎ Kevin 01405 815415.

KORG X3 effects editor for Notator/Creator RMG Record realtime changes of the effects parameters along with your song. Version also available for Zoom 9120. ☎ 0115 939 7354.

MACINTOSH MIDI Man MIDI interface, 1 In, 3 Out, cost £70, 2 months old, £45. ☎ Mark 01274 611343 (Bradford).

MIDEX PLUS £150 Roland R8, contemporary percussion card, £50. ☎ Andy 01933 50491 (Northants).

OPCODE MIDI translated to interface for Mac, 1 In, 3 Outs with Thru switch, best selling Mac interface, £40. ☎ James 0171 351 5639 (London).

OPCODE STUDIO VISION hard-disk and sequencer recording for Macintosh. Galaxy librarian included. Hardly used. £250 ono. ☎ Richard 01727 834329 (Herts).

SAMPLITUDE STUDIO 16-track, 16-bit, hard disk recording for PCs, excellent editing and sync features. Boxed, as new, £250. ☎ Ian 01702 616961.

STEINBERG CUBASE AUDIO Mac 2.0.5s (latest version) boxed, with full manuals (excellent condition), key disks, etc. Transferrable support. £500 ono. ☎ Laurence 01727 762528 (St Albans) or e-mail laurp@compulink.co.uk

STEINBERG CUBASE 2.5 for Macintosh original UK version, boxed, £210. ☎ 0181 343 0799 (Evan).

STEINBERG SYNTHWORKS Latest versions, all programs include disks, manuals and sound libraries ready to use with satellite. Available M1, B50, DX and Proteus, £60 each. Key expander, £60. ☎ Bernhard 01844 353904 (Oxfordshire).

VARIOUS PIECES of original PC software on CD-ROM and disk format. Ring for further details. ☎ Steve 01422 350281 (Hullfax).

SEQUENCERS

AKAI MPC60 Mk1 Classic, £950. Flightcase, library. Korg Wavestation + stand, flightcase, VGC, £700; Waldorf Microwave, £700 VGC. ☎ 0171 226 2688.

ALBEM MMT8 boxed with manual, PSU and Craig Anderton guide, £110. ☎ Steve 0121 458 3183 (Birmingham).

ALESIS MMTB 8-track sequencer, PSU and manual, VGC, £150. ☎ Dave 01734 790122 (Berks).

KAWAI Q80 32-track digital MIDI sequencer, excellent condition, £175, Roland TR707 drum machine, £75, excellent condition. ☎ 01253 873424 (Lancs).

KORG SQD B 8-track MIDI sequencer, mint, 12 discs, manual, PSU, ideal for live work, £110; Sequencer one plus, £20. Contact: Daniel Hazell, Christs College, Cambridge, (sorry no phone!).

PERFORMER V4.02 sequencing software for the Mac. Complete with 'Unisyn' universal editor librarian software and 'Drumtrax' software, all registered, £400 the lot. ☎ 01423 712484.

ROLAND MCS0 Mkl in excellent condition. Boxed with manual and everything else included. £350. Quick sale. ☎ Mark 0181 543 7874.

ROLAND MCS0 MkII with manuals and box. £420 ono; Yamaha SY55 workstation, immaculate condition, sell for £420 ono. Swap SY55 for U20, D50, M1 or others ☎ 01472 267665 (Grimsby).

ROLAND MCS00 sequencer, £150; Boss BX16, channel stereo mixer, £150; Teac A3440 4-track reel-to-reel, £250; MTR 6-4-2 mixer, £50 ☎ Marilyn 01923 239103.

YAMAHA QX3 sequencer, £300, immac. ☎ Rob 0114 924 9891.

YAMAHA QY10 pocket sequencer, boxed, perfect, as new, with all manuals and extra tutorial books, £99. ☎ 0181 398 9098, eves.

YAMAHA QY20 and MDF2 disk drive power supply and MIDI lead, manuals, carrying bag, £485. ☎ 01772 322642 (Lancs).

YAMAHA SY55 synth workstation, as new, all manuals, £650. ☎ Andrw 0191 586 3701 (Co Durham)

DRUM MACHINES

ALESIS SR16 drum machine, perfect condition, boxed with instructions. ☎ Mark 01762 348502.

ANALOGUE DRUMSYNTH Techstar TS305, 6 independent voice modules with loads of knobs! Wicked analogue sounds! £350, VGC. ☎ Marco 0171 923 1459

BOSS DR550 Modern classic, nice sounds, boxed with manual, and PSU, £60. ☎ Gareth 01704 878698.

CASIO RZ1 digital sampling rhythm composer, built-in mixer, perfect condition, boxed, manual, data tape, £150; Boss DR110 Dr Rhythm analogue drum machine, classic sounds, soft case, £50. ☎ 01329 663048.

DRUMKAT V3 drum module with ten dynamic playing surfaces. Bass drum hi-hat triggers on scaffold support, box, manual, lead. £795. ☎ 0956 303823.

KORG S3 Sorted drum machine/rhythm workstation! Can generate and read SMPTE, also has 8-track sequencer, as reviewed in *Sound on Sound* recently, VGC, boxed/manual, £240. ☎ 01222 227745.

ROLAND OCTOPAD Pad 80, manuals and stand adaptor, as new, £350. ☎ Martin 01444 456884 (West Sussex).

ROLAND R8 Six sound cards and memory card. £400 the lot or will split. Perfect condition. ☎ Chris 0181 748 4631 (London).

ROLAND R8 rhythm composer. Manuals and additional sound cards. Immaculate condition, £400 ☎ Martin 01444 456884 (West Sussex).

ROLAND R8 as new, boxed, manual, PSU, fully MIDI poss p/x for something interesting (DAT recorder), offers around £300. ☎ 01803 851185 or 0374 748669.

ROLAND R70 drum machine, hardly used from new, with PSU and manuals, £350 no offers. ☎ 01689 891135.

ROLAND TR808 rhythm composer, excellent condition, £275. ☎ Brian 0117 951 0092 (Bristol).

ROLAND TR909 £950, Korg Wavestation A/D with PGM card, box, manual and editor for Atari, £890. Both immaculate condition! ☎ Simon 0171 923 1459

SEQUENTIAL DRUMTRAKS Classic sounds, MIDI, boxed, manual, extra

chips, £75. ☎ 0113 262 7302 (Leeds).

TAMA TECHSTAR 6-channel analogue drum synthesiser, beautiful, warm 70s-80s analogue drum sounds, will trigger from mics, pads or tape, £150. ☎ 01535 645233

YAMAHA RX5 Immaculate, boxed with manuals, PSU etc, also with 3 ROM cartridges, top tunable sounds with mad effects like bass and stabs, £300. ☎ Naz 0181 571 1490.

YAMAHA RX17 MIDI In/Out good sounds, easy to program, no manual hence £45; Yamaha R100 reverb MIDI In for patch control, manual, good nick, £85. ☎ Robin 01305 785675 after 6pm.

PERSONNEL

BASS AND DRUMMER wanted for modern soul band, own material and covers, Jam and Lewis style, 80's 90's and beyond, Hemel Hempstead based. ☎ Ron 01442 393822.

DEMOS WANTED Professionally packaged given priority for new label, all recording format accepted; to: Derek R., Head of A&R, c/o 13a Melville Road, Cadishead, Manchester M44 5HL.

ENGINEER/PRODUCER available for recording, programming, remixing and digital editing. Equipment: Mac Quadra 650, Cubase Audio Akai CD3000; Analogue/Digital synths, Lexicon, Audio Technica 4030. ☎ 01295 252792.

FREE DEMOS! Professional quality mobile 4TK recording service, we record almost anything almost anywhere, bands, groups, choirs, orchestras. Pay only for tape. ☎ 01763 853244 (Herts, Cambs border).

GUITARIST/BASSIST seeks collaborators for an extreme noise/junk project (London area). ☎ Jamie 0171 252 9537.

IGNITION RECORDS We want your ambience, trip hop, jazz, jungle and tribal techno. Send tapes and blogs, to Flat 2, 13 Rydal Road, London SW16 1QF.

INTERNATIONAL MANAGEMENT seeks the most amazing female vocalist to sing the most wondrous songs in the world. If you want it, we got it. ☎ Paul 01223 892619 after 6.

KEYBOARD PLAYER Programmer wanted to join newly formed band with wide tastes and exciting ideas. Imagination, dedication and good equipment essential. ☎ Rob 01450 221032 (Chard/Taunton area).

NEW AGE label requires writers. ☎ 01223 893920 (Cambs).

SOLO ARTIST Songwriter with recording deal and hi-tech studio is looking for techno dance wizz-kid to collaborate on album project. 25 mile radius of Oxford with own transport helps. ☎ Simon 01865 376472.

SOUL/GOSPEL Singer/Lyricist required, but not for 'Dance Tracks'. Remixer (NIN COIL) blending Europe/USA in a new way. Interested? London area. ☎ Danny 0171 371 1458.

MISCELLANEOUS

ADA MPI £325; Marshall 9000 50W stereo head, £280; Yamaha QX10 sequencer, £120 ono, or swap p/x for studio equipment, Soundcraft Spint 16.8 desk, Fostex R8. ☎ 01270 663405.

AUDIO TECHNICA ATM35 Minatore microphone, excellent condition, £170 with case and battery rack, ideal for saxophone or clip on purpose, high quality dynamic mic. ☎ Robbie 01463 791806

BACK ISSUES Home & Studio Recording, Music Technology, some *Sound On Sound* from 1988 to 1995. 80p to £1.00 each, or £40 for the whole lot. ☎ Nigel 01724 711629.

BOSS DS330 synth module, excellent condition, boxed, manual, power supply, £200 or swap for Alesis D4. ☎ Dave 01482 807612.

BOSS SE70 super effects unit. No reasonable offer refused. Still boxed and brand new. ☎ 01530 244391 (Leics).

CARLSBRO 150W speakers, as new, £300 ono, Also Carlsbro powered monitor with graphic EQ, 100W, as new, £185 ono. ☎ Sue 01676 534458.

CARLSBRO K1 professional combo keyboard amplifier. 10 stereo channels or 20 mono inputs, separate volume EQ etc for each channel. Very good

condition. £250. ☎ Tim 01778 347793.

CARLSBRO KEYBOARD Combo 90 X2 good condition, pair £300. ☎ John 01480 890014 (Cambs).

COMPLETE HOME STUDIO including expanded 5950 sampler, Mackie 1602 desk, Yamaha G100, two ART FX units, Atari computer, sample CDs and leads, £2,000 ono. Will not split. ☎ Mike 01684 298188.

ELECTRO-HARMONIX sequencer, £130, mint condition; faulty Roland D50 synth, £200 ono.; Korg Polysix, £200. ☎ 0121 420 3295 eves.

ETI VOCODER Works very well, have some fun, £75 ono. ☎ 01403 270556 eves (Horsham).

EVENTIDE PHASER Omnipressor/910 harmonizer, dead or alive, must be cheap. ☎ 0181 692 8129.

FOR SALE 2Mb Atari STE SIMMS, £30 ono. Wanted: MIDI merge unit, £30. ☎ Robert 01484 847914 (Hudds).

GROOVE M2CV dual channel MIDI to CV converter with all options inc syn 24 and arpeggiator output, £175; Akai ME30Pfl fully programmable 4 In 8 Out MIDI patchbay with merge, £110, both perfect, boxed, manuals. ☎ 01329 663048.

GUITARS & BASSES Korg FLG1 flanger pedal, £40, pristine, boxed, manual. ☎ 01329 663048.

HALF-INCH reel-to-reel tapes for sale. 135 Zonal tapes, each used only 3-4 times. ☎ Martin Randle 01223 845588 days, 01223 562150 eves (Cambs).

HOME STUDIO for sale. Phonic 16:2 mixing desk, 3 band EQ, £420; Korg M1, 100 original sounds plus omni-banker disks on Atari that allow it to sound like TB303 or Prophet, £600; Juno 106, original sounds, £375; Novation Bass Station rack, brand new, £360; Zoom 9120 effects processor, 100 effects, £200; Casio FZ10M sampler 2Mb rackmount, £600; Atari Stacey 4Mb, £500; Atari Falcon 030 £500; Atari 10405TE 1Mb, £100; 17 Hohner jack cables and 5 MIDI cables £80. All equipment boxed with manuals. ☎ Alan 01506 493953 (Scotland).

HOME STUDIO being sold. Many accessories available, audio cables from 50p, MIDI cables from £1, patch leads 50p, power supplies £5, footswitch, £7.50; Keyboard stands, guitar straps, plugs, trailing gang socket boards, £5; tape demagnetiser, £5, magazine back issues. ☎ 01329 663048.

INFECTIOUS BROTHER ARTS is a small label dealing in new music. Send SAE for details of tapes available. C/O 486A Brighton Road South Croydon Surrey CR2 6AP UK.

JBL M360 Full-range PA cabs with covers. Condition as new, fantastic sound. £850 the pair. ☎ Mike 01285 659747 (Glos).

KURZWEIL PKX1000 'Object mover' librarian plus manual and new sounds, £25; also Emax 1 and Akai 900 sample disks, £3 each. Thank God for ears! Catalogues ☎ John 01476 64626.

LESLIE Model 825, 60W self-powered speaker cabinet with foot switch, small, compact and fitted with castors. Connection is by standard quarter-inch jack from keyboard or mixer. Slightly tatty hence £120. ☎ Chris 01705 828587.

LOWREY CONTEMPO 80 electronic organ with matching stool, Magic Genie, Lesley, Vast assortment of organ music, books, tapes and LPs, £650 ono. ☎ 01404 871300

LUDWIG ACOUSTIC Drum 'Classic' 2 toms, 1 floor tom, bass drum 24 IMC, 'Super Sensitive' share drum 6 4/4 IMC, £999 ☎ 00 39 505429 (Italy).

MESA BOOGIE Original 60W SOB model combo, recently serviced, in good condition, great blues amp and very collectable. £625. ☎ Paul 01684 561397 (Midlands).

MEX expansion board for Roland D550. Brand new. Never fitted. Still in original packing carton plus fitting instructions and owners manual. £300 new, but will accept £180. ☎ Chris 01705 828587.

OKTAVA MK219 professional condenser microphone, as new, £195; Sony PCM701 digital audio processor, use with video for pro digital stereo, mint condition, £275. ☎ 0113 2680331.

PRO TOOLS 2 including 442 interface, VO card and software. As new. £2,000. ☎ Bernhard 01844 353904.

QUIK LOK 3-tier keyboard stand, £59; Barnes and Mullins X-frame stand, 2-tier, boxed, £30. Both VGC. ☎ 01329 663048.

RACK CASE Semi-flight, 10 units by 20 inches deep, secure ends, wheels, £180 or P/X 4-Unit rack of similar depth. ☎ Henry 0181 995 0264.

ROLAND PG200 programmer. Very good condition. £140. ☎ Guy 0181 312 0656 (SE London).

ROLAND PG200 programmer (JX3P and MKS30), mint condition with manual, £100. ☎ 01535 645233.

ROLAND U110 cards orchestral wind and strings, Roland R8 card power drums USA, £25 each, can deliver. ☎ 0113 278 7180 (Leeds).

76-NOTE KEYBOARD cabinet enclosing two speakers 12U rack storage foot pedals/switches, in-built power sockets, dark rosewood, smoke lid, matching stool, quick disposal, price £395. ☎ Bill 01708 223345.

SOUND ON SOUND magazines. First issue November 1985 to December 1994. Only 7 missing. Very useful archive. Offers to Brian. ☎ 0181 660 8020.

SOS Aug 88 to Sept 93, almost complete, £35, buyer collects. ☎ Mr. Williamson 01424 882743.

SOS EMM, Music Technology, keyboard magazines, back issues available, buyer collects. ☎ Stewart 01474 567946 (Kent).

SOS 1989 and 1990 issues wanted. ☎ 01773 602601.

3M 996 2-inch mastering tape, the first half used only once, £60. Contact: G Gregori, 30b Hartham Rd, London N7 9JG.

VIDEOS 'Home Recording' levels 2 and 3 as advertised in SOS, £25 the pair. ☎ 01423 712484.

VOX PA 200W 8 ch + OHM ES200 Cab pair + Yamaha Analogue delay, £245 the lot. ☎ 0181 449 0217 eves.

WANTED

AKAI MPC 60 MK II cash waiting. ☎ 0181 883 4329.

AKAI S1000 can pay £1350; Juno 106, D50, D20, £300; SH101, MC202, DX7, JX3P, SE50, Quadraverb, £150; JV1080, £750, Spirit Studio 24, £1000, anything considered cash waiting. ☎ 0973 123965.

AKAI S1000 Tascam M2516 desk, Tascam TSR8 multitrack, Lexicon PCM70, valve compressor & EQ, Nakamichi cassette deck, Sony CD Player, Sentry monitors, Gefell UM70 microphone. ☎ 0161 881 8781.

BACK ISSUES of SOS '89 and '90 please. ☎ 01773 602 601.

BBS MAXIMISER wanted. Cash waiting. Or any similar production enhancer. ☎ Martin 01223 845588 (weekdays), 01223 562150 (eves) (Cambs)

BIT 99 Kawai 240, Akai AX60, CheetaH M56, MS800, Korg DVP1, must be ex. cond and reasonable price. ☎ Gordon 01670 523363.

BOSS SE70 effects wanted, also Korg O3R/W synth module and/or Korg RE1 remote editor, all preferably with manuals, boxes, etc. ☎ 0161 861 7261 (Manchester).

CASIO FZ1, or Roland 550. ☎ 0378 177674 or 0117 985 3197.

DAT MACHINE required in perfect working order, rack unit only, £250 offered; Also Roland Dimension D required, £170 offered. London area only. ☎ Eddie 0171 263 3919.

DAT SVDA 10 Technics DAT machine wanted very urgently, cash waiting. ☎ Julie 0956 394909.

DAT SVDA 10 DAT machine (Technics) wanted now any price considered, cash waiting. ☎ Dale 0181 866 4502 after 8pm.

DIGIDESIGN PRO TOOLS II 8, 12 or 16 channels with system accelerator card, Samplecell II, TDM, DINR etc., cash waiting. ☎ 0181 883 4329.

DRAWMMER M500 multieffect, also wanted Drawmer DSP320 noise filter. ☎ Paul 01302 538304 (Doncaster).

ELECTRO-HARMONIX Faulty products: faulty Oscar synths MuTron effects. ☎ 0121 420 3295 eves.

ENSONIQ ESQR module, must be in good condition. ☎ 01530 244391

(Leics).

EVOLUTION EVS1 £100; Swap Drawmer LX20 compressor and Boss DR550 MKII drums for your Korg 707 or Roland SH101. ☎ 0049 5051 2185 (Germany) Call between 4pm-6pm, other times leave message.

FOSTEX MODEL 4030 synchronizer. ☎ David 01869 337105 or 0973 191872.

FOSTEX OR TASCAM 16-track recorder wanted, must be in perfect working order, also Soundcraft Spirit studio 16.8 or 24.8 desk also any mks fx gates. ☎ 01270 663405.

FUNCTION JUNCTION MIDI patchbay, cash waiting. ☎ 0181 883 4329.

KORG M1 in good condition, also interested in flight case, sound cards, stand etc. ☎ Chris 01484 654894 (Huddersfield):

KORG M550 £200; Korg Sigma, £100, will collect cash awaits! ☎ Norman 0191 456 1055.

KORG S3 Dance card set, £25 plus postage. ☎ Paul 01772 626269 or Email Paul @ Softrom, Demon Co. UK.

KORG WAVESTATION AD wanted. Kawai K4 sounds wanted. ☎ Dave 01745 590336.

KURZWEIL K2000R cash waiting. ☎ 0181 883 4329.

NEW, ORIGINAL BAND artists wanted for new label. Tapes, info etc to Steve, PO Box 795, Harrow, Middlesex, HA3 7PE.

PCM CARD sets for Korg 01/W, particularly Orchestral set XSC25. ☎ 01749 343730 (Somerset).

PG1000 programmer. Cash waiting. ☎ Den 01484 643160 (Huddersfield).

ROLAND SDE330 special delay. ☎ Jim 0161 834 1500.

ROLAND SH101 1 pay £200; TR808, £300; TB303, £400; MC202, £180; only in good condition. ☎ or Fax 01049 5152 61676 (Germany).

ROM CARDS or ST Disks for Roland U220. ☎ 0191 388 6329.

SEQUENTIAL CIRCUITS pro-one, Moog Prodigy or Rogue, Doepfer Maq 16/3, Yamaha CS30. ☎ Dave 01560 322 439.

SIEL CRUISE polysynth wanted. £200. ☎ Den 01484 643160 (Huddersfield).

SONY DTC55E DAT machine instruction manual wanted. Photocopy will do. ☎ 01243 830697.

SOUNDCARDS for Roland R8M and Yamaha TG77. Anything considered. Cash waiting. ☎ 0113 262 7302 (Leeds).

STEINBERG MIDEX wanted, £150 offered, 40 mile radius of Rotherham. Also Atari ST MIDI contacts. ☎ John 01709 897577.

STTEPP PG10 MIDI synth guitar wanted. The one used by Vince Clarke (Drama 1989). Must be in good condition. ☎ Lee 0161 792 6824 or Scott 0161 653 1869.

SWAP/PART-EX 486DX2 66MHz computer, 540Mb HDD, 8Mb RAM, 3x speed CD-ROM, 16-bit s/card, SVGA colour monitor, speakers, mouse, desktop case, 3 months old, want best sampler/synth offered. ☎ 01752 267346 (Plymouth).

TANTEK MODULES Any condition, also copies of constructional details as supplied with the kits, not the magazine articles. ☎ Terry 01952 414430 (Telford).

TAPES Wanted from new young band, techno/dance/indie/anything for new label project starting up. Send to: 143 Waverley Road, Harrow, Middlesex. ☎ 0181 868 9527.

VOICE PACK for Yamaha HC4 organ. (FVP series voice pack) cash awaits. ☎ 01282 415852 (Burnley).

WANTED MFD2 Data filer, master keyboard with zones, Akai ME25 note splitter; Peavey 1600 MIDI controller. Patch commander or similar cash waiting. ☎ Jon 01522 750846.

WANTED URGENTLY Yamaha EMT10 or TX1P, also sequencer or data filer with 3.5-inch disk-drive and guitar-to-MIDI converter, will collect. ☎ Phil 01923 824991 (Near Watford).

YAMAHA SY99 wanted. Swap Fender American Strat, rosewood neck, Marshall JCM800, Roland RE201 space echo, Roland J56 guitar processor. ☎ Ian 01539 723631 (Cumbria).

YAMAHA WX11 with or without sound modules. ☎ 01604 414934.

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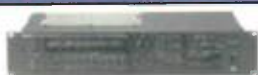


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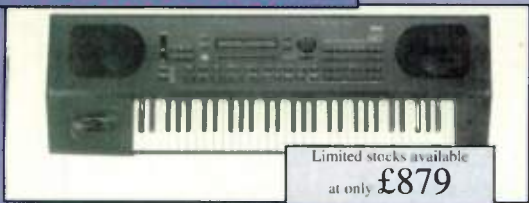
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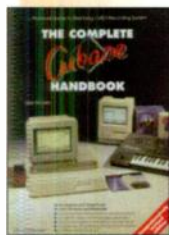
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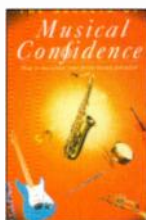
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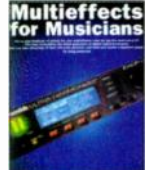
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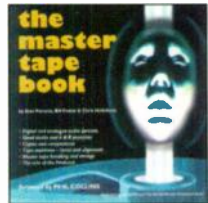
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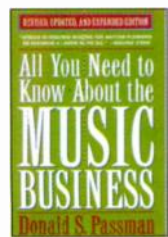


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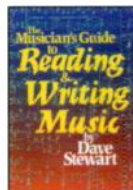
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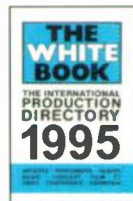
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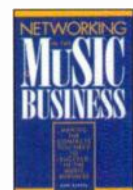


From the Editors of *Songwriter's Market*
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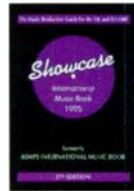
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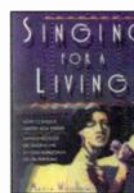
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THE ARC MUSICIANS' DIRECTORY



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.

CODE B219 £14.99
Postage: UK £2.50, Europe £6.95, R.O.W. £9.50

88 SONGWRITING WRONGS & HOW TO RIGHT THEM

by Pat & Pete Luboff

This is a real workbook for songwriters, dealing with both the craft and art of songwriting. Song structure, rewriting, matching lyrics to music, collaboration, making the right demo, pitching the final result, and business matters.

CODE B254 £11.95
Postage: UK £2.50, Europe £5.50, R.O.W. £8.50

THE BROADWAY QY10

by Peter L. Alexander with Bobby Maestas
Charts and musical examples for re-creating Broadway songs with your QY10 using only the internal patterns. Includes useful set-up information. 77 pages.

CODE B263 £3.95
Postage: UK £1.50, Europe £4.95, R.O.W. £7.50

TG33 QUICK OPERATIONS

by Bobby Maestas
Instant access to Yamaha's neat little Vector Synthesis sound module. Loads of examples, well illustrated. 115 pages.

CODE B264 £8.95
Postage: UK £1.50, Europe £4.95, R.O.W. £7.50

SONGWRITER'S YAMAHA RY30

by Dan Walker with Gregg Perry
A two-part work, the first part covering all operational aspects of the RY30 drum machine and the second uses the audio tape and musical examples to show what the RY30 is capable of, using the preset patterns to create a variety of classic tracks. 229 pages, two cassettes.

CODE B267 £19.95
Postage: UK £2.50, Europe £5.95, R.O.W. £9.95

YAMAHA SY55 GUIDE

by Bobby Maestas
A good helpful look at this arguably overlooked instrument; technicalities are explained in context of music throughout. 153 pages.

CODE B268 £9.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

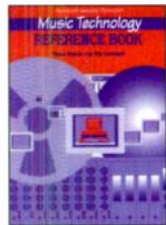
Remember: stocks are strictly limited, so order now to avoid disappointment. POSTAGE EXTRA.

SOS Book Shop

MIDI INFORMATION

MUSIC TECHNOLOGY REFERENCE BOOK

by Peter Buick & Vic Lennard



Written by Peter Buick and Vic Lennard (author of SOS's Atari Notes column), this book offers information at your fingertips and is an indispensable reference source for the musician or sound professional in the recording, broadcast, live, video, computer,

multimedia, post production and theatre industries. It includes comprehensive MIDI spec, General MIDI, MTC, MSC, and SysEx information. It also includes charts, check lists, useful hints, tips, and ideas, plus a glossary, list of contacts and a comprehensive index. It is also organised into convenient sections. 150 Pages.

CODE B305 £12.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

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.

CODE B273 £8.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

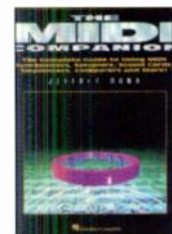
A BEGINNERS GUIDE TO MIDI

by R.A. Penfold

The title says it all: all aspects of MIDI are explained, and many common beginner's problems are discussed.

CODE B287 £4.95
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

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.

CODE B234 £9.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

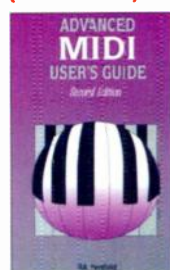
MIDI: A COMPREHENSIVE INTRODUCTION

by Joseph Rothstein, Product Review Editor, Computer Music Journal
Series Editor: John Strawn

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 systems 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.

CODE B152 £10.95
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

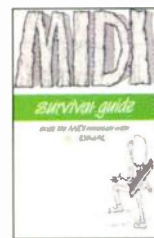
MIDI SYSTEMS AND CONTROL



By Francis Rumsey.
This revised edition has been expanded in a 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 system design; practical systems design.

CODE B007AM £19.95
Postage: UK £2.50, Europe £6.95, R.O.W. £9.50

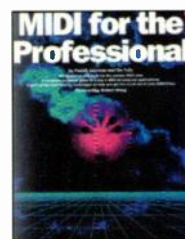
MIDI SURVIVAL GUIDE



by Vic Lennard
Whether you're a beginner or a seasoned pro, the "MIDI Survival Guide" shows you the way. No maths, no MIDI theory - just practical advice on starting up, setting up and ending up with a working MIDI system. Contains over 40 cabling diagrams, and how to: connect synths, sound

modules, sequencers, drum machines and multitracks; how to budget and buy secondhand; using switch, thru and merger boxes; transfer songs between different sequencers, get the best out of general MIDI, and understand MIDI implementation charts.
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 230 page book couldn't be better.

CODE B227 £11.95
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.

CODE B199 ONLY £16.95
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 synth, digital pianos, and classic polysynths like the Roland JX10 and Prophet VS - forerunner of the SY22 and Wave Station. Early Keyboard and rack-mount samplers are covered in this indispensable guide. \$61 a great buy.

CODE B096 ONLY £5.99
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

KEYFAX 4

by Julian Colbeck

The new Keyfax book (1993) is the most comprehensive guide to professional keyboards yet compiled. Keyfax 4 spotlights synthesizers and expander, and MIDI keyboard controllers. From classic analogue machines right up to the latest synth/sampler hybrids. Reviews include technical tour on a practical, need-to-know basis. Everything you need to decide which instrument is best for you.

CODE B201 £12.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

KEYFAX 5

by Julian Colbeck

The latest instalment in the intrepid Keyfax series - offers potted specifications and concise mini-overviews of digital pianos, home keyboards, General MIDI modules, stage organs and computer sound cards. Look out for company backgrounders, contact details and cross-references to earlier Keyfaxes.

CODE B231 £12.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

THE MUSEUM OF SYNTHESIZER TECHNOLOGY

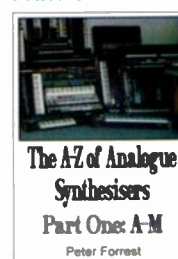


by Martin J Newcomb
If you liked our feature on the opening of the Museum of Synthesizer Technology in October, but haven't got the time or the cash to visit in person, then the next best thing has to be the museum's guide book. This 118 book is printed on glossy paper and

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 hard-core synth fanatic will want this book for the pictures. In these pages you will glimpse instruments that you are unlikely ever to experience in the flesh; an exceedingly large Roland System 100 modular set-up, an EMS Synthi 100, an ARP 2500, a large Emu modular and what must be the comprehensive collection of Moog equipment anywhere. The Museum of Synthesizer Technology book is yours for £24.95, plus postage.

CODE B291 £16.95
Postage: UK £2.50, Europe £6.95, R.O.W. £9.50

THE A-Z OF ANALOGUE SYNTHS PART ONE: A-M



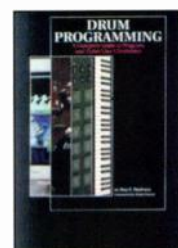
by Peter Forrest
The author has aimed to make his book a complete rundown of all the major analogue synths and keyboards ever made, and on the evidence of this first volume, he seems to have succeeded. The book is useful and detailed, and shows evidence of

the massive amount of research and effort put in by Peter. He gives pocket company histories and detailed data on the instruments produced - but note that a few entries for a few particularly obscure instruments and companies are limited due to lack of data. The book also provides a comprehensive overview of the qualities of various instruments; charts and tables assess second hand values and maintenance levels necessary to keep a given instrument playable as well as such intangibles as sound quality, collectability and user interface. The A-Z of Analogue Part One, which is limited to 8000 copies worldwide, also features 96 colour pictures of classic instruments.

CODE B294 £14.00
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

DRUM MACHINES

DRUM PROGRAMMING — A Complete Guide to Program and Think Like a Drummer



By Ray F Badness
Coming from a publisher that has a good range of real drum texts, we'd expect this book to be a little different. And it is: it gives plenty of insights into how real drummers approach their job, and there are plenty of example patterns to help translate these

ideas to a drum machine.
CODE B235 £6.95
Postage: UK £1.50, Europe £4.95, R.O.W. £7.50

DRUM MACHINE RHYTHM DICTIONARY

By Sandy Feldstein

For use with Roland drum machines or any grid-based pattern system. First 75 pages on programming huge range of rhythms in rock, latin, jazz and funk styles. Remainder analyses styles and patterns of world's top drummers - Phil Collins, Bilk Cobham, Steve Gadd, Stewart Copeland, etc. Highly recommended.
CODE B110 £16.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

RHYTHMICAL GROOVES & PATTERNS

By Siegfried Hoffman

Looks at how drummers compose rhythm patterns to add emotion, swing or groove. Contains examples for you to programme into your drum machine or sequencer.
CODE B115 £11.50
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

260 DRUM MACHINE PATTERNS

By Rene-Pierre Bardet

Even more drum pattern styles (paso doble, charleston, etc)
CODE B019 £7.95
Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

DRUM MACHINE PATTERNS

By Rene-Pierre Bardet

200 drum patterns and breaks presented in one-measure grid notation. Funk, R'n'B, ballad, pop, reggae, afro-cuban and many other styles.
CODE B018 £7.95
Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

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 notes, 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, Borodin; Mozart, Schubert, Tchaikovsky, music from Carmina Burana; Debussy, Satie, Steve Reich's Piano Phase and more. Highly recommended.

CODE B193 £12.95
Postage: UK £2.50, Europe £5.50, R.O.W. £8.50

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.

CODE B155 £12.95
Postage: UK £2.50, Europe £5.50, R.O.W. £8.50

1000 KEYBOARD TIPS

by J Dreksler & 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!

CODE B113 £13.95
Postage: UK £2.50, Europe £6.95, R.O.W. £9.50

SOLID GROOVES

By Dieter Preteril & 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 rhythmical music in popular styles will find this book invaluable.

CODE B172 £11.50
Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

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.

CODE B161 £7.95
Postage: UK £2.50, Europe £5.50, R.O.W. £8.50

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.

CODE B272 £11.95
Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

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
Postage: UK £3.95, Europe £7.50, R.O.W. £14.50

MULTIMEDIA ON YOUR PC

by Francis Botto
A practical guide to multimedia specifically on the PC. Botto's book is once aimed at users, educators and developers, and comprehensively discusses the hardware required to take advantage of multimedia in a PC environment as well as the hardware and software necessary in a multimedia authoring situation. The book is provided with comprehensive appendices covering a glossary and comprehensive product and manufacturer lists.

CODE B296 £10.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

SEQUENCER SECRETS

by Ian Waugh
Ian's book aims to 'go beyond the manual' in telling you how to get the best from your sequencer. The book features 29 hands-on sequencing projects and is suitable for use with all software sequencers. The book hopes to help you optimise your MIDI system and use your sequencer to create all sorts of useful effects. A troubleshooting section helps you track down stuck notes, double notes and so on.

CODE B299 £6.95
Postage: UK £1.50, Europe £4.50, R.O.W. £6.50

COMPUTERS AND MUSIC

By R A Penfold
2nd edition. Covers hardware and software applications. Excellent glossary of jargon, and now hang up to date.

CODE B098 £8.95
Postage: UK £1.50, Europe £4.95, R.O.W. £7.50

MULTIMEDIA, CD ROM & COMPACT DISK - a guide for users and developers (2nd Edition)

by Francis Botto
A 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.

CODE B295 £14.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

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.

CODE B280 £5.95
Postage: UK £1.50, Europe £4.95, R.O.W. £7.50

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.

CODE B105 £27.95
Postage: UK £3.95, Europe £7.50, R.O.W. £14.50

CONCERT SOUND AND LIGHTING SYSTEMS

Written by John Vasey.
How to set up and operate sound / lighting equipment for the performance of amplified music or any kind of touring production.

CODE B247 £14.95
Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

THE FOCAL GUIDE TO SAFETY IN LIVE PERFORMANCE

Edited by George Thompson
This book provides an authoritative look at safety matters for workers in the live entertainment industry. It is edited by the Standards Officer of PLASA (Professional Lighting and Sound Association), and provides good solid information in an easily digestible, well-illustrated form. Topics covered include audience and crowd control, fire safety precautions and engineering, electrical safety, laser safety, sound levels and noise control and much more.

CODE B271 £19.95
Postage: UK £2.50, Europe £5.50, R.O.W. £8.50

LOUDSPEAKERS FOR MUSICIANS

CODE B284 £3.95
Postage: UK £1.50, Europe £3.95, R.O.W. £4.50

INTRO TO LOUDSPEAKER & ENCLOSURE DESIGN

by V Capel
The book provides both useful background to speakers and enclosures in general, plus practical information on crossovers and full details on constructing the so-called 'Kapellmeister' design of speakers.

CODE B281 £2.95
Postage: UK £1.50, Europe £6.95, R.O.W. £9.50

LIVE SOUND MIXING

by Duncan R Fry
This is a hands on, friendly introduction to all aspects of mixing live. It hails from Australia, and is an SOS Bookshop exclusive. The author is an experienced live sound engineer and has packed his book with loads of information, diagrams and hints to take you from basic principles through to trouble shooting when things go wrong.

CODE B256 £19.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

PUBLIC ADDRESS LOUDSPEAKER SYSTEMS

by V Capel
All aspects of PA speaker systems are covered in this book, including low-impedance matching, 100W systems, transmission lines and how to install inductive hearing aid loops. At the heart of the book is the Line-Source Ceiling Array, a system that is claimed to improve clarity, even coverage and reduce feedback. Full step-by-step construction and installation details are given.

CODE B283 £3.95
Postage: UK £1.50, Europe £5.50, R.O.W. £8.50

ELECTRONIC PROJECTS

ELECTRONIC PROJECTS FOR MUSICIANS

CODE B068 £10.95
Postage: UK £2.50, Europe £6.95, R.O.W. £9.50

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!

CODE B278 £2.95
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

PRACTICAL ELECTRONIC MUSIC PROJECTS

CODE B289 £4.95
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

ELECTRONIC MUSIC LEARNING PROJECTS

CODE B286 £4.95
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

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 you're into MIDI and you want to expand your system without taking out a second mortgage, fear not. Here's the book to help you build up your MIDI system without laying out thousands on hardware.

CODE B203 £9.95
Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

DIGITAL AUDIO PROJECTS

by 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.

CODE B279 £2.95
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

PRACTICAL ELECTRONIC MUSIC EFFECTS UNITS

by R A Penfold
Another selection of musical effects, with more of a guitar angle. Projects include distortion, sustain, parametric EQ, graphic EQ, treble and bass booster, envelope modifier, wah wah effects and more.

CODE B290 £4.95
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

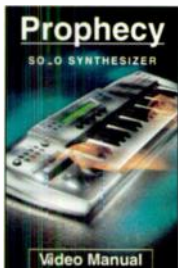
ELECTRONIC PROJECTS FOR VIDEO ENTHUSIASTS

by R A Penfold
Projects for the video and camcorder user, including dynamic noise limiter, automatic audio fader, video faders, video wipe and video crispener.

CODE B288 £4.95
Postage: UK £1.50, Europe £6.95, R.O.W. £9.50

SOS Videos

JUST ARRIVED! KORG PROPHECY



VIDEO MANUAL

Written by Phil Macdonald Korg's new Prophecy Synthesizer now has its own video manual!

The video covers all the major features over 6 sections, with lots of examples of the amazing effects that are available using the 'log' and 'mod' wheels. The video's visual interest is maintained by the extensive use of Chroma Key and multi camera effects. This is a video that is ideal for new owners, and those who want to know more about the Prophecy before they make a purchase.

CODE V049 £14.99

Running time: 36 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

EVERYTHING YOU WANTED TO KNOW ABOUT PCs



BUT WERE AFRAID TO ASK!

Written by Ian Waugh
This video has been produced in response to the number of potential PC buyers and existing new users who do not fully understand the jargon and basic operating procedures associated with PCs.

It covers everything from 'What is a PC?' to the 'Internet'. There is even a Windows tutorial, and a DOS basics section. (Over 120 different sections.)

It includes a booklet listing all the main and sub sections along with their respective TimeCode number for easy access when used as a reference tool.

CODE V048 £19.99

Running time: 91 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND MS-1 VIDEO



MANUAL

This video manual has been produced by Roland Corporation U.S. 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

KORG AX30G TONEWORKS

CODE V028 £19.99

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 difficult in. This makes it of interest to beginners and experienced users alike. Nick imparts the information with ease and a professional manner, making it enjoyable and entertaining.

CODE V043 £19.99

Running time: 57 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

BAND IN A BOX 6.0 BASICS FOR WINDOWS

Designed to get the new user, and those less familiar with Band In A Box, up and running quickly and easily. Experienced users can also benefit from the in-depth tutorials which cover Basic MIDI, MIDI Connections, Custom Patch Maps, Screen Layout, Juke Box, Printing, Recording & Editing Melodies, Importing & Editing Styles, Drum Editor, Masks, Assigning Instruments.

CODE V031 £34.99

Running time: 88 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

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
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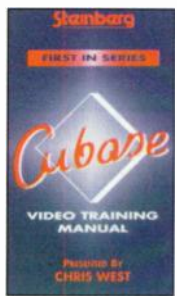
ENCORE 3.0 FOR WINDOWS

The basics of Encore for Windows is covered, with in-depth tuition over 83 minutes. Everything you need to get up & running is here. Basic MIDI, Score Layout, Accidentals, Key Signatures, Note Editing, Step Time Entry, Adding Staves, (Click Setup, Record Setup, Linear View, Quantisation, Editing, Printing, Staff Position & Spacing, and much more...

CODE V036 £34.99

Running time: 83 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

STEINBERG CUBASE



This manual is presented by Chris West, Steinberg expert. It's very much a practical, 'get up and running' video, showing the novice user exactly how to install and begin using Cubase, whether they're running the program on an ST, Mac or PC computer — there's even a basic background on using the

computers themselves! All of Cubase's controls are shown, explained and demonstrated in depth. Once you're familiar with the basic controls, Chris takes you slowly through recording your first session, followed by overviews of the various edit screens. It's rather like having an expert tutorial that you can run again and again in the comfort of your home, until you can use Cubase like a true pro.

Topics covered include: the main screen, customising names and outputs, copying and pasting between arrangements, MIDI filter, cycle mode recording, the tool box, all edit screens.

CODE V011 £29.99

Run time: 1 hour 30 minutes
Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND JV-1080 VIDEO MANUAL



Roland's amazing JV-1080 synthesizer module is covered in detail in this informative video. Presented by Tim Walter the video guides you through the basics, and leads you painlessly onto the advanced features. The video even shows you how to fit the

expansion boards & gives demonstrations of some of the wonderful sounds they contain. Once again this video has been produced in association with Roland UK & USA to ensure that everything it contains is accurate, and relevant to the new and more experienced users alike.

CODE V046 £19.99

Running time: 80 minutes
Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

3 CAKEWALK 3.0 VIDEO MANUALS

CAKEWALK 3.0 For Windows

A collection of three videos on the Cakewalk Professional system for Windows, covering just about everything you would need to know to become totally proficient with Cakewalk. If you own Cakewalk Home Studio — no problem! The videos cover everything Cakewalk Home Studio is capable of and more...

BASICS

Basic MIDI, Step & Realtime Recording, Playback Features (on the fly), Editing Features, Graphic Views, The Inspector Menu, Menu Overview, The Control Bar.

CODE V032 £34.99

Running time: 120 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

BEYOND BASICS

This video explains Customising Cakewalk, Extract Merge, more graphic Views, Advanced Editing, the Settings Menu, Synchronisation, Embedding Wav Files and more...

CODE V033 £34.99

Running time: 113 mins
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

CAL

Programming Fundamentals, Creating a Program, Creating a CAL Program, How to use CAL Programs, CAL Examples, Automating Tasks, Tips on working with CAL, Creating Computer Music, Troubleshooting.

CODE V034 £34.99

Running time: 90 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND TDE-7K DRUM SYSTEM



Roland's TDE-7K Compact Drum System Comprises the TD-7 Percussion Sound Module, MDY-7 Cymbal Pad Holder, FD-7 Hi-Hat Control Pedal, MDS-7 Drum System Stand, PD-7 Drum Pads & KD-7 Kick trigger. You may have a different

configuration to what is shown in the video, but no matter! Roland Product Specialist Gary O'Toole shows you how the complete kit is put together. Gary concentrates on the TD-7 in detail, showing how the parameters are set up, and giving demonstrations of how the sounds are derived and altered. Good use is made of the visual side in this video with multi-camera shots, a 'birds eye' view of the entire kit shows Gary's playing abilities to the full. As you would expect from a production aided by Roland UK & USA, this video shows you everything you need to know.

CODE V045 £19.99

Running time: 65 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

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.

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LEVEL THREE



This video is packed with information and professional tips on advanced MIDI applications in the home studio, including interfacing with sequencers, which sync code is best for which application and why. Hit producer Martyn Phillips (Erasure, London Beat) discusses

modern recording techniques, and top programmer Paul Wiffen examines the opportunities and benefits offered by hard disk recording. It offers practical advice on sampling - how to save time and tracks; plus professional tips on advanced arranging and mixing techniques, including spectrum mixing.

CODE V007 £24.95

Running time: 1 hour 30 minutes
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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 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 being run on an ST, Mac or PC. Presentation is rather intriguing, with a mobile camera that helps to hold the interest more than the average training video and some interesting graphics that aid comprehension and help to quickly find specific tutorials and bits inside tutorials. Contents are 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 71 minutes Format: VHS (PAL)
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

YAMAHA QY20 MUSIC SEQUENCER VIDEO MANUAL



by Tom Robinson
 Yamaha's popular QY20 portable sequencer/sound source is a deceptively simple device to use; if you think you might like some insight into getting that little bit extra out of the device, then look no further. Produced in co-operation with Yamaha, the video features mobile musician Tom Robinson showing you how to get the best from this portable marvel. Tom, who has used the QY20 extensively as a writing tool on the road, says: "I never leave home without it".

CODE V016 £19.99
 Running time: 90 minutes Format: VHS (PAL)
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THE ART OF SEQUENCING

Composer Don Muro presents six lessons that demonstrate how to create a multitrack sequence, how to correct wrong notes, how to correct rhythmic errors, how to correct dynamics, how to change synth programs, and how to change tempos. The tape is not dedicated to any one sequencing package - the information is valid no matter which sequencer you use.

CODE V030 £30.95
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GETTING THE MOST OUT OF THE KORG M1



Written and presented by Julian Colbeck
 The Korg M1 is a classic instrument. The range and quality of its sounds has made it one of the most successful synthesizers of all time. But because the M1 is so immediate, it's too easy just to scratch the surface, leaving many of its exciting capabilities undiscovered. This highly informative video enables M1 owners to unleash the full creative potential of this enormously powerful workstation. With plenty of musical examples, tips and inside information, the video offers clear, concise explanations of the instruments features and operating procedures, helping you to greatly expand your dexterity and creativity across the whole range of this world-beating instrument.

Comes with a FREE exclusive custom library of fabulous new M1 sounds on Atari format floppy disk (100 Programs, 100 Combinations) created by ABW1/Yes programmer Chris Macleod.

CODE V002 £24.95
 Running time: 1 hour 10 minutes Format: VHS (PAL)
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PERFORMER 5.0 BASICS FOR MACINTOSH

Expert tuition covering the basics and more for Performer 5.0. This video will provide you with all that you need to know, covering all the major topics: Basic MIDI, Tracks Window, Multitrack Operation, Patch Changes, Time Signature & Meter, Real & Step Time Recording, Event List/Graphic & Notation Views, Regional Editing, Quantisation, Transposing, Copy/Cut/Paste/Merge & Erase, Loop Recording, Track Palette, Device Groups, Counter Window, and much more.

CODE V042 £34.99
 Running time 87 minutes
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND JV-90 SYNTH



Roland's JV-90 synthesizer gets the treatment in this informative Labyrinth production. Virtually every facet of the JV-90 is covered, from the basic functions to more advanced programming. Chris Allen guides you through the powerful features this instrument has to offer. Produced in association with Roland UK & USA to ensure that everything it contains is accurate, and relevant to new and more experienced users alike.

CODE V044 £19.99
 Running time 70 minutes
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

YAMAHA PSR600 ELECTRONIC KEYBOARD VIDEO MANUAL

CODE V029 £19.99
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND GR-1 GUITAR SYNTH

These two video manuals have been produced to help the user get the most out of Roland's sophisticated GR-1 guitar synth, the first covering all the basics from mounting the pickup and getting tuned up to selecting sounds and using the on-board sequencer. Each step is patiently explained and demonstrated by Roland's guitar synth specialist, Jay Stapley.

The Advanced tape takes the mystery out of sound editing, custom tuning, advanced sequencer applications, external sequencer hookups, using other MIDI sound modules, indeed virtually everything the GR-1 is capable of doing. If you own a GR-1 or are thinking of buying one, do yourself a favour and order these indispensable videos.

CODE V014 ONLY £29.99 FOR 2 VIDEOS
 Total Running time: 4 hours. Format: VHS (PAL)
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

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

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
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CODE V041 £34.99
 Running time 105 minutes
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YAMAHA QY300 VIDEO MANUAL




Complete overview of Yamaha's new QY300 sequencer/sound source. Presented by Joe Ortiz of Heavenly Music, the video offers a hands-on tutorial on what is potentially a very powerful piece of hardware. Starts off with a runthrough of QY300 features, followed by a clear, step-by-step tutorial that introduces you to creating your own sequences and styles.

As a bonus, the video comes with a free disk loaded with 6 new QY300 styles and 6 demo sequences.

CODE V025 £19.99
 Running time 69 minutes Format: VHS (PAL)
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4 FINALE 3.0 VIDEO MANUALS FOR WINDOWS & MACINTOSH



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CODE V003 £14.95
 Running time: 1 hour 7 minutes
 Format: VHS (PAL)
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

KORG X5 SYNTH

Korg's new X5 synthesizer, reviewed in SOS January 1995 issue, now has its own video manual. Presented by Tim Walter in an entertaining and lighthearted manner, and explains all basic aspects of Korg's highly affordable instrument in very clear terms. If you're in any way daunted by your new purchase, or want to get a feel for the instrument before laying out your cash, this is the video for you.

CODE V027 £19.99
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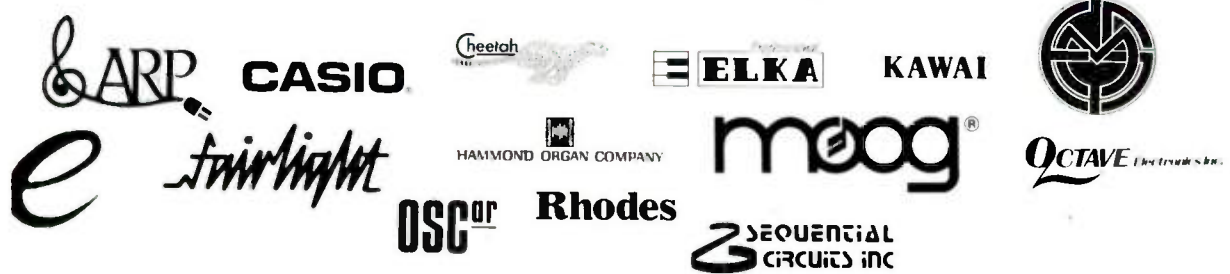
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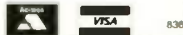
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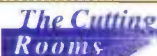
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There has been a sneaking trend amongst studio equipment manufacturers over the last few years towards more software-based gear, which can mean the manufacturer doesn't have to get it right first, second or even fifteenth time, while end users sit

had to load a whole disk just to get one sound, losing the entire memory contents in the process (although there were ways round this if you had the odd afternoon to spare).

So, here I am, 10 years on, sitting in front of the latest piece of Emu technology, and marvelling at tricks like its audio morphing and resonant filters — but surprise surprise, like the Emu II, I still can't load individual sounds from disk without losing everything. Come on Emu, surely 10 years is long enough to get your heads round that one? I phoned Emu, who told me I could get over the problem if I had the SCSI option, which, of course, costs another couple of hundred quid, plus the price of a new hard drive. To be fair to Emu, the latest software update allows separate sounds to be loaded, although they still can't be saved individually.

As for the Akai DD1500 — well, I bought that last October because I wanted to take the plunge into hard disk recording. I checked out what was on the market, and eventually chose the Akai system because I wanted to be able to record and edit easily, mess around with samples, and be able to cut and paste audio. I didn't like the idea of another computer keyboard in the control room, and chose a machine with its own dedicated control panel that I could use quickly and easily.

The machine came with a lot of promises. Akai admitted that there were features missing (such as the lack of MIDI implementation and backup facilities), but claimed that these would be added within a few months. In fact, many of these facilities have yet to arrive. They keep telling me how happy their post-production customers are, and what the BBC have achieved with it, but I'm not in the business of recording footsteps on gravel or synchronising doors slamming — syncing to music is far more demanding and precise, and this is what I want the machine to do.

I know manufacturers are under pressure, but I still feel that when you buy something from them that promises so much, they should either ensure that it works, or own up and tell you it doesn't before you part with your money.

OK, equipment should meet the needs of the customer, and sometimes the best way to do this is to see it operating in working conditions, but this can be done by people who *know* they are being used as crash test dummies, not people like me who are trying to make a living from using it.

My advice is this: if gear doesn't come up to scratch, complain, and get your money back. There's a law stopping goods being sold that don't do what they're claimed to do, and if more people made a nuisance of themselves in music stores, we might all get a better deal. It might slow down the pace of technical development a bit, but frankly, I'd rather have a machine that worked when I got it back to the studio...

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Here, producer and studio owner MEL SIMPSON bemoans the fate of the reluctant guinea pig...



As a keyboard player, Mel Simpson toured with bands until the early '80s, when he came off the road to start Flame Studios in North London, initially for his own productions of film and TV music.

Mel has produced countless acts over the years, but his most recent successes include writing and producing the Us3 album, *Hand On The Torch*, as well as a number of major feature films, including Spielberg's *The Flintstones*.

He has recently finished producing the new Ragga Twins' album for EMI, and is currently working on a jazz project due for release early next year.

chewing their nails, waiting for the next update.

I'm always suspicious of the phrase 'open ended architecture', because it often means that the manufacturer hasn't finished developing the product yet. You are usually safe with products from companies such as Roland, Korg and Yamaha, who put a lot of effort into getting details right, but some manufacturers are in far too much of a hurry to launch new products at major exhibitions, and often have ready only the front panel and a nice glossy brochure telling you what the machine is supposed to do, so that you have something to take away and drool over.

Of course, I recognise that due to the speed technology changes, manufacturers have to work on expectations, and try and keep ahead of the game. Even the

Inland Revenue acknowledges that we work in a fast-moving, hi-tech business —

I've discovered that it is possible to register a new piece of studio equipment as something called a short-term asset, and write it off in the first year, instead of the normal 25% depreciation. Technology is being replaced very quickly, and in this environment, it's no wonder manufacturers try to fool the competition by building fancy front panels before they have worked out what to put behind them.

The really big problem is that in the rush to get a new product on the street, it is not always tested properly. Manufacturers don't seem to follow up what happens when halfway through something, the message 'fatal system error, try and save your work' flashes up on the screen, and the only button that appears to work is the Off switch. It is at this point that we, the end users, become part of the development and testing process.

My particular hobby horses at the moment are the Emu Esi32 and the Akai DD1500. I bought an Emulator II about 10 years ago (well, I was young and impressionable), and although I grew to love it, there were annoying sides to its character that drove me nuts. For example, you

By Sue Sillitoe



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