SOUND ON SOUND

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

SOUND ON SOUND

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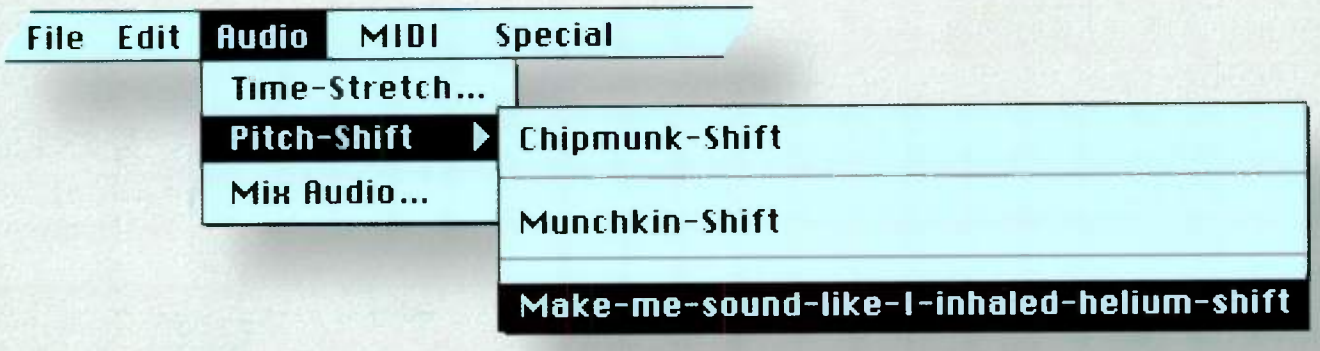

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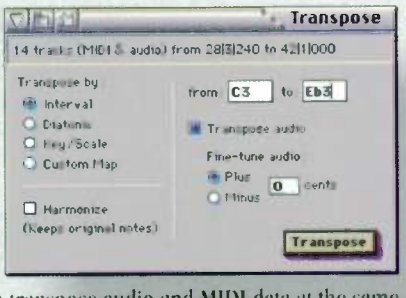

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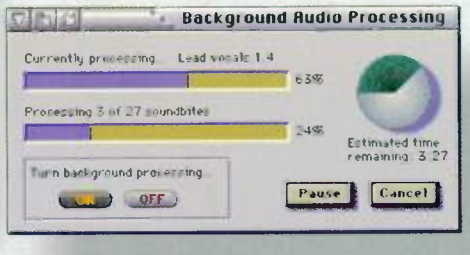

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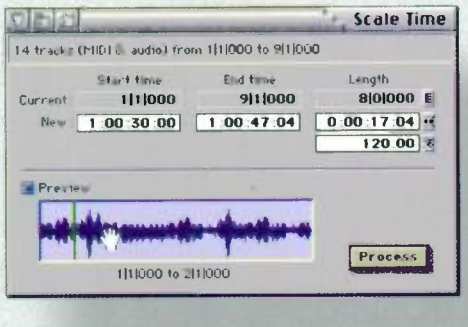

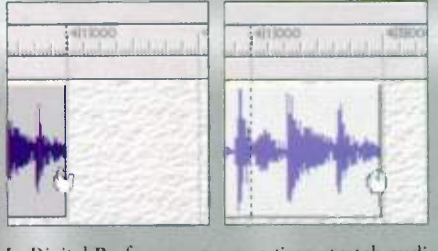

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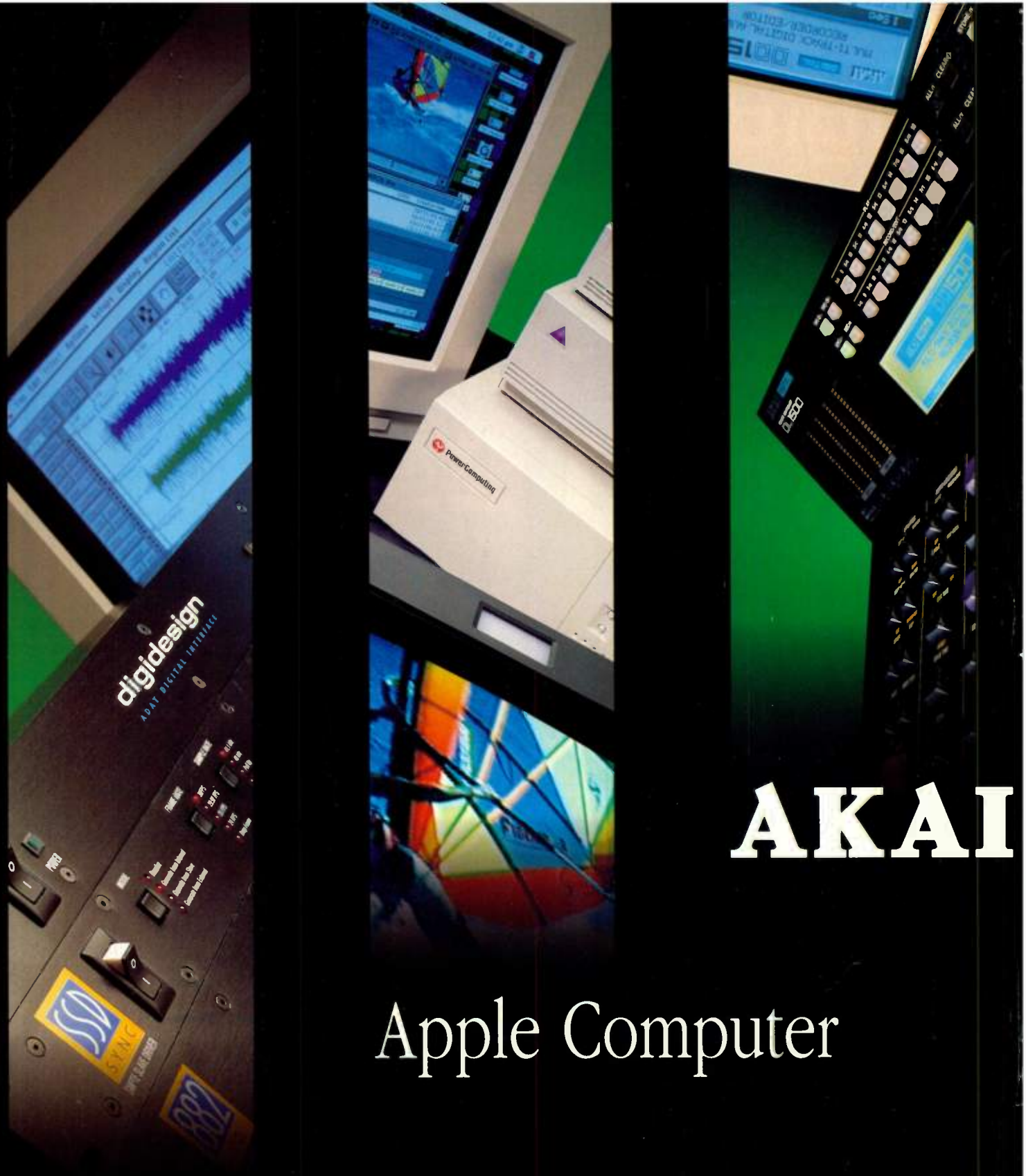

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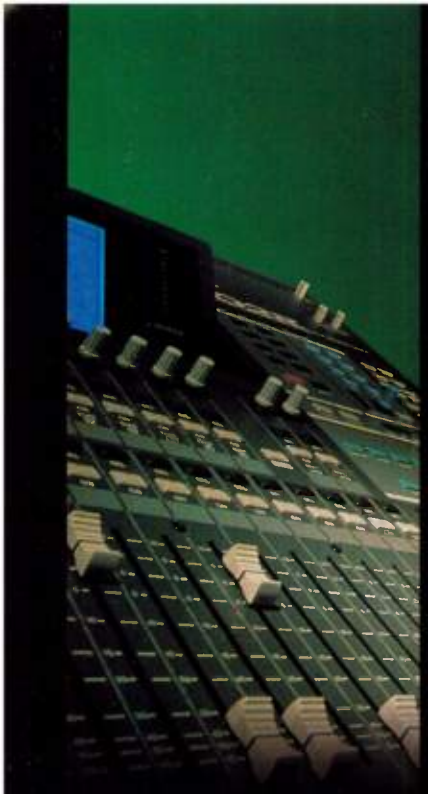

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Keep it simple

They don't make records like they used to! OK, it's a cliche, but it also happens to be true. Recording methods and recording technology have both changed dramatically over the past 30 years and that change is still accelerating. Look on any CD of so-called 'reference material' (the stuff hi-fi purists use to evaluate their systems) and you'll find that very little was recorded in the last couple of decades, and much of it is more than twice that old. So why is the best of the old material so good, and what can we learn from it that we can apply to our own work?

The fact that the best music was created pre-MIDI by people who spent all their spare time trying to master their instruments or voices rather than the latest software upgrade is so blindingly obvious that I won't say any more on that point. What concerns me most is the audio quality of the recordings themselves. From certain angles, it looks as though the equipment we have available today is streets ahead of what leading professionals had access to in, say, the 1970s — but is this strictly true? We certainly have more facilities, more automation, more flexibility, and more tracks than our predecessors, but it's my contention that this is the root of our problem.

Take an early 8-track record, for example. It would be recorded onto an open-reel analogue machine running wide format tape at a reasonably high speed; the machine would be calibrated and lined up by a qualified technician (more often than not before each recording session), and typically there would be a very small amount of circuitry between the microphone and the tape machine.

To record a great vocal, all you need is a good vocal mic, a good mic preamp and a lead to plug it straight into the tape machine. If you go through a mixer, you place unnecessary circuitry in the signal path, and the bigger and fancier the mixer, the more the audio integrity will be compromised. If you must use a mixer, then the channel direct outputs offer the cleanest path to tape.

It's also evident that some engineers are now seeking out old reverb plates, because they sound more natural than their digital counterparts. Digital reverb has come a long way and seduced many of us with its versatility, but no digital 'room' does better than approximate the real thing, and no digital plate emulation sounds quite like a real plate.

Nowadays we can now combine 24, 32 or even more tracks of off-tape or off-disk audio with as many MIDI instruments as we can find inputs for, but it's a simple fact of physics that as you add more tracks, you also combine the noise contribution from each tape track, and because you need a mixer with lots of inputs, you also accumulate mix buss noise which is directly related to the number of channels routed. No wonder then that a recording made on an 8-track recorder, using a simple 12-channel mixer, sounds more natural than something recorded on a 48-track via an automated console as long as a football pitch.

In our pursuit for better quality, perhaps we should be attempting to keep things as simple as possible while at the same time ensuring we buy the best equipment we can afford, especially in vital areas such as microphones and mic preamps. A small, high quality mixer is always going to outperform a studio sized console which uses the same kind of basic circuitry, and a 4-track recorder will always be quieter than a 16-track recorder of similar specification. Natural acoustics must, by definition, sound more natural than canned electronic reverb, and a naturally quiet signal must be preferable to a multitrack with gates choking the life out of every track. The honeymoon with technology is finally over and perhaps now would be a good time to examine the relationship.

Paul White ***Editor***

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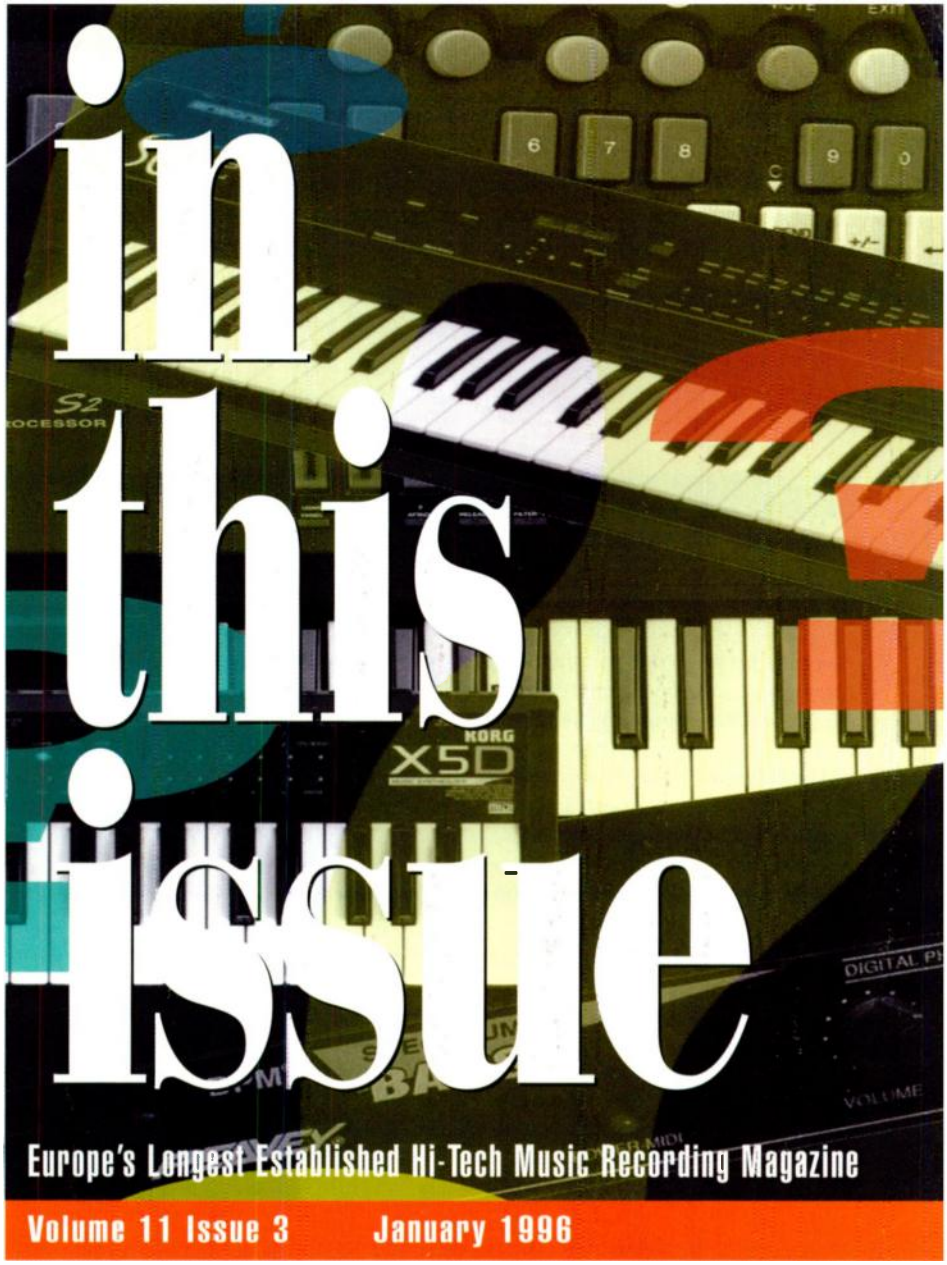

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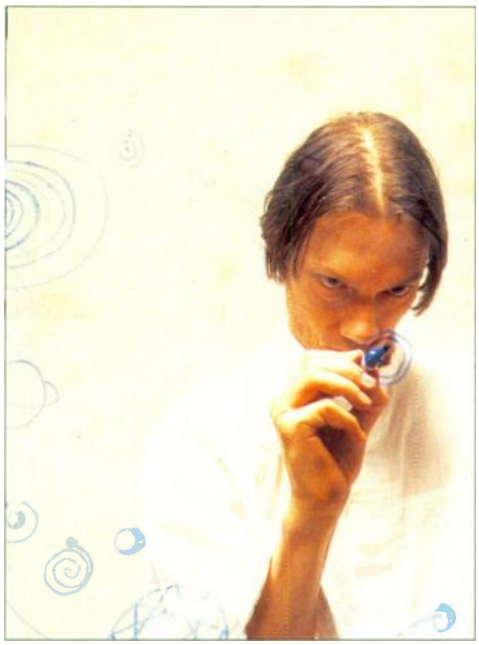

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Crosstalk

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ON THE CARDS

I'm about to venture into the world of PC hard disk recording, and understand that I need the most powerful PC I can get my hands on and suitable software, such as *Cubase Audio*. However, when it comes to the choice of PC soundcard, I am overwhelmed by the variety of devices available. My requirements are simply to have high-quality simultaneous record and playback, since I already have a MIDI interface for sequencing. On-board synths, MIDI interfaces, SCSI ports and the like are all very nice, but not essential to me, and obviously push the cost up. Can you simplify the options and make any recommendations?

Adrian Hall
Via Compuserve

Brian Heywood replies: *When using the 'built-in' Windows MPC facilities for hard disk recording, it pays to get the most powerful PC you can afford, since the PC's CPU has to bear the entire brunt of the audio processing, a task for which it is not ideally suited. The alternative is to get an audio system that has its own DSPs, such as Soundscape's SSHDR or Digidesign's Session 8 hard disk recording system. A DSP (or Digital Signal Processor) is simply a CPU that has been optimised for handling audio and video signals, and thus can relieve the PC of most of the processing load, giving the entire system much better performance, even with quite modestly-specified PCs. However, having decided to use a Windows-based system, you really have to be careful about which soundcard you go for. There are three points you need to consider:*

• The first and most basic is whether the sound quality is up to scratch. Many soundcards are derived from designs originally aimed at the games market, and this means that the primary goal is to produce something that has a competitive price. The sound quality of these cards is just not good enough for music production. The inclusion of 16-bit converters on a soundcard is not enough to ensure the much-advertised 'CD quality' — unless the support circuitry has been properly designed, the least significant bits are likely to produce random noise, effectively reducing the soundcard to 14 or 13-bit quality.

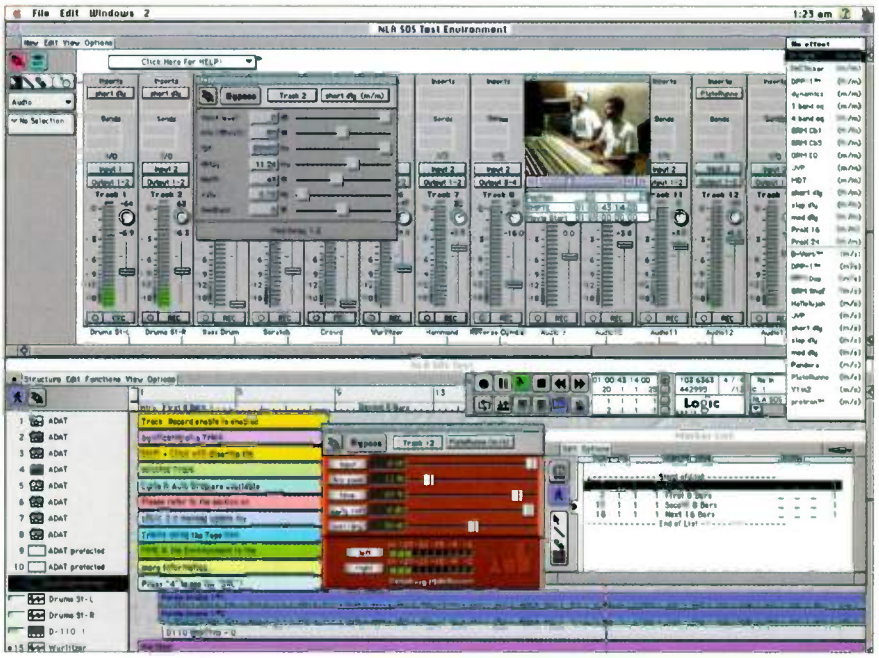
• The second vital requirement for digital recording is the ability of the card to record and play back simultaneously. You need to be able to hear what you've already recorded if you want to perform and overdub, or play along to a drum loop or breakbeat. Most games-derived cards don't have this facility or — as in the case of Creative Labs' AWE32 SoundBlaster — they have the hardware, but not the software support for simultaneous record and playback. As far as I know, the only MPC soundcards that can do this are those from Turtle Beach, Gravis and Roland.

• The third point is only really important if you plan to master to DAT. To me, it seems a pointless exercise to perform perfect digital edits using your super-duper non-linear digital editor, and then strain the result through the analogue domain via two sets of digital-to-analogue and analogue-to-digital converters. It is far better to get a card with a digital I/O capabilty (say S/PDIF) so you can keep the signal path in the digital domain. Of course, this doesn't apply in a hybrid MIDI/hard disk system during the mixing phase, since you will need to perform mixes using a conventional audio mixer. However, when it comes to compiling a master, you will need to copy the mix back on to your hard disk to get the tracks in the right order, carry out crossfades and so on, which will involve two transfer processes (or four conversions). In terms of MPC-compatible soundcards for the PC, your choices are rather limited, with only the DAL CardD and the TripleDAT system being readily available. From your original query, I would suggest that you check out the Turtle Beach Tahiti card if you only need an analogue card (or a Gravis Max if you are strapped for cash). To pursue the digital option, the best bet is to check out the DAL CardD, which is available in a digital-only version or as a two-card analogue/digital combination. The Turtle Beach and DAL cards are available from Et Cetera Distribution (01706 228039) and the Gravis from Koch Media (01252 714340). ❑

WITH UNERRING *LOGIC*...

Just a brief note to say I thought Mike Collins' 'MIDI + Audio' article in the December issue was excellent. However, there is a small error in his *Logic Audio* plug-in section. He says that *Logic Audio 2.5* allows up to two plug-ins per channel. This is not the case. The default Audio Object does only show two plug-in 'slots' on the channel strip, but only to keep its size down to a minimum. As a plug-in is 'inserted', a new insert point is automatically created, enabling a virtually unlimited number of plug-ins per channel.

Mark Gordon
Technical Support Manager
Sound Technology plc. ❑



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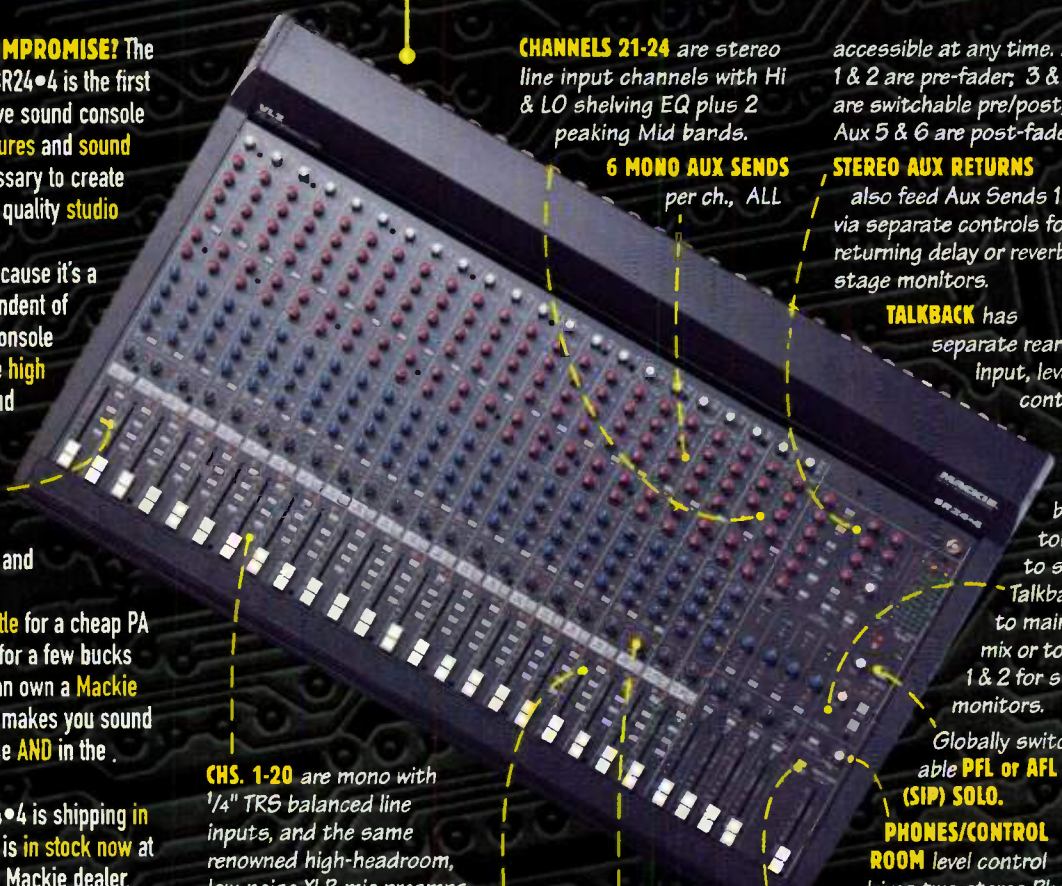

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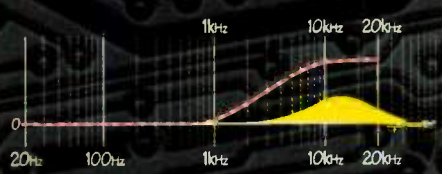

shelving EQ does (red line). You've gotta hear AIR to believe the "high fidelity" effect it has on PA systems, especially those with horns and compression drivers.

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Crosstalk

IN MY EYES AND IN MY EARS

Reading the letter from Dallas Simpson in November's *SOS* ('3D Sound For £25, Anyone?') and the interesting QSound article in the same issue reminded me of some experiments I tried a couple of years ago when doing some research into sound for a Virtual Reality system at Queen Mary & Westfield College in London. I wanted to do some binaural 3D recording to see how effective it might be, but not having the money to buy a 'dummy head' or other system, I realised I'd have to find another way.

Digging around my bedroom, I came across a couple of Tandy 'Realistic' tie-clip microphones that I'd used previously for a conference, and had more or less forgotten about. These microphones are small cylindrical affairs around 5-6mm in diameter, which contain a back-electret diaphragm and give remarkable results considering that they only cost £10 to £15 each.

Reasoning that a dummy head system is merely trying to simulate the effect of a real head, I decided to try to use these mics in a 'real head' binaural recording system. I plugged them into my portable DAT machine and stuck the business ends into my ears, carefully attempting to get the diaphragms of the mics as close to my eardrums as possible so as to get the full benefit of the outer-ear filtering which is so important to the 3D effect. I decided to try and make the first recording a little more interesting than the sound of my house, so I went for a walk around London's East End (I didn't get too many odd looks, as it probably just looked like I was wearing 'in-ear' walkman headphones!).

A few minutes later, I was sitting in my living room listening to the sounds of the Mile End Road in 3D on my headphones. I have to say, it was the most realistic sonic experience of my life — and all from an analogue transducer system costing around 25 quid! Trying to reconcile the very convincing sound of a large amount of traffic going past my back window with the fact that there was nothing more than a very untidy garden out there was strange, to say the least.

I tried the system out on various students and members of staff at the college, and the reaction of every single person was the same — a very broad smile of disbelief the moment a recording made with 'their ears' was played back to them. Due to the very individual nature of people's ear and upper-body shapes, listening to recordings made with the ears of others is less impressive, although still quite convincing in some cases. Research into this has indicated that people who are very good at localising sounds (ie. ascertaining which direction sounds are coming from) tend to have 'good ears', and recordings made by them are more convincing to other people than those made by people who cannot resolve sound location so well.

Obviously, my system has severe limitations when it comes to creating 3D recordings for general use; they work *really* well only when listened to by their creator, they have to be listened to on headphones to have much of an effect at all, and you have to stick things in your ears to create them, which can be a dodgy thing to attempt. However, as a personal exercise in producing a very interesting recording, I can't recommend it too highly!

Richard Parr
London ❑

IMPERFECT HARMONY — A PLEA FOR HELP

Just a short while ago, our small vocal group managed to scrape some pennies together to buy what we rather grandly called a 'small audio workstation', on a budget of about £8000. We wrote up a list of our needs, giving, we hoped, a clear idea of what we wanted, and allowing the experts to put together a workable package at what we hoped would be an affordable price.

We wrote to eleven firms at the beginning of September, asking for proposals by the end of the month. We gave a telephone number for queries, and even gave an email address — but there was scarcely any response. Two people called just before the closing date with minor queries. After the closing date, when nothing had come in the post, I telephoned around. After a lot more effort, we got four replies, none of which offered exactly what we had asked for.

£8000 is not an insignificant sum, especially to us. I just don't understand why we met with next to zero reponse...

Peter Hill
Humber Harmony Chorus

Assistant Editor Matt Bell says: Can anyone out there help the Humber Harmony Chorus? Anyone wishing to do so can obtain full details of their requirements from the *SOS* office. ❑

AKAI THE NOO

I am writing to you in the hope that you can point this letter in the direction of an Akai representative. I have recently purchased a new Akai S2000 sampler, which was delivered with an 'Akai Active' audio club registration card. I duly returned this to Akai. I was unsure, however, whether this was the *official* Akai registration card. I enclosed a letter with the card asking for this to be clarified, but have had no response. I also asked when version 1.3 of the S2000 operating software would be available (as some functions cannot be performed without it), and whether this upgrade, when released, would be available to registered owners free of charge.

I appreciate that it must be very difficult to respond to every letter, but I would be very grateful for any of the above information.

Craig J Macfarlane
Calderwood, East Kilbride

Assistant Editor Matt Bell replies: *We passed your letter on to Akai, and rapidly received the following reply from Ms Toni Rutherford, Product Manager at Akai UK.*

Dear Craig; with regards to the Registration Card, I have checked our database and can confirm that your details have been entered. I would like to apologise for the delay to the release of any product information through the Active Audio Club — we are currently evaluating a complete revision of the Akai user database, as several thousand members have been entered since 1985.

Version 1.3 of the S2000 operating software was released at the end of October, and this includes support for the EB16 multi-effects board and the new multimode save option. All Akai dealers have been sent a copy of the new software to update existing customers; alternatively, customers can send blank, formatted floppy disks to the EMI Division of Akai and we will copy the new version on the disk and send it back with any relevant information — free of charge. This applies to all samplers from the S900 onwards. Thank you for buying the S2000; if you have any further queries, please do not hesitate to call the Akai Technical helpline on 0181 897 6388 (ext 201) at any time during the week between 10.00am and 4.00pm. ❑

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 Mulitimbral.
47 Digital Multi-Effects.
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Built in Floppy Disk Drive. **
Built in Computer Interface. *
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** X5,X5D, X5DRand 05R/W only*
*** X3 only.*

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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

By Derek Johnson & Debbie Poyser

HIRE LOWER!

Music Lab has cut the cost of a 12-day hire by 75% over Christmas. The offer applies to all equipment on the Music Lab rate card, subject to availability. Check out these (VAT-exclusive) rates: Alesis ADAT, £100; Neumann U47i condenser mic, £50; Digidesign Pro Tools III with Apple Power Mac, SMPTE interface and 1Gb of storage for £400. Music Lab's seven-day hire is usually charged as four days, and 12 days is charged as eight days; the ADAT would normally cost £400 plus VAT, and the Sound Tools system £1600 plus VAT. Hirers must take delivery no earlier than December 21, and return gear on January 3 1996.

A Music Lab, 72-76 Eversholt Street, London NW1 1BY.
T 0171 388 5392.
F 0171 388 1953.

YAMAHA SAMPLER STOP PRESS

Surprise last-minute news of the month is the SU10 pocket sampler from Yamaha. This £299, ribbon controller-equipped device offers MIDI Sample Dump Standard compatibility, *no* data compression, and up to 19 seconds of sampling at 44.1kHz (54 seconds at 11kHz). The package is similar to other compact products, such as the QY-series. Additional features include resonant filters, a basic sample sequencer and a 'scratch' function, plus a through function that allows external audio to be processed with the filters. It looks like the perfect accessory for sampler-less SY85 owners who would like to use custom samples with the '85's on-board RAM cheaply. And of course, anyone who wants a cheap sampler — DJs, remixers, bedroom musicians — will jump at a chance to try out the SU10. Naturally, the SU10 can be used by itself, and samples can be dumped to a data filer such as Yamaha's MDF2. To get you started, the SU10 comes bundled with two sampling CDs. Look forward to a review in *SOS*!

A Yamaha Kemble Music (UK), Sherbourne Drive, Tilbrook, Milton Keynes MK7 8BL.
T Product Info Line 01908 369269.
F 01908 368872.

If you need multiple channels of noise gating for your studio or live work, you'll be interested in the new Pro Gate from ART. It's a digitally-controlled analogue unit featuring eight fully independent gates, each with control over High-Pass and Low-Pass Key Filter, Threshold, Attack, Release, Hold Time, and Range. Settings for the eight channels may be stored as a group, over MIDI or in internal memory locations, and recalled instantly. A large LCD keeps you informed about parameter values, channel status and name, and gate status. Inputs and Outputs are on balanced jacks, and the whole package is housed in a 2U reinforced steel and aluminium chassis.

ART also announce that they are to relaunch their Power Plant studio guitar preamp, whose famous users include Nile Rogers, Jan Hammer, and Tony Visconti. And speaking of famous users, ART tell us that one of their DRX 2100 Studio Edition guitar signal processors is currently being used by none other than Jon Bon Jovi. Finally, ART can now be contacted via the CompuServe MIDI B forum, where you'll find all the latest information about their products and services. ART's CompuServe user name is ARTROCH, and their User ID number is 76702,3700 (so that means Internet-based net-surfers should squirt their mail at 76702.3700@compuserve.com).

ART ATTACK

A Washburn UK, Amor Way, Letchworth Herts SG6 1UG.
T 01462 482466.
F 01462 482997.

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

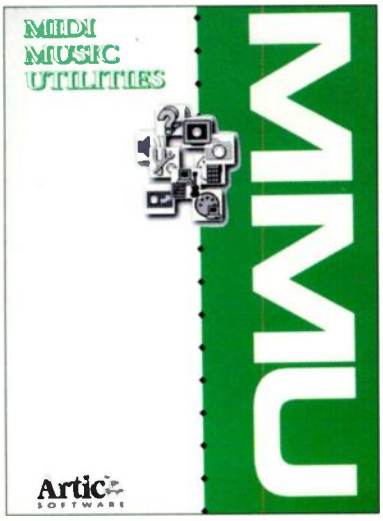
RECORDABLE CD FOR UNDER A GRAND

Truly affordable recordable CD is rapidly approaching, with the new Hewlett Packard SureStore CD Writer 4020i coming in at well under a grand. The 4020i retails for £974 inc VAT, and offers full compatibility with all current CD standards, audio, video and data, including Red Book audio, White Book video, and Orange Book CD-R. Although primarily marketed as a mass backup storage medium, the CD Writer has obvious attractions to the studio and audio world, which is why retailer Core Services are aiming supplies of the machine at that market — currently the only supplier to do so.

And of course, besides allowing you to economically make compilations of your demos, the 4020i can be used as a backup medium for whatever data you might have flying around your studio, and since it records at 2X and reads at 4X, access to data is fast: data transfer rates of up to 700kB/second are possible.

A Core Services Ltd, Bow House, 153-159 Bow Road, London E3 2SE.
T 0181 980 8688.
F 0181 980 2777.

MIDI TOOLBOX FROM ARTIC



In our October issue, we brought you news of Artic Software's *AudioBase*, a Windows-based organiser for WAV and MIDI files. Now Artic are launching the *MIDI Music Utilities* collection, with no less than nine programs in one package. Amazingly, the collection costs just US$69 (plus $10 shipping), and consists of:

- *Tuning Wrench*, an alternate tunings creation program.
- *Chord Computer*, a guitar and piano chord reference tool.
- *MusiCalc*, a multi-purpose musician's calculator.
- *MIDI File Informer*, which converts MIDI files to and from Format 1 to Format 0.
- *MIDIHack*, a real-time MIDI data display and analysis program.
- *The MIDI Technical Reference Guide*, a Windows Help System, covering the MIDI specification.
- *MIDI Thruway*, which allows any MIDI input to be connected to any MIDI output, in any combination.
- *SysEx Dumper*, which saves the settings of your MIDI devices as a SysEx dump.
- *MIDI Tester*, a utility that lets you hear whether your MIDI equipment is receiving MIDI data.

MIDI Music Utilities require a PC with 386 or higher processor, Microsoft Windows 3.1 or later, 4Mb of memory, and 4Mb of hard drive space. A MIDI device is recommended!

A Artic Software, PO Box 28, Waterford, WI 53185-0028.
T 001 414 534 4309.
F 001 414 534 7809.
E 74777.2745@compuserve.com

NEW EMU KEYBOARD!

News has reached us (just before we go to press, as usual) of the latest from Emu Systems, who are currently 'very excited' to be unveiling their first new keyboard product for several years. There are at present very few details about the so-called Emu EIVK, as it is not being officially launched until the Winter NAMM show in January — but as you can see from the accompanying picture, it's an Emulator keyboard in the grand old Emu tradition, and as the name indicates, it's based on Emulator IV technology.

However, Emu are keen to stress the performance aspect of the EIVK, which will possess some new features not available on the EIV rack. Amongst the newcomer's weaponry is:

- A very large library of onboard sounds, with fast access to same;
- Real-time control of sounds;
- Onboard effects.

Naturally, the EIVK is not aimed at the mass market, and therefore won't come cheap, but there are absolutely no firm signs on a price yet (or indeed anything else at present). So, for want of a better cliché — stay tuned!

BUILDING A BETTER SONG

BCK are launching the *Song Builder* range of MIDI file disks, based around Heavenly Music's renowned *Dr Beat* and *Bytes 'n' Pieces* series. BCK describe the contents of the disks as "templates", presented as MIDI files in Format 1, ready to be copied and pasted into your own songs. Song Builder Series 1 (*Bytes 'n' Pieces*) contains 91 files, many with variations, of difficult-to-program phrases for drums, brass and many other instruments. SBS11 and SBS12 (*Doctor Beat* Volumes 1 and 2) contain drum and percussion tracks. BCK suggest you use the supplied phrases like musical clip-art, to enhance your own compositions. In the past, Heavenly Music building-block files have been available only through mail order; the *Song Builder* Series will be sold through BCK's retailer network, so you should be able to find them at a music shop near you. SBS1 retails for £19.99, while SBS11 and 12 are priced at £14.99 each.

A BCK Products, Stationbridge House, Blake Hall Road, near Ongar, Essex CM5 9LN.
T 01992 524442.
F 01992 524004.

PIONEER DAT: HIGH TIME

Pioneer have launched a high sampling rate DAT recorder: the D9601 records at a jaw-dropping 96kHz, and can also record at 88.2kHz, 48kHz and 44.1kHz. The high sampling rates are achieved by doubling both tape and head drum rotation speed, and results in half the playing time of your tapes, but also a much extended frequency response — up to 44kHz, well outside the limits of human hearing. Although frequencies above 20kHz or so are technically inaudible to human ears, they do have an effect on the overall sound quality — which is why much high-end pro audio equipment works with top limits of up to 50kHz or more.

The rackmounting D9601 also features a built-in sample rate convertor, allowing 88.2kHz and 96kHz recordings to be output at 44.1kHz and 48kHz. High sampling rate recordings can be backed up digitally between two machines, and the recorder's double-speed digital audio interface is compatible with external A/D converters that can output double-speed digital audio (such as the DCS 902). Balanced XLR connectors are provided, with +4dBu or -10dBu operation. Pioneer's new machine will be available exclusively in the UK from HHB. Given the specification, the price of £1695, including VAT, doesn't seem out of order.

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

Shape of THINGS TO COME

BBC GO PRO TOOLS

The Synthesizer Company has announced that BBC Radio Resources have bought eight Digidesign ProTools III systems, running on new Power Computing Power 100 Macintosh clone computers (expect *SOS* to take a look at these shortly...). The Power Computing machines are NuBus-based machines, and a BBC spokesperson notes that they passed the BBC's 'tough mandatory' tests for all new equipment.

A TSC, 9 Hatton Street, London NW8 8PR.
T 0171 258 3454.
F 0171 262 8215.

WHERE DO THEY GET THE TIME (& SPACE)?

Time & Space just keep on keepin' on, with a spate of releases for the new year. First up is the exotic *Flamenco Sounds*, on the Zero-G label, a sample CD recorded in Spain and featuring traditional and modern Spanish rhythms and flavours played in authentic Catalan style. Respected traditional musicians such as Ketama, Tino De Geraldo and Pedro Andrea feature on the CD, which includes guitar rhythms, male cantaor and female cantaora vocals, tapping feet, castanets, shouted vocals and 'cajon' rhythms — all for £59.95 including VAT and p&p.

Also coming on the Zero-G label is *Beats 'n' the Hood*, the "ultimate beats collection" for hip-hop, swing and R&B production, available now on audio CD at £59.95 including VAT and p&p, and soon on CD-ROM. Another CD at £59.95 is *Carmichael's Crunchy Nut Loops*, a collection of grooves from drummer Jim Carmichael (of Freak Power and K-Creative fame). According to T&S, the rhythms on the CD are "encrusted with funky substance and fortified with extra compression." It's tasty, tasty, very very tasty...

Time & Space's World Wide Web site on the Internet has been active since December 1st. T&S call their site a "sonic emporium" — presumably because visitors are not only able to browse an on-line catalogue of the T&S range, but also to order, pay for and have delivered any T&S CDs (the next day). And if you can't wait even as long as that, how about downloading the sample data immediately over the net into your Mac or PC? Time & Space are also offering this facility.

You can find the T&S Web site at **http://www.timespace.com**

A Time & Space, PO Box 306, Berkhamsted HP4 2AU.
T 01442 870681.
F 01442 877266.
E sales@timespace.com
E info@timespace.com

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

SESSION 8

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 £ 2.583 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 5050
Fax: 0181 207 4572
A Harman International Company

Steinberg
steps ahead

Shape of THINGS TO COME

The telephone number of Turnkey was unfortunately printed incorrectly in last month's Synth Buyers Guide. The correct number is 0171 379 5148; the one we printed was the fax number! Apologies for any inconvenience.

A slight error crept into our School of Sound Recording item last month. Their phone number is in fact 0161 228 1830.

MCM have announced price drops for the Zoom range of processors. The 202 Player has been cut £50 down to £229.95, and the 4040 Player Pro now costs £349.95, a saving of £30.

T MCM 0171 723 7221.

If you're in the market for a mic, take a look at the Shure range, made doubly attractive by a recent price cut of around 16% on many models. Enhanced production procedures at the Shure Brothers factory in the US, plus a change in the US Dollar and Sterling exchange rate, have made these reductions possible.

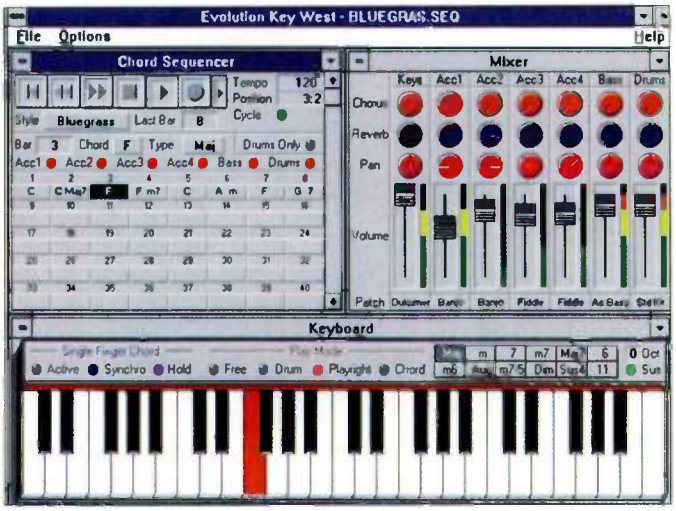
T HW International 0181 808 2222.

Roland Owners Club have scored the results of a big clear-out at Roland UK's warehouses. The club will be selling off various books, software and accessories at very nice prices: *Tentrax* MIDI sequencer for Atari ST; MT32/CM64 editor for Atari or Amiga; 2.8-inch Quick Disks; Boss BL1 Bulk Librarian; JD800 *Up & Running* book; D50 *Supplement to Manual*; JD800 patchbook. Contact ROC for full details.

A Roland Owners Club, 130 Wingfield, Orton Goldhay, Peterborough PE2 5TJ.
T 01733 233135 (10am-5pm Mon-Fri).

No 1 of Hamburg, manufacturers of the Nobels range of footpedals, rack effects, utility boxes, headphone amps, MIDI foot controllers and more, have appointed Barnes & Mullins to handle all UK distribution and promotion of their products.

T 0171 278 4631.



BEGINNERS' LUCK

Evolution Electronics' *Sound Studio* PC package of *Procyon* MIDI sequencer and *Samplitude* hard disk recording software won *PC World* magazine's runner-up award for Best Creative Software. Now Evolution is launching a complete keyboard package aimed at Windows PC users. *Music Creator* comprises a MIDI keyboard with 49 mini-keys, *Key West* chord sequencing software for Windows, a connecting cable, power supply, and Quick Start user guide. The big surprise is that the whole package retails for just £49.99 including VAT, and it will work with any MIDI PC soundcard.

System requirements for *Music Creator* are: PC running Windows 3.1 or higher, MIDI-compatible soundcard, 3.5-inch floppy drive, speakers or headphones, VGA colour graphics, DOS 5.0 or higher, a mouse, and 5Mb free hard disk space. As *SOS* went to print, news was just arriving of a similar package, entitled *Music Creator Pro*, which contains a controller keyboard with full-sized keys and a copy of the new *Evolution Audio* software. The latter is a PC sequencer which also permits two tracks of digital audio recording. For full details, contact Evolution.

A Evolution Electronics Ltd, 8 Church Square, Leighton Buzzard, Bedfordshire LU7 7AE.
T 01525 372621.
F 01525 383228.
E sales@evolution.co.uk
E http://www.evolution.co.uk (for software demo copies)

SAMM MAKES LIGHT WORK OF PROMIXING

Looking for a way to maximise the efficiency of your Yamaha ProMix 01 digital mixer? Own a Windows-equipped PC compatible? Then Innovative Quality Software's *Software Audio MIDI Mixer* could be what you're after. *SAMM* allows global control of up to 16 ProMix 01s, with all mixer functions displayed on screen. Level, pan position, mutes, dynamics, EQ, effects and so on are all controllable, programmable and recallable from within the software. Unlimited cue sequences can be built and saved, unlimited groups can be created to control all programmable mix functions, and automated or manual crossfades can be created between cues. Minimum requirements for *SAMM* are a 40MHz 386 PC with 16Mb RAM and an 800x600 256 colour monitor.

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

OFF YOUR TROLLEY

If you've ever been in the position of finding your flightcased keyboard or studio equipment hernia-inducing, the answer has arrived. Flightcase specialist CP Cases are now UK distributors for the US-built Kart-A-Bag range of luggage trolleys, designed very much with the musician in mind.

A variety of models are available, including the Concorde 5, weighing just 5kg, yet capable of toting up to 102kg of equipment. The trolley features a patented push button opening/closing mechanism, which allows it to extend to 114cm from a collapsed size of 53cm when not in use. The Kartmaster HD500 is heavier, at 18kg, but can carry up to 227kg in upright mode.

A CP Cases, Worton Hall Industrial Estate, Worton Road, Isleworth, Middx TW7 6ER.
T 0181 568 1881.
F 0181 568 1141.

THE HILLS ARE ALIVE WITH THE SOUND OF...

OLD SYNTHS

Austria might not be your first choice of destination in a hi-tech tour of the world, but Gert Prix of Klagenfurt would like to change that opinion, with the opening of Das Keyboardmuseum [*Wonder what that translates as then? — Ed*]. Not surprisingly, this institution holds over 150 classic synths and keyboards owned by Gert, plus amps, effects units and drum machines. The oldest keyboard is probably a 1937-vintage Hammond organ, and every variety of electronic keyboard produced since then is represented: modular synths, string machines, Mellotrons, vocoders, digital instruments, samplers and more. Rhodes, Moog, Korg, Yamaha, ARP and Oberheim are just a few of the manufacturers represented at the museum.

If you put aside the cost of actually getting to Austria in the first place, the price of admission isn't too steep at £6 an hour. A complete list of the collection also costs £6 (and that list includes serial numbers — I can feel my anorak going all damp). Gert notes that it is possible to take pictures, videos or audio samples during your visit. Contact him for details.

A **Das Keyboardmuseum, Gert Prix, Herbertstrasse 1, A-9020 Klagenfurt, Austria.**
T **0043 463 591365.**
F **0043 463 591365.**

AKAI SOUND MODULES: WERE WE RIGHT, OR WHAT?

As speculated exclusively in *Sound On Sound* back in November, it has been revealed that Akai *do* have a range of sound modules in the works. Available from the end of this month, all units feature 16-bit samples, some front-panel editing (with extensive editing over MIDI), 32-note polyphony, 16-part multitimbrality, a variety of reverb effects, and a price of £299 each. The range includes the following:

• SG01v Vintage Sound Module: features 256 vintage synth sounds, four oscillators, 24dB resonant low-pass filters plus multimode filters, three envelope generators, full modulation routing of controller, portamento and single trigger mode.

• SG01p Piano Sound Module: With 8Mb of multisampled stereo piano voices, this module offers 50 acoustic grand and upright pianos, electric pianos and clavinets.

• SG01k GM Sound Module: A total of 189 voices, plus 124 percussion sounds, accessible to the General MIDI standard. Further hot news from Akai regards the DR16, a 16-track version of the DR8. The DR16 shares its 'advanced component design' with Akai DD1500, and provides 16 tracks of 16-bit linear digital audio recording/ playback from a single SCSI hard disk. The DR16 also features a 16-channel programmable mixer with recording of level, two effects sends, buss on/off and fade. Recording time depends on disk size, but 12 minutes of 16-track audio should be possible from a 1Gb disk, and up to six SCSI devices can be connected. The DR16 should be available now, and the price is £3999 including VAT.

A **Akai (UK) Ltd, Haslemere Heathrow Estate, The Parkway, Hounslow, Middx TW4 6NQ.**
T **0181 897 6388.**
F **0181 759 6117.**

8TH WONDER

The chaps over at Spirit must have their eye on a productivity bonus — they're launching yet another mixer. The Spirit 8 is an 8-buss live console offering, say the company, "the professional power and performance previously the reserve of large expensive Front of House consoles."

Spirit 8 is available in 16-, 24-, 32- and 40-channel frame sizes, with mono and stereo inputs providing a maximum of 64 inputs on the 40-channel frame. The desk comes with meter bridge as standard, and has eight group busses, four mute groups and a 10x12 matrix section. Though the price of the 8 is very competitive, Spirit have maintained high quality standards, and each channel strip is designed using individual PCBs, making service or replacement simple. The new Ultramic Plus preamp offers 66dB of gain, providing 28dB of headroom in both line and mic inputs, suitable for a wide range of sound sources — and there's a mic preamp on every channel, so even the biggest bands shouldn't run short of mic inputs. Though it's designed primarily for live use, the provision of direct outs on every channel and 4-band EQ with two swept mids means that it could be used for recording if you have to make your desk do double duty. VAT-inclusive prices for the new range are as follows: 16-channel, £2995; 24-channel, £4052; 32-channel, £5110, 40-channel, £6167.

A **Spirit by Soundcraft, Cranborne House, Cranborne Industrial Estate, Cranborne Road, Potters Bar, Herts EN6 3JN.**
T **01707 665000.**
F **01707 665461.**

Shape of THINGS TO COME

Stirling Audio are launching a new preset card for the Lexicon PCM80, which turns it from a single stereo to a dual stereo processor. The Dual FX card allows each stereo output to be individually balanced, and effects can be submixed before re-routing: sounds can be fed to the reverb, and the output then routed to the chorus at a precise level and pan. The card, which costs £160 plus VAT, also offers an extra 250 presets.

T 0171 624 6000.

TMR Lists produce a range of affordable musician-friendly lists full of useful addresses, and contacts. Everything from fanzines to recording studios, rehearsal rooms and venues to detailed A&R contacts are covered in their reasonably-priced lists. Or you could buy *The List*, a budget-priced (£4) compilation of all TMR's separate lists, updated four times a year.

A TMR Lists, PO Box 3775, London SE18 3QR.

T 0181 316 4690.

Spirit's Protracker dedicated location recording mixer has found favour with PA hire company Tourtech, who are using four Protrackers to record The Levellers on their current European tour. The material recorded will be used to create a future Levellers live album. Levellers FOH engineer Mark Jones is pleased with the Protracker, finding them "easy to use... compact and rackmountable."

T Spirit by Soundcraft 01707 665000.

Distribution of the Profile Entertainments range of MIDI files has switched from Manchester Music Exchange to Suffolk's Visionary Music. The catalogue is in the process of being expanded, and Visionary's Ian Bishop comments that he's "extremely pleased" to acquire distribution rights, adding that "initial dealer reaction to the files has been very good."

T Visionary Music 01284 724611.

DA88: THAT'S THE WAY THEY LIKE IT

Tascam's DA88 features heavily in new packages and record releases this month. A DA88 forms the heart of a package supplied by Stirling Audio to producer Pete Waterman. The package is destined for Waterman's Manchester-based PWL North studio. Songwriter and producer Pierre Tubbs (see picture) has recently acquired a DA88 for his personal studio; the unit was provided by Way Out West of Twickenham. Delivery of the DA88 was just in time for Tubbs' soundtrack work on the BBC TV/J&M co-production, *Soul Survivors*. Lastly, 24 tracks of Tascam DA88 were used by ambient dance outfit Afterlife to record their eponymous debut album in their Oswestry-based studio. The project was mixed on an automated Tascam M3700 desk.

T Stirling Audio 0171 624 6000.
T Way Out West 0181 744 1040.
T TEAC 01923 819630.

DJS MIX IT UP WITH SOUNDCRAFT

Soundcraft seem to be making a habit of launching new DJ consoles at the annual PLASA (Professional Lighting and Sound Association) show — in 1994 it was the successful modular D-MIX 1000, now installed in over 490 clubs worldwide; last year's PLASA saw the first showing of the D-MIX 500. The new desk is a compact, portable, professional DJ mixer designed to appeal to club owners and DJs who want quality and flexibility from their desk.

The D-MIX 500 provides a wide variety of inputs and outputs, so if it's part of a club installation it can be used on successive nights by different DJs with different types of equipment. The five stereo and two mono input channels each have a choice of two inputs; the desk has the potential to accept up to 10 stereo inputs, three of which are RIAA equalised for turntables, and two mono mic or line inputs. All channels feature 3-band EQ plus a Super Bass Boost switch which injects a further 12dB of power at 63Hz. A flexible bussing system allows either a 'Main' mix (music sources plus mic inputs) or a 'Music' mix (music sources only) to be routed to the main stereo output and/or to three separate 'zoning' outputs; there's also an additional recording output and ample monitoring facilities. Physically, the desk has been designed to give DJs instant feedback about signal status, with a coloured LED display accompanying every main switch on the facia.

A Soundcraft Electronics Ltd, Cranborne House, Cranborne Industrial Estate, Cranborne Road, Potters Bar, Herts EN6 3JN.
T 01707 665000.
F 01707 660482.

MULTIMEDIA ALIVE AND WELL IN ESK VALLEY

Edinburgh's Jewel and Esk Valley College has added a a two-year HND in Interactive Multimedia to its curriculum. The course gives tuition in the design and development of CD-ROM, Internet and other interactive applications. Students become familiar with a variety of graphics, photo manipulation, video, audio and authoring packages, and will also receive tuition in the business side of the industry, including law and marketing. The College also offers an HNC/D in Modern Musicianship, an Advanced Diploma in Film and TV Music, and an HND in TV Production Skills.

A Music Section, Jewel & Esk Valley College, 24 Milton Road East, Edinburgh EH14 2PP.
T 0131 657 7282.
F 0131 657 2276.

ROC AND ROLAND

Roland Owners Club are organising a range of one-day courses over the coming months for several Roland instruments.

YAMAHA: FREE & EASY

Over the last few years, Yamaha have been notable amongst hi-tech music manufacturers in one particular way: they have supplied users of nearly all of their hi-tech products with some form of freebies. Whether it's Public Domain computer software editors, banks of new sounds and samples on disk or whatever, most instruments since the SY85 have had some form of support. The new QS300, reviewed exclusively in this issue of *SOS*, is no exception. The first batch of free sounds and styles have already appeared: ask your dealer when you pick up your QS300, and he should have the four-disk *Techno Set*, which offers two new voice disks, a style disk and a song disk. Also available are *TekNo*, a collection of demo songs, and *Trippy*, a PD collection of new voices.

A Yamaha Kemble Music (UK), Sherbourne Drive, Tilbrook, Milton Keynes MK7 8BL.
T 01908 369269.
F 01908 368872.

HALF PRICE HOLIDAY MADNESS FROM DIGIDESIGN!

Digidesign's special December promotion is currently in its last days: customers buying a Pro Tools III system from an authorised dealer will be sent, upon registration, one piece of software, worth up to £739 plus VAT, absolutely free. Customers can choose from *Sound Designer II*, *DINR* noise reduction software, *Masterlist CD*, *D-Verb*, *DPP1* pitch processing, or *Post Conform*.

In addition, Digidesign are offering special prices on a range of products (regular price in brackets); note VAT is extra:

- DSP Farm, offering four extra DSP chips, £999 (£1850)
- Expansion Chassis, offering 12 NuBus slots, £1037 (£1499)
- R1 hardware remote controller, £479 (£739).

These offers apply to purchases made between November 13 and December 31.

A Digidesign, Avid Technology Ltd, Westside Complex, Pinewood Studios, Iver Heath, Pinewood, Bucks SL0 0NH.
T 01753 653322.
F 01753 654999.

EDUCATION CORNER

Subjects covered should include:

- JV1080 programming.
- S750/S760 sampling.
- W30/S330/S550 sampling.
- D10/D110 and compatible programming.
- E86/E96/G800 and other sequencing and editing.

In addition, the club will be running 'Getting to Grips with MIDI' courses for beginner, intermediate and advanced users. Contact the club for possible courses with any instruments not listed, plus dates on those listed.

A Roland Owners Club, 130 Wingfield, Orton Goldhay, Peterborough PE2 5TJ.
T 01733 233135 (10am-5pm Mon-Fri).

02R COVERED IN CONFETTI

Nottingham's Confetti School of Recording Technology has taken delivery of one of the UK's first Yamaha 02R Digital Recording Consoles, as well as a Behringer MX2000 Eurodesk, both supplied by Carlsbro Retail Nottingham. The school's studio complex now has three suites equipped with Soundscape hard disk recording systems, and a main suite with Soundscape plus 24-track ADAT recording. Another classroom runs 12 Steinberg/PC multimedia workstations, courtesy of Multimedia Music of Mansfield. A prospectus is now available for the school's full- and part-time courses.

T Carlsbro Retail 01623 421187.
T Confetti 0115 924 4189.

BACK TO SCHOOL?

Founded by Sir William Glock to regenerate classical music after WWII, the Dartington International Summer School, set in the beauty of the 1000-acre Dartington estate in South Devon, attracts thousands of creative people from around the world to take part in the various one or two week-long courses during the school's five-week opening in the summer.

"People come to the Summer School from all backgrounds, nationalities and abilities. We're about nurturing a creative attitude in people, not note-bashing techniques", says Gavin Henderson, Artistic Director. True, many top classical music students attend masterclasses here with famous classical musicians and composers. But since Henderson took over the running of the course 11 years ago, he has gradually expanded the courses outwards, to incorporate non-classical music disciplines. The 1995 Summer School, for example, saw courses in African drumming, Flamenco music, jazz improvisation, music theatre, electro-acoustic composition and music for film/TV/video, on top of the usual diet of classical instrument tuition, chamber music, opera, composition, madrigal and other classical workshops.

During the 1995 electro-acoustic course, participants were sent out with a DAT recorder to record live sounds, which were then tidied up, edited, looped and layered in samplers like the Akai S3000, and a Power Mac with *Sound Designer* software. Final sequences were mixed using Session 8 or *Logic Audio*. For the 1996 electro-acoustic music course, which will be called 'Advanced Sonic Art', there will be six integrated Macintosh-based studios, sporting Pro Tools III, Sample Cell II, *Sound Designer*, *Studio Vision* and *Max*.

Stephen Deutsch, leader of the two-week Music for Film/TV/Video course, reckons that it contains essential material for MIDI-based musicians who want to get into composing film music: "I try to teach people how both film music and films work. Many film composers are as ignorant about film as film directors are about film music, so during the 1995 course I spent 2-3 hours a day showing students 14 different feature films to help them understand how film works, and what the differences between the genres are. They then get very hands-on experience in composing music for film, and see how it works after we record the music and dub it to image here in Bournemouth, using Soundscape and Optima digital video editing."

For details on the 1996 Dartington International Summer School, contact Jenny Pink at the address below. *Paul Tingen*

A Dartington Hall, Totnes, Devon TQ9 6DE.
T 01803 865988.
F 01803 868108.

Shape of THINGS TO COME

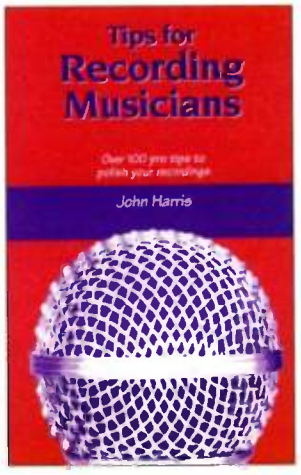
THEY SHOOT, THEY SCORE!

Steinberg have announced the release of *Cubase Score 2* for Windows PCs. The new version is a complete redesign and provides, according to Steinberg, "the most advanced integrated sequencing and scoring package on the market." New features include:

- Virtually unlimited number of tracks (depending on RAM).
- Redesigned user interface with extensive use of colour.
- On-line help on screen.
- Programmable auto-accompaniment.
- New Score module with over 230 new symbols and tools.
- MIDI processor for MIDI delay effects.
- Support for AV presentations.
- Large SMPTE/Song Position display window.
- Graphical Master Track, for drawing tempo changes.

Steinberg say that the new version of *Score* is "considerably more sophisticated than the standard *Cubase*", with powerful Logical Editing features, MIDI Mixer Maps, Auto-Quantise and Groove Quantise, and the Interactive Phrase Synthesizer. *Cubase Score 2* retails for £499 including VAT.

A The Steinberg Office, Harman Audio, PO Box 5050, Borehamwood WD6 5AN.
T 0181 207 5050.
F 0181 207 4572.



DEMO DOCTOR IN PRINT

Readers of *SOS*'s popular Demo Doctor column, as well as those who send in demos, can't fail to have benefited from the informed advice and insight of writer, musician and producer John Harris. Now John has taken the experience of years of recording and engineering and distilled it into a book, *Tips for Recording Musicians*, packed with more than 100 recording hints and techniques. The book covers the whole production process, with chapters devoted to choosing the right kind of gear, using your mixer effectively, arranging and overdubbing, recording acoustic and electric instruments, drums and vocals, good use of effects, and MIDI in the studio. There's also a chapter on a subject which baffles many a recording musician — achieving a good mix. The book is rounded off with a short glossary, and is illustrated with clear diagrams. It's 122 pages long and costs a musician-friendly £7.95, plus postage and packing of £1.50 (UK), £3.95 (Europe) or £5.50 (Rest of World). Naturally, you can buy this useful new book from *SOS* Mail Order, order number B309.

A Sound On Sound Ltd, Media House, Burrel Road, St Ives, Cambs PE17 4LE.
T 01480 461244.
F 01480 492422.

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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
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128Mb MO Drive	£399
SCSI CDR 2x speed	£1,249 Plus FREE software

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
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- Cubase/Logic or Vision & ClarisWorks

Plus FREE MIDI Interface

£1,199

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

£4,295

Audio Media Package
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- 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

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Alesis ADAT	£ 1,830
Fostex RD8 new	£ 2,550
Tascam 122MkII	£ 425
Revox B77	£ 385
Tascam MSR16 dbx	£ 3,400
Tascam DA88	£POA

Consoles

Direct-to-Disk

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

Samplers / Synths

Akai CD3000	£ 1,871
Emu EIIIxp	£ 1,386
Peavy DPMC8	£ 1,102

Telephone: 0171 240 4036 Facsimile: 0171 497 0690

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-efffects board, 'a true 4 channel fx processor' providing a range of standard fx, up to six simultaneously.

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

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

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

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

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

We have on permanent demo all of the available Modular Digital Multitracks whether it is an **ADAT**, the **Tascam DA88** or the **Fostex RD8**. Yamaha's awaited **02R** 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	£3,999
Mackie 24/8 & DA88	£POA
Soundcraft DC2000	£12,499
Soundcraft Sapphyre 28	£5,199
Yamaha 02R	£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.

Waldorf MicroWave V.2 synth	£935
Waldorf Wave synthesizer	£5,350
Waldorf 24db MiniWorks Filter	£255
Gekko Chords & Trigger	£59
MicroWave Hardware Editor	£315
Matrix 1000 Hardware Editor	£315
MicroWave Signature ROM Cards	£49
MicroWave Bass / PPG ROM Cards	£35

Manley / Langevin Clearance	
LManley Valve D.I.	£249
angevin EQP1 Pultec	£549
Langevin Dual Mic Preamp	£549
Manley Baby Valve Mic	£679
Manley Mid-Frequency EQ	£769
Manley Valve Pultec EQ	£939
Manley Ref Valve Mic	£1,299
Manley EL01 Opto Limiter	£1,499

All prices exclude VAT, E&OE

Kurzweil K2600	£ 1,446
Roland JV1000	£POA
Roland MKS70	£ 591
Microphones	
Manley Valve Mic inc	£899
Manley Reference Valve Mic	£1,499
Langevin CR3A NEW	£ 315
Neumann KM86	£POA
Neumann TLM193	£POA
Audio Technica 4033	£POA

DAT	
Sony DTC-690	£ 716
Sony DTC-60	£ 510
Tascam DA-30 mk. II	£ 350
Sony PCM2300	£ 750
Computers	
OpCode Studio 5	£ 330
MOTU MTP II	£POA
JL Cooper CS1	£ 425

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Outboard	
Manley Pultec EQ NEW	£ 1,361
Manley Lim new	£ 1,875
Langevin mcpre+EQ	£ 1,099
Langevin dual E/D Lim	£ 1,148
Drawmer DS201	£ 254
Roland SDE330	£ 467
Sony MP5 new	£ 382

Lexicon PCM60	£1,800
Lexicon LXF15 Mk II	£POA
Massenburg GML EQ	£POA
SSL G383FX new	£ 2,382
SPL Vitalizer Stereo	£ 498
Behringer Composer	£ 229
Analog	
Deep Bass Nine	£ 212
Prophet VS keyboard	£ 1,191
Oberheim Matrix 1000	£315

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8 & 16 Track

TASCAM 238S + MMC100 + SPIRIT Folio Rac Pac

INCLUDES MMC100 INTERFACE

The 238S is based on the transport of the £1000 plus 122 pro mastering machine and with the addition of the ground breaking Dolby S noise reduction gives superb recordings time after time. Other features include record all 8 tracks at once, shuttle control, large bar-graph meters, digital counters, auto punch in/out. Soundcraft's Rac Pac makes the ideal partner for the 238S and offers a highly flexible all-in-one rackmountable 8 track recording package.

With up to 28 inputs at mixdown, 3 band mid-sweep EQ, great audio performance, four true sub-groups and 6 auxiliary sends, the Rac Pac can cope with a wide range of recording environments and has plenty of room for expansion. Our offer also includes the MMC100, which enables the reception of standard MIDI Machine Control (ie control and synchronisation direct from Cubase etc...) and 2 8-way looms. Very limited stocks - order now to avoid disappointment !

PRICE CRASH RRP £2997 **£1599** NEW BOXED

DIGITAL 8 TRACKS

LARGE STOCKS

We will not be beaten on price. Akai, Fostex, Tascam and Alesis all in stock and on demonstration.

SOUNDCRAFT SAPPHYRE 28 DEM £6995

XRI SYSTEMS

XR300 EXCLUSIVE

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

RRP £299 **£159** NEW BOXED

SPIRIT STUDIO & AUTO

SPIRIT & ADAT PACKAGES

SPIRIT STUDIO 16 + ADAT	£3199
SPIRIT STUDIO 24 + ADAT	£3499
SPIRIT STUDIO 32+ ADAT	£3999

JLCOOPER CUEPOINT

Acts as a full function remote for ADAT and many other machines including multi-locate points, MMC synchronisation (no ADAT tracks lost) etc. £2399 with ADAT or £329 with SPIRIT packages

RRP £948 **£379** NEW BOXED

EMU "DARWIN"

INC. 1GIG HD

8-track stand-along random access recorder that features jog/shuttle, MIDI Machine Control and MIDI Time Code, S/PDIF as standard as well as 4-in, 8-out balanced connectors. Options include ADAT digital interface, SCSI port for computer hook-up, sync card for additional units, 4 extra analog ins etc..

NEW "DARWIN" **£3199** INC. 1GIG HD

Mastering

SONY TCD07

DAT PRICE CRASH

Another unbelievable deal on the only reasonably priced portable on the market making it the cheapest DAT available anywhere. Ultra compact but sturdily built, includes back-lit display, long play mode, carrying case and mic/line inputs. Buy now while stocks last!

LAST UNITS **£649** NEW BOXED

DIGICON SCMS STRIPPER

FACTORY DIRECT

Only £98 if bought with any new DAT machine

Remove the SCMS code from a digital signal : you to make as many digital copies as you like. Co-axial and optical connections - can also be used to transfer from one to the other, ie your machine with only an optical out can now have a co-axial out etc... LEDs indicate the current signal status and also show any digital errors off tape. 9v battery allows use with portable machines.

SPECIAL **£129** NEW BOXED

PHILLIPS DCC951

18 BIT

DCC now has 18 bit sampling at 48 kHz with advanced data reduction techniques. The DCC951 is a full-size machine in a sturdily built case. It features Philips new Turbo drive high speed mechanism, title recording, full indexing & location facilities, SP/DIF ins and outs, full remote, plays analog cassettes with Dolby B & C noise reduction, auto-level optimisation and microphone input. Portable DCC170 also available at £249. Unbelievable deals exclusive to Turnkey. Sound-on-Sound say

"Digital compression makes little or no subjective difference to the recorded result. In fact recordings sound frighteningly similar to DAT" ..... Check one out today!

RRP £349 **£249** NEW BOXED

OPTICAL LEADS ONLY £24.95

FOSTEX D5

DAT PRICE CRASH

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

RRP £1298 **£869** NEW BOXED

Fostex D-10	£POA
Fostex D5	£999
Fostex PD4	£5049
Tascam DA30 Mk2	£POA
Sony DTC-A8	£829
Phillips DCC170	£249
Tascam DA20	£POA
Fostex D5	£899

Deal of the Year!

YAMAHA VL1m & VL7

EXCLUSIVE DEAL OF THE YEAR !!!!

Whilst we've always been well known for bringing you exclusive deals at knock-down prices, this is definitely the deal of the year!

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

Physical modelling takes a completely different approach to sound reproduction than any previous method. Rather than begin with inflexible samples or a simple oscillator, extremely powerful DSP chips emulate in real time characteristics of real instruments such as tube/string length, damping, absorbtion, lip/bow pressure, throat characteristics, tonguing and many others.

Once the basic (or not so basic !) sound has been created, it can then be passed through a powerful multi-mode filter section with resonance, harmonic enhancer, impulse expander, resonator and five-band fully parametric EQ with key-scaling abilities.

Finally, a 32 bit effects section based on Yamaha's top of the line SPX1000 unit provides up to 3 simultaneous effects processors,capable of flanging, pitch-shifting, reverb, delay, distortion etc ..

If acoustic simulations aren't your thing, then imagine the virtually limitless palette of synthetic sounds the VL series can produce, in fact we have commissioned top programmers at Yamaha's R&D department to produce a "Dance and Techno" sound set which we're giving away with the units (these load via the built-in 3.5" disk drive).

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

These prices represent 60% and 65% discounts from the RRP and offer a once in a lifetime opportunity to own a classic synth with real character. We have strictly limited quantities of the last ever units and orders will be fulfilled on a first-come, first-served basis. Buy now to avoid disappointment !

VL-7 RRP £2448 **£849** WITH FREE BREATH CTRL + EXPR PEDAL

VL-1m RRP £2399 **£949** NEW BOXED

MIDI Hardware

DEEP BASS 9

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The only authentic sounding TB303 clone. 1U rack with 1 knob per function, all the sound controls of the 303 are duplicated, filter cutoff, accent and glide all controllable over MIDI. Audio input allows treatment of external signals by the filter etc, and CV / gate in / out also means it can be used as a MIDI - CV convertor. The ultimate analog bass machine - this unbelievable price on the end of the line means units will sell out very quickly.

FACTORY DIRECT RRP £499 **£249** NEW BOXED

OBERHEIM MATRIX 1000 EXCLUSIVE

Now almost 10 years old, and still sounding as fresh as the day it was released. The Matrix 1000 is essentially a Matrix-6 in a rack - 6 note polyphonic, 2 oscillators per voice, true analog VCF filters with 8 modes, "Matrix™" modulation with 20 sources and 32 destinations, raw gutsy analog sounds. Why 1000? The 1000 presets were generated by Matrix6 owners worldwide in reponse to a competition to find the best analog sounds on the planet. You're sure to find the perfect patch for virtually any application. Group mode allows chaining of up to 6 units to create a true monster! Fully editable via MIDI, Mac, PC or Atari editor (available for only £49)

FACTORY DIRECT RRP £899 **£369** NEW BOXED

MARION

PRO SYNTH BY TOM OBERHEIM

This new machine, designed by Tom Oberheim, uses the technology of the much acclaimed Marion Systems MSR-2 Modular Synthesizer, but priced substantially lower. Classic Analog sound, 400 patches, 8 part multi-timbral, resonant 2 or 4 pole VCF filters, voltage controlled panning, extensive matrix modulation. Tom reckons this sounds better than a Matrix 12! Call us now for further details or to get your order in - initial stocks limited.

"The Marion is such an expressive synth that even an absolute beginner will be programming up killer patches in no time" • *"The sounds themselves are amazing"* • *"To hear the full throated roar of an analogue synth with no unstable tunings is a delight"* • *"Editing is a breeze"* • *"This could be the only box you'll ever need to produce some of the most stunningly original sounds around"* - *Mix Review, June 1995.*

FACTORY DIRECT EXCLUSIVE **£699** NEW BOXED

WALDORF MICROWAVE

TURNKEY FACTORY DIRECT EXCLUSIVE

The Waldorf Microwave has genuine analog synthesis including resonant filters. It has 16 oscillators, 8 part multi-timbrality and 6 individual outputs. Sweep through up to 64 different waves, controlled by LFOs, envelopes etc. Devastating bass, totally unique sound ! Also available on a trial basis, please enquire.- once you've tried this, you won't want to go back !

SPECIAL **£1099** NEW BOXED

ACCESS PROGRAMMER

FOR MATRIX 1000 OR MICROWAVE

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

SCOOP EXCLUSIVE **£369** NEW BOXED

YAMAHA RM50

DRUM MODULE

The ultimate drum module - over 1000 sounds. 16 part multi-timbral - spread a single sound across the keyboard. Full synthesis including resonant filters. 5 MIDI controllers per channel assignable to pan, filter, balance, decay, pitch etc. . velocity cross-fading, 8 outputs, 6 trigger inputs, ground-breaking MIDI sample dump option (only £99 if ordered with RM50), unbelievable spec, mind-blowing sound quality, ridiculous price. Hurry ! Hurry ! Hurry !

SPECIAL **£349** NEW BOXED

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Features the sound generation engine of the W7 and W5. 16 part multi-timbrality, 32 note polyphony, 456 voices + 9 drum kits, huge display allows full editting of resonant filter etc from front panel. 3 high-quality effects simultaneously from a vast selection. Also General MIDI compatible, stereo audio inputs, built-in Mac/fast PC interface. Includes full-blown computer editor for your choice of Mac/PC/Atari.

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YAMAHA QY300

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The QY300 is not only Yamaha's top of the range song writing box in the same vein as the QY10 and 20 etc, but is also a fully fledged 16 track, 53,000 note sequencer with built-in disk drive (which loads and saves standard MIDI files on DOS format disks). The General MIDI compatible sound set is similar to the W7 keyboard, with 64 note polyphony and 24 multi-timbral parts, and of course includes reverb and effects processing.

In addition to the 16 track sequencer, there are also 8 pattern tracks, which can be filled with a vast range of licks, riffs, and drum patterns already built in. The chord and tempo tracks mean that these will automatically follow all your chord and tempo changes. The huge LCD display and intuitive user interface make the machine very quick to work with and ideal for both song-writing and live use. Song mode, pattern mode and phrase mode allow complete flexibility in song construction and chain mode allows songs to be automatically playlisted. Bulk purchase on end of line brings you this huge discount, these will sell out very quickly

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64 note polyphonic. Uses the same operating system as the E-IV (new version includes around 15 different filter types). 16 part multi-timbral, 8 balanced outputs, SIMM memory, 2 SCSI ports. AES/EBU and SP/DIF digi I/Os.

VISCOUNT RD70/RD800

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RD70. Records straight from your sequencer or plays back type 0 and 1 MIDI files from DD or HD MS-DOS disks (from 1040STE, PC and Mac). Programmable playback similar to top CD players. Internal or external sync, footswitch start/stop. Uses direct to disk storage for very large note capacity. Stores SysEx dumps. RD800 - as RD70 but with 1 Meg (expandable to 4) of battery-backed up memory giving you instant song play, no break between songs. Instant loading, channel mute, tempo change, transpose stored with song.

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IDEAL ENTRY-LEVEL MIDI CONTROLLER KEYBOARD

Compact touch sensitive master keyboard offering full control over pitch bend and mod, data slider assignable to reverb, pan or any controller, sustain pedal input, transpose over 2 octave range, send patch & bank change messages. Check out our unique package prices with these modules :

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LIMITED QUANTITY

It would be difficult to design a better drum-machine than the R8 Mk2 - 200 on-board 16 bit sounds including the essential 808 and 909 sounds, plus extra sounds available on cards. 16 Velocity and aftertouch pads, extensive "human rhythm" programming facilities such as tune, nuance, decay time etc. . 10 separate outputs, tape sync, large display with very easy user-interface. This flagship machine is now too expensive to make - snap one up while they're still around !

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128 SEPARATE MIDI CHANNELS

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ROLAND
PC 200-II keyboard
IDEAL ENTRY-LEVEL MIDI CONTROLLER KEYBOARD

Compact touch sensitive master keyboard offering full control over pitch bend and mod, data slider assignable to reverb, pan or any controller, sustain pedal input, transpose over 2 octave range, send patch & bank change messages. Check out our unique package prices with these modules :

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V22	V44	VP11	V24S
£99 NEW BOXED	£199 NEW BOXED	£115 NEW BOXED	£249 NEW BOXED

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KEY MP128X parallel	£176	SoundBlaster compatible	
MQ Natin'1 parallel	£99	MIDI adapter kit	£29

Yamaha Sound Edge £179

YAMAHA CBXT3
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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 money saver is the built-in MIDI interface for Mac or fast PC, which works via the computer serial port (cable included). The package also includes Steinberg's famous Cubase Lite (PC version) free, to get you off 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 with your MIDI synth keyboard or Master Keyboard 1st come first served!

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The UK 4 track Centre

THE turnkey 4-TRACK PACK

Our famous 4 track pack includes everything you need to start making music. Sennheiser 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, mixdown etc... with sections of everything from mic placement to synchronisation and MIDI. We've obtained some great 4 track pricing AND for a limited period we will give you the 4 track pack (normal price £59.95) absolutely free with the units featured herein

TASCAM
424 PortaStudio
INC 4 TRACK PACK

Another great machine from the makers of the Portastudio. Double speed, EQ on each channel, built-in dbx, 4 channel metering system and many other features. Bulk purchase of non-CE marked stock brings you this unbelievable reduction. Price will go up again soon

RRP £599 £399 NEW BOXED

FOSTEX
280 Multi-tracker
INC 4 TRACK PACK

We have secured the last ever units at an unbelievable price. Features include 8 channel mixer, high speed Dolby C transport, optional MTC1 computer synchroniser (gives MIDI machine control from Cubase etc.), flexible 3 band mid-sweep EQ, digital 4 digit counter, autolocate and rehearsal mode. These will sell out very quickly !

RRP £699 £449 NEW BOXED

FOSTEX
3805 Multi-tracker
INC 4 TRACK PACK

The Rolls Royce of four tracks. The Fostex 380S features Dolby's incredible 'S' noise reduction, 4 mono channels, with 2 auxiliary sends, 3 band mid sweep EQ, and mic input capability, plus another 4 stereo channels with 2 auxiliary sends and faders, and a further 2 stereo effect returns. 2 insert points are provided as are a fully logic controlled transport with auto locate points and rehearsal mode, digital counter and bargraph meter display, 2 speeds, individual track outputs, and of course recording on all four tracks at once. Strictly limited quantities, buy now to avoid disappointment !

RRP £799 £599 NEW BOXED

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only £199
INC 4 TRACK PACK

FOSTEX
XR-3Multi-tracker
INC 4 TRACK PACK

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

NEW PRODUCT £249 NEW BOXED

FOSTEX
XR5 Personal Studio
INC 4 TRACK PACK

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

RRP £420 £335 NEW BOXED

TASCAM
Porta07 PortaStudio
INC 4 TRACK PACK

A fantastic new machine from the makers of the Portastudio. Double speed, EQ on each channel built-in dbx, 4 channel metering system

RRP £399 £339 NEW BOXED

NEW Fostex XR7 + 4 track pack	£449
NEW Yamaha MT8X+ 4 track pack	£899
NEW Tascam 488 II + 4 track pack	£1149
NEW Yamaha MT4X + 4 track pack	£499
NEW Yamaha MT50 + 4 track pack	£349

FOSTEX
DMT-8 digital multitracker
INC 4 TRACK PACK

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 8 channel mixer accepts up to 4 mics, 2 band EQ and 2 aux sends. Separate outputs and S/PDIF optical output.

NEW PRODUCT £1499 NEW BOXED

Effects

VISCOUNT
EFX1 Studio Multi-effects
HALF RACKMOUNT EFFECTS

16 bit stereo in/out, large display, 95 dB dynamic range, MIDI control. Excellent sound quality, shimmering reverbs, fully editable, 6 effects at once. Reverb, chorus, phasing, flange, delay, distortion, pitch-shift ±2octaves, compressor, noise suppressor.

FACTORY DIRECT RRP £299 £199 NEW BOXED

VISCOUNT
EFX10 Studio Multi-effects
HALF RACKMOUNT EFFECTS

We've just received news of Viscount's entry into the fully professional effects market. The unit features audiophile sound quality delivered by 24 bit processors with 128x over-sampling. Delta / Sigma convertors. True stereo. -20/+4 dB connections. Realtime MIDI control, large backlit display, huge range of effects including reverbs, delays, chorus, flanging, pitch-shift, wah, phasing, leslie simulations, etc... The exact price has yet to be confirmed when going to press, but needless to say, will be extremely competitive - call for further details

FACTORY DIRECT NEW PRODUCT £POA NEW BOXED

BOSS SE70
Multi-effects processor
16 SIMULTANEOUS EFFECTS !

Roland's best ever selling effects unit is now too expensive to make. Just check out this features list : Up to 16 simultaneous effects. 35 effect types and 45 algorithms. True stereo, or 2 mono ins and outs - the only unit on the market with a genuine vocoder (2 different algorithms, 21 bands). Input switchable -20/+4 dB, 16 x oversampling, 23k bandwidth, very extensive programming capabilities via large 2 x 16 backlit display, 4 simultaneous MIDI controllers. All the usual reverbs and other effects plus amp simulation, 12 voice pitch-shifting, ring modulation, rotary speaker, enhancer, de-esser, vocal canceller, hum canceller and sampler. Ideal for studio users and guitarists alike. Order now to avoid disappointment

RRP £699 £399 NEW BOXED

LA AUDIO DEALS
EFX2 Studio Multi-effects

CX2 : Dual Compressor Limiter De-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 filters, single-ended noise reduction, half-band compression, 4 ins and outs
RRP £349. MegaDeal £299!

4C : 4 channel multi band compressor / limiter de-esser
RRP £399. MegaDeal £349!

4G : 4 channel gate filter and single-ended noise reduction
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ROLAND
SRV330 and SDE330
DIMENSIONAL SPACE EFFECTS PROCESSORS

These incredible units from Roland use the technology from their £24,000 RSS system. As well as being ultra high quality, regular effects units (30 bit processing is employed!) The 3D technology allows early reflections (SRV330) to be realistically placed and delays and choruses (SDE330) to surround you in a 360° circle, and synchronised to MIDI. True stereo processing +4 / -20 dB ins/outs, a wealth of editing facilities and exceptionally quiet performance make these an unmissable buy. Very limited quantities at this price

RRP £999 £599 NEW BOXED

SPL STEREO VITALIZER
BULK PURCHASE

The Vitalizer is the Rolls Royce of enhancer / exciter processors. Using a significantly different process to other such products, the effect deals with the full frequency range and is substantially smoother and richer. Also included is a "surround" effect which varies the width of the stereo field. massive bulk purchase allows this unbelievable price - check one out now - we guarantee you'll be impressed.

RRP £599 £349 NEW BOXED

STUDIO HARDWARE

FOLIO RACPAC
Rack mixers by Soundcraft
NEW LOW PRICE

This excellent addition to the Folio range is a sure-fire winner combining superb sound quality with a fantastic list of features : 3 Band EQ with Mid sweep, 6 auxiliary sends, high-pass filters rackmountable (includes swivelling connector field) up to 28 inputs on mixdown, 4 true sub-groups plus separate mix bus, insert points and direct outs on every channel. STOP PRESS. Tremendous reduction

RRP £899 £699 NEW BOXED

LANGEVIN CR3A
Cardiod Condensor Mic
FACTORY DIRECT

The CR-3A is a professional quality large diaphragm cardiod condenser mic, hand-built in the USA by Manley Laboratories and has a beautiful and flattering tone on vocals and a wide range of other instruments. Switchable 10 dB pad and high-pass roll-off filter, comes with shock-mount, case and pop-shield

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 £349

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ABSOLUTE 2
Studio Monitors by SPIRIT
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FLYING OUT OF THE DOOR

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SPIRIT FOLIO
Small mixers by Soundcraft
AVAILABLE IN 10 or 12 CHANNELS

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SPIRIT
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R.R.P. £1299. £CALL

Another winner from Soundcraft, their first entry into the powered mixer market is sure to be a success. Based around the well-known Folio 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 Hisys2	£1699
Powerstation + 2 x JBL M330	£1999
Powerstation + 2 x Bose 802	£2299

Add 4 SM58s + stands, spiker stands and cables for £499 !

DJ PRODUCER

GEMINI GMX2
Entry-level DJ mixer
SPECIAL OFFER

Massive saving on this pro-mixer features including 2 long-throw pro line faders. Replaceable cross-fader. LED channel displays for left and right signals. Inputs switchable from line/CD to phono levels. Balanced microphone input with separate fader. Also includes variable echo for the mic signal

DJ STARTER PACKAGE
£399 : GMX2 mixer, 2 x BJ1900 decks, free stanton carts & audio technica £50 headphones

RRP £199 £99 NEW BOXED

WRH

Rac Pac MEGA DEALS

£699
RRP ~~£999~~

SPIRIT FOLIO RAC PAC plus your choice of £100 worth of cables.

The best seller in the Folio range is sure to move faster than ever at these incredible prices ! It combines superb sound quality with a fantastic list of features : 3 Band EQ with Mid sweep, 6 auxiliary sends, high-pass filters, rackmountable (includes swivelling connector field) up to 28 inputs at mixdown, 4 true sub-groups plus separate mix bus, insert points and direct outs on every channel !

SPIRIT FOLIO RAC PAC plus Tascam 238S plus MMC100 synchroniser plus looms **£1599**
RRP ~~£2997~~

SPIRIT FOLIO RAC PAC plus Absolute 2 studio monitors + Omniphonics footprint studio amp + speaker and amp cables **£1099**
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E-MU
- Darwin **£2899** INC VAT

1 GIG
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16 TRACK
- 2 x Darwins + sync card + 2 x 1 Gig internal hard disks **£6399** INC VAT

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Rogers LS1

Nearfield Monitors

When PAUL WHITE heard that Rogers had built the LS1 low-cost monitors for home studio use, he was keen to try them out. But could they deliver Rogers' quality at such a low price?

Rogers have a long history of building loudspeakers both for hi-fi and for pro audio applications, but this is the first time, to my knowledge, that they've set out to target the budget home studio market. At under £150, the LS1s are relatively inexpensive, yet are well engineered and are designed to present an accurate sound, the main compromises being in signal level and bass extension rather than in quality.

DESIGN

Housed in compact 300x195x195mm high-density particle board cabinets with a simulated black veneer finish, the LS1s are made up of a passive, 2-way ported system featuring a 125mm bass/mid unit and a 19mm soft-domed tweeter with Ferrofluid cooling. Obviously you don't expect hand-built drivers on a system of this price, but the bass/mid unit is still substantial with a pressed steel basket and a high flux magnetic system. The damped paper diaphragm is supported in a roll rubber surround and the crossover, which operates at 3kHz, is fixed directly to the driver terminals, ostensibly to minimise internal wiring.

The front baffle has rounded edges which must help reduce cabinet edge diffraction, and the removable grille fits flush into the baffle rather than being fitted in front of it. Connection to the speakers is via nickel-plated brass binding posts, which also accept banana plugs, and the nominal impedance is 6Ω, which means that you really need to use an amplifier that's capable of working down to 4Ω or less.

PERFORMANCE

Sensitivity is usually sacrificed to a greater or lesser extent whenever a small cabinet size is part of the equation, but the LS1s manage 87dB for 2.83V at 1 metre, which, although on the low side, is still quite respectable. Rated at 75W of unclipped music signal, the speakers are best driven from an amplifier rated at between 50 and 100 Watts per channel, although the manufacturers suggest that you can get away with as little as 15 Watts per channel if you don't intend to run at high SPLs. The maximum rated SPL is 99dB at a listening distance of 2m, and as most nearfields are used closer than this, level shouldn't be a problem. The recommended maximum continuous monitoring level to avoid hearing damage is around 90dB — just to put things into perspective.

Bass response, of rather lack of it, tends to be a problem with compact speaker systems, although in practical terms, a speaker with a modest bass response will generally sound more accurate in an untreated room than a full-range monitor which manages to excite all the unwanted bass resonances and room modes. Rogers' LS1s have a response extending from 75Hz to 20kHz within +/- 3dB, and although you don't get any really deep bass from them, you still get a punchy sound that is in no way small or thin. Again, as a guide, the main punch of a bass drum usually occurs at around 80Hz. In a typical domestic room, music reproduced via the LS1s at a moderate listening level is assertive and solid, but without being boomy. I set the speakers up on stands a few inches from the wall as recommended by the handbook, but those wanting a little more bass can always put the speakers closer to the wall to capitalise on the boundary effect.

CONCLUSION

Overall, the speakers have no obvious vices, although I get the impression that they are voiced slightly on the bright side of neutral. When you consider that most of the currently popular nearfield monitors are even brighter, especially those of Japanese origin, it's possible that a small amount of spectral tailoring has been introduced to make the LS1s more acceptable to a marketplace brought up on forward-sounding monitors. Even so, I didn't find the LS1s overly aggressive-sounding, and the slight top lift makes them very revealing of detail and subtle distortions. The stereo imaging is good, and I found there was plenty of level when working in the nearfield.

Although I wouldn't recommend any small monitor as the sole monitoring reference in a studio producing dance music, or any other kind of music with a significant low bass component, I'd feel quite happy mixing pop, rock or electronic music on these little speakers. They are very revealing of fine detail, their tonality is reasonably neutral (other than a slight proclivity for brightness), and the overall sound is natural and confident.

In the larger studio, the LS1s would make fine secondary reference speakers, and even though they aren't magnetically screened, I think they'd be well suited to applications such as computer music and digital editing work providing they are not mounted too close to a VDU. At the asking price, the LS1s offer that rare combination of good value and quality. SOS

ROGERS LS1 NEARFIELD MONITORS £149

PROS
- Compact and affordable
- Solid, detailed sound.

CONS
- Slightly bright voicing.

SUMMARY
A good choice for the home studio owner, or for professional nearfield and edit suite applications.

FURTHER INFORMATION

£ £149 inc VAT per pair.
A Rogers International UK Ltd, Unit 3 Commonside East, Mitcham, Surrey, CR4 1HX.
T 0181 640 2172.
F 0181 685 9496.

Audio Technica ATM33a & ATM10a

Artiste Series Back-Electret Mics

Can these two low-cost back-electret mics really deliver studio-quality performance? PAUL WHITE finds out.

Audio Technica are definitely in the big league when it comes to microphones and I think it's fair to say they're one of the few Japanese companies to have achieved the same 'solid' image as the top European and American mic manufacturers. This success can, in the main, be credited to the AT4033 studio mic, and more recently to the AT4050 multi-pattern studio mic, but what may be less well known is that Audio Technica also build relatively low-cost back-electret mics such as the two under review here.

The ATM33a is a cardioid back-electret mic that can be operated either from a single AA battery or conventional phantom power, and the ATM10a is in many ways similar, but has an omni pickup pattern. Both mics are part of the Artiste Series, and as the name suggests, they are rugged enough for live performance, but their extended frequency response suggests that they might also be useful in studio applications where dynamic mics often have insufficient high-end sensitivity.

These mics utilise very thin, gold-vaporised diaphragms, much as in conventional capacitor mics, and while they are not as sensitive as most true capacitor models, they are rather more so than typical dynamic models, generating 6.3mV ref 1V at 1Pa when used with phantom power and 5.6mV when run from battery.

Physically, the mics are slim yet very solid, rather like Maglite torches, and they come with a stand clip and soft carrying case. There are no on/off or pad switches, and the only significant cosmetic difference between the two is that the cardioid model has side grilles on the capsule to allow the porting to work, which results in it being slightly longer. The capsule itself is held in a reasonably effective shockmount which helps minimise handling noise in a live environment, and the lower section of the body unscrews to reveal the battery compartment. Connection is via a conventionally wired XLR.

The frequency response of these mics is nominally flat with a slight presence lift above 5kHz, and an upper limit of 20kHz for the cardioid model and 18kHz for the omni. As dictated by the physics of microphone design, the cardioid model exhibits a proximity effect, which causes a rise in the bass response if the mic is used very close to the sound source. Omni models do not have this characteristic. The lower frequency limit is between 20 and 30Hz, a range in which popping is likely, and although foam pop shields are provided, they are only really adequate for stage work, so I would recommend that separate pop shields are used in the studio.

TESTING TIMES

These mics are adequately sensitive for most close-miking jobs and have a good enough HF response to do justice to acoustic guitars, cymbals and so on. Tonally, the sound is subjectively uncoloured, and although the top-end detail is no doubt enhanced by the deliberate presence peak, this doesn't extend far enough down the spectrum to introduce any harshness.

For comparison I dug out my faithful AKG C1000S (which has given me many years of stirling service), and did a straight A/B test. Surprisingly, the ATs were more sensitive by several dBs, but it is possible that my old C1000S is feeling its age now. Tonally, the ATM33a is very solid and warm when used fairly close up, but has slightly more 'cut' than the C1000S, presumably because of its presence characteristics. I was actually very happy with its balance of warmth and detail.

By comparison, the ATM10a sounded decidedly less warm — but I then realised that the difference was almost entirely due to the lack of proximity effect. Used at a distance of a couple of feet, the two AT mics sounded reasonably similar, but as I moved closer to the sound source, the cardioid gradually took on more warmth, while the omni sounded far more consistent.

The ATM33a.

OMNI OR CARDIOID?

Most users will probably find the cardioid model most versatile as it will help maintain separation in a small studio, as well as add warmth to close-miked vocals. However, omnis are useful as drum overheads, or in applications where the sound source is relatively wide, as may be the case when recording a choir or ensemble with a spaced stereo pair. The main benefit of an omni mic is that off-axis sounds are generally captured more accurately than they are with a cardioid model.

The ATM10a.

SUMMARY

Given the low cost and overall sound quality of these mics, they can be highly recommended for both studio and live performance applications, as well as for live recording. The signal-to-noise spec of 70dB is very respectable, and the build-quality of the mics is excellent — they are both elegant and tough. Having the choice of battery or phantom power use may be a deciding factor for those working with cassette multitrack systems that don't provide phantom powering, and those of you with non-standard phantom powering systems will be pleased to note that these mics will work happily right down to 9V. The battery life of a premium alkaline battery is in excess of 1200 hours, but as no switch is provided, the battery is effectively on all the time, giving a practical life of around seven weeks unless it is removed between sessions.

Is there a catch? If anything, the ATM33a and ATM10a fall slightly short in the dynamic range department; the figure is 113dB, or 99dB when powered from batteries, so these are not the ideal mics for close miking drums or for sticking down loud brass instruments. In all other applications they should be able to cope admirably, and a pair of either would make good drum overheads (although I'd be inclined to use phantom power in this case, just to make sure I had enough dynamic range in hand). Given that these mics cost about the same as a typical dynamic stage mic, they have to be considered excellent value. They might not sound as refined as a top-end studio mic, but you might be surprised at just how close they get. SOS

AUDIO TECHNICA ATM33A £150 & ATM10A £120

PROS

- Low cost.
- Excellent standard of construction.
- Well-balanced sound.
- Battery or phantom power operation.

CONS

- Dynamic range may be too low for close drum work, especially when battery operated.

SUMMARY

These are very cost-effective, general-purpose mics that have a nice vocal tonality as well as the necessary HF response to do justice to acoustic instruments.

FURTHER INFORMATION

£ ATM33a £149.95; ATM10a £119.95. Prices include VAT.

A Audio Technica, Technica House, Royal London Industrial Estate, Old Lane, Leeds, LS11 8AG.

T 0113 277 1441.

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Fita Live

Single-Channel Parametric EQ

Where equalisers are concerned, quality is more important than quantity, but does this Swiss-made equaliser justify its hefty price tag? PAUL WHITE finds out.

Parametric equalisers are still the most flexible of all hardware equaliser types, but unless you have a seriously up-market mixer, the probability is that you'll have to use an outboard unit. Some mixers offer a single band of parametric EQ, but you really need two or three if you're going to get stuck into any serious sound shaping.

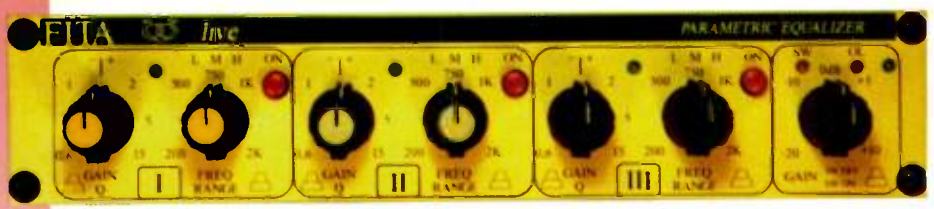
NO MEAN FITA?

The Fita equaliser under review here doesn't exactly come supplied with a surfeit of documentation. There's no circuit diagram to tell you what's in the box, just a features list and a spec sheet. The unit is evidently intended for live applications as well as for studio use — each of the three parametric EQ sections can be bypassed via front panel buttons as usual, but in addition, a footswitching system enables the bypass switches to be activated remotely to provide a master bypass function. No audio passes through the switches so I must assume some form of VCA or FET switching is used. There are also two gain potentiometers linked to the footswitch, so that you can match the EQ'd and bypass signal levels.

The Fita EQ is a single-channel, half-rack processor and comprises three identical EQ sections, each of which has a range of 17Hz to 20kHz divided into three switchable ranges. Concentric pots/switches are used to save panel space and the maximum cut/boost range is 15dB with a Q variable from 0.5 to 15. Each section has its own bypass switch and status LED, with further LEDs being used to indicate the footswitch status and signal overload. Power comes from a 2-pin mains adaptor that requires a shaver-type adaptor before you can plug it in, and unusually for a pro audio device such as this, the input and output are on unbalanced jacks. A further jack provides connection for a conventional footswitch.

Although few circuit details are provided, a glance inside the box reveals an all solid-state, inductorless filter topography based around standard op-amps with the addition of a few logic circuits to handle the switching. The bypass switches on this unit have a momentary action, rather like the transport buttons on a modern cassette deck, and a battery back-up system is used to ensure that the system 'remembers' the switch settings that were being used when it was last switched off. Everything is mounted on a single glass fibre circuit board, and the overall standard of construction is good.

I have to admit to finding the styling of this equaliser a little bland, but everything is clearly labelled with adequate room between the controls. Rack adaptors are available for those wishing to mount two units side by side.



IN USE

Tested with a variety of instrumental and vocal material, the Fita EQ proved to be both flexible and tonally precise. It seemed to have plenty of headroom to accommodate more extreme levels of boost, but if pushed, I'd say it was an accurate, workmanlike EQ rather than something you'd buy to add its own character to a sound. While I couldn't fault the unit for its performance, I don't see why it is so expensive — other than the fact the Swiss earn a lot more money than we do! The circuit design may be good, but the components look pretty standard with the possible exception of the controls, and as far as pro users are concerned, the lack of balanced connections plus the dreaded wall-wart power supply is bound to be offputting. On a per channel basis, the Fita parametric EQ costs around the same, or even more, than you'd pay for a serious valve model, and given that you can buy perfectly competent 2-channel, solid-state parametric units for significantly less money than this, I really don't see many takers in the UK. I must reiterate that this is actually a very good equaliser, but other than the footswitch option, it doesn't have a unique selling point, and in this price range, I feel it desperately needs one. SOS

FITA PARAMETRIC EQ £700

PROS
- A well-designed, fine-sounding equaliser.
- Footswitching option useful for live performance.

CONS
- Very expensive.
- External PSU.
- Unbalanced connections only.
- No master bypass other than via the footswitch.

SUMMARY
A well-designed, flexible equaliser, marred by the lack of balanced connections and unrealistically high selling price.

Q'ING UP

It may be useful to clear up any confusion that exists over the difference between parametric and sweep equalisers. Most mid-price mixers have one or more sweep EQ sections, usually in the form of swept mids, but these are not parametric despite what the manual may claim. To qualify as a true parametric, an equaliser must have controls not only for cut/boost and frequency, but also for Q or bandwidth. The Q control sets the width of the frequency band over which the equaliser operates — the higher the Q, the narrower the range of frequencies that are affected. With very high Q settings, it may be possible to focus on a section of the audio band less than one semitone wide, whereas at low settings, the equaliser may affect several octaves at the same time. The sweep equaliser works in a similar way, but has a fixed, general-purpose Q setting instead of a variable Q control.

FURTHER INFORMATION

£ £700; £650 each if purchased as a pair. Prices include VAT.
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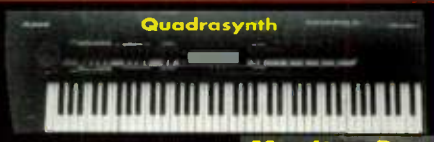

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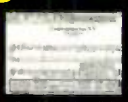

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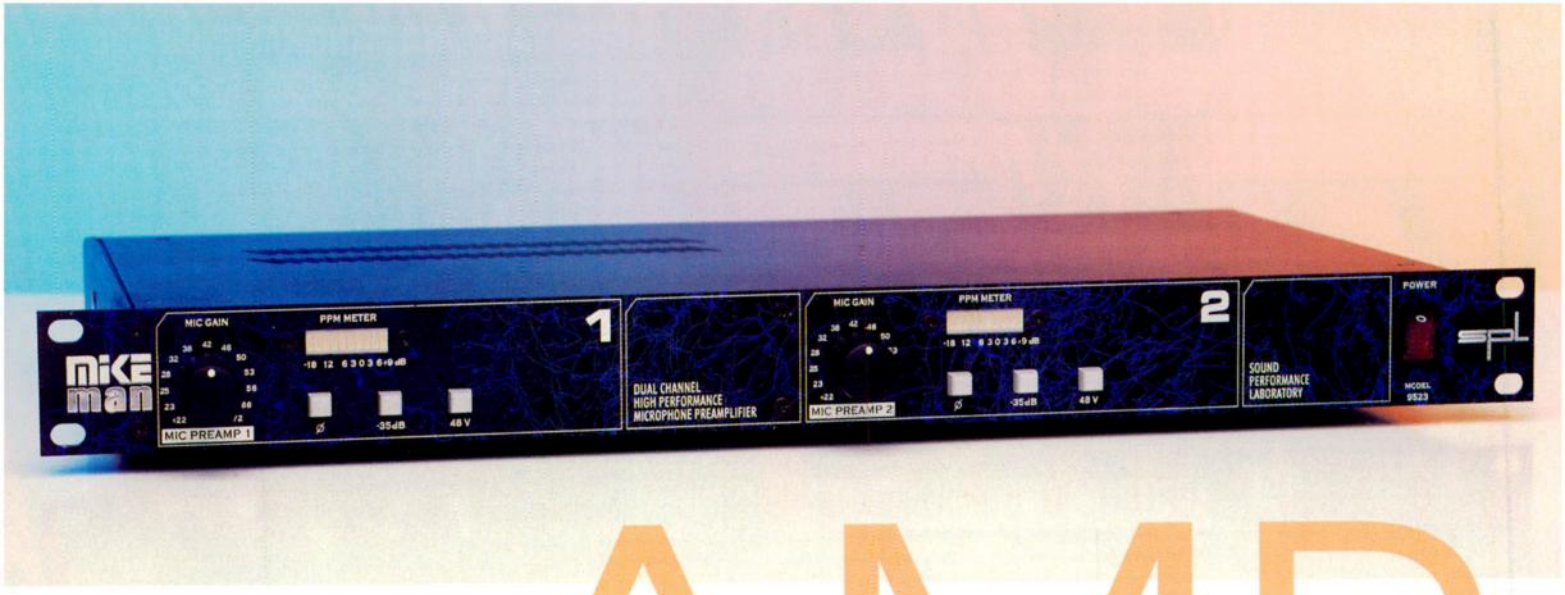

RISING AMP

There's more to building a serious mic front end than putting a standard circuit in a flashy box. Fortunately, SPL's circuit design is even more impressive than their custom anodised front panels, as PAUL WHITE discovers.

SPL MIKEMAN £469

PROS
- Extremely high performance with very low noise and distortion.
- High standard of design and construction.
- Easy to operate with clear metering.

CONS
- No Output Level control or pad.

SUMMARY
An excellent and exotic mic preamp at a lower price than you might expect. Benefits will be most noticeable when recording directly to tape or when working with awkward, low-level, or distant sounds.

Most people know of SPL through their Vitalizer, which is still one of the most coveted enhancement devices on the market today, but in this latest product, technical guru and SPL founder Wolfgang Neumann has focused his creative energies on the more down-to-earth subject of mic preamp design. Most mic preamps now offer reasonable performance, but very few attain the lowest noise and distortion figures made possible by modern component design. All too often, state-of-the-art components turn in an indifferent performance because of the way they are used; maybe the circuit grounds aren't quite right, perhaps the power supplies aren't as clean as they should be, and so on — but Neumann has put a lot of hard work into this design to make sure that the SSM 2017 Analog Devices amplifier chips work to the very best of their capabilities.

Essentially, the MikeMan comprises two independent mic amps, each with a Gain control providing up to 72dB of gain, a Phase Invert switch, a 35dB pad, and switchable phantom power, all on illuminated switches. A 10-step bargraph PPM meter shows the output signal level at all times, and a specially-designed output stage provides a balanced XLR feed and an unbalanced jack feed which may be used simultaneously. A Ground Lift switch is fitted for use in ground loop-sensitive situations.

The maximum gain of 72dB is 12dB more than is normally available from a conventional mic preamp, and has been achieved by using the amplifying devices in an instrumentation amplifier configuration — the same circuit topography as is used for ultra low noise, very low distortion measurement and calibration test gear. A common mode rejection ratio of over 90dB is claimed, which basically means that the interference-cancelling effect of the balanced input stage works rather better than most.

SPL MikeMan Mic Preamp

The normally vulnerable input stage has an exceptionally high overload margin and is protected from DC offsets or damage from excessive signal level, while the phantom power circuitry uses precision components so as not to compromise the efficacity of the balanced input stage. Additional smoothing circuits are also employed to limit the rise time of the phantom power voltage when it is switched on, so as to avoid disturbing thumps and bangs.

HARDWARE DESIGN

The MikeMan comes in a 1U package which has been newly designed to conform to the impending legislation on RFI (Radio Frequency Interference) susceptibility. A novel cosmetic touch is the use of a special anodising technique on the front panel, which produces a random deep blue swirl pattern. No two front panels are the same, so perhaps SPL should consider providing a photocopied 'fingerprint' of the panel as an aid to identifying stolen equipment. The mains power supply is integral and uses a toroidal transformer, while the audio circuitry conforms to a carefully-designed grounding system and is built using very high-tolerance 1% and 0.1% metal oxide film resistors.

PAPER VALUES

OK, so it's obvious that a great deal of care has gone into this mic amp, but does it perform any better than the one in your mixer? After all, the printed EIN noise figure is just 126.6dBu, which is more or less exactly the same as that boasted by most mixer mic amps. What this figure *doesn't* tell you is how well the mic amp performs at intermediate gain settings; cheaper designs often produce the best 'paper' figures when used flat out, but in most practical situations you'll be using

TRANSFORM YOUR LIFE!

The MikeMan's two independent mic amps, although transformerless in design, can have transformers fitted as an option. These are built by Beyerdynamic and may also be retrofitted by the user simply by plugging them in and resetting a DIL switch on the circuit board.

the Gain control somewhere in the middle. Furthermore, you'll find that many spec sheets quote an A-weighted figure, which makes the noise performance look better than the more honest, unweighted one. Yet another variable is the frequency range over which the mic amp works. Most cheaper models roll off soon above 20kHz, whereas this unit is only 0.1dB down at 40kHz, and half a dB down at 100kHz. It is widely recognised that audio equipment needs to have a bandwidth far in excess of the human hearing range to sound good, especially if several devices are to be connected together; the cumulative frequency response gets worse the more devices you cascade.

SPL have bravely published both noise and distortion figures for all gain settings in 10dB steps, where it is evident that the best noise performance is achieved with gain settings of 30 or 40dB — the most commonly-used range. That's not to say that the other settings don't turn in good performances too — the distortion figures are creditably low throughout. Again, this sounds great on paper, but what are the practical benefits?

PERFORMANCE

All a good mic amp should do is take the signal from the microphone and make it bigger without changing it in any other way. By this definition, the SPL MikeMan behaves very much like the ideal mic amp, and in practical terms, it is noticeably quieter and cleaner-sounding than the mic amps found in most mid-priced mixing consoles. The wide bandwidth and very low distortion means that the sound is quite uncoloured, and because of the care that's gone into the design, there are no problems with low-level hums, buzzes, or interference from Radio One!

If there is a criticism, it is that no output level is provided, which means that for direct-to-tape recording you have to use the mic Gain control to set the recording level. The XLR output works at a nominal +6dBu level, which means it will match professional balanced gear nicely, but the unbalanced jack output runs at a nominal 0dBu, meaning that the mic amp gain will need to be set below optimum in order to match semi-pro, -10dBV machines. This shouldn't create significant problems in real life, but an output Gain control, or at the very least a switchable -10dBV pad on the unbalanced output, might have been more elegant. Knowing Wolfgang Neumann's approach to audio design, it's my guess that he decided to leave them off in order to keep the signal path as clean and short as possible. As a side benefit, because the SPL MikeMan has such a high input level capability, it may also be used in conjunction with the Pad switch to control the level of line signals being fed to tape.

Although the SPL MikeMan is rather more costly than a standard mic preamp, it manages to deliver esoteric levels of performance at a price far below what you'd expect to pay for a premium, guru-designed mic front end. For anyone interested in recording critical sounds or for getting their mic signals directly to tape without going via a mixer, I'd say the MikeMan is something of a bargain — it'll take some beating at any price. SOS

FURTHER INFORMATION

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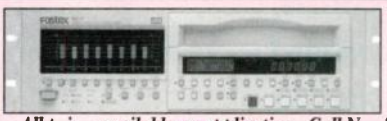
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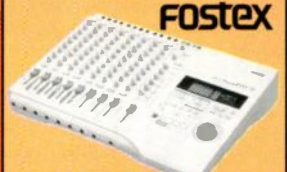
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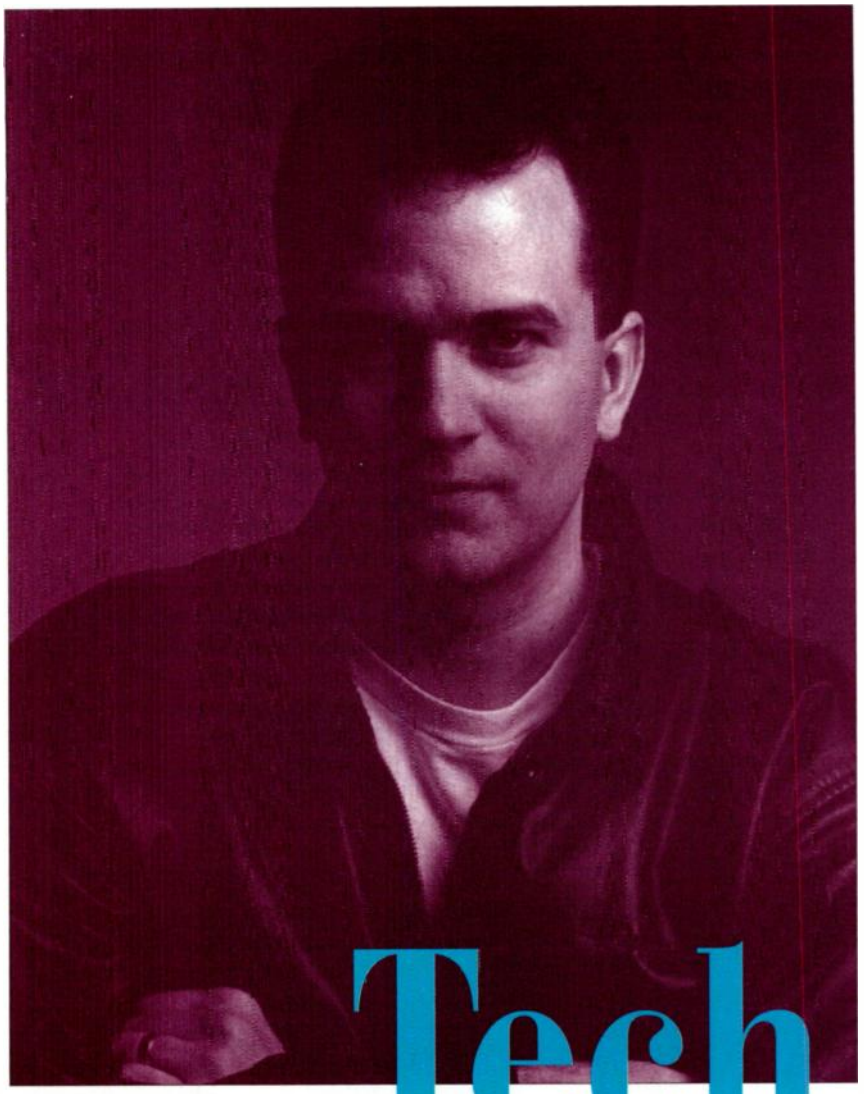

Tech Talk

RANDY THORDERSON • DOD/DIGITECH

During a fleeting visit to SOS headquarters, PAUL WHITE managed to soften up DOD/DigiTech's Product Development Manager, Randy Thorderson, with a tasty curry before pumping him for info about new products and future developments.

Not so long ago, digital effects units were considered to be seriously exciting and esoteric devices, and the introduction of affordable digital reverb was arguably the main factor contributing to the erosion of the boundaries between professional and project studio output. But now every music shop is stocked to the ceiling with effects boxes, all of which offer similar combinations of reverb, delay, modulation and pitch shifting — so where can effects go next? Will we see new effects treatments or will designers concentrate on adding digital interfaces and providing more effects per dollar? I put these questions to Randy Thorderson, Product Development Manager of DOD/DigiTech during his recent visit to *SOS* HQ.

VIRTUAL EFFECTS?

Has the evolution of computer-based workstations had changed DOD/DigiTech's view of where they should be heading? If the world is moving towards 'virtual' computer-based project studios, will DOD/DigiTech have to move into selling 'virtual' software-based effects units?

"I think we'd be foolish not to be looking into these areas. Part of me believes that the sound engineer in the studio isn't going to want to embrace an entirely 'soft' approach, because people are used to working with physical mixers where you can grab a fader. Obviously, you could eventually do everything inside a computer and control everything from an interface the size of a couple of books, but I don't know if engineers ▶

DIGITAL INTERFACING

"Digital interfacing is an obvious consideration in today's products, and one of the things we're busy with now is guessing which of the various interfacing implementations will become the standard in the future. There's AES/EBU, the Alesis ADAT interface, and one or two others, so we don't want to introduce yet another system. As we start to see more digital desks coming along, digital interfacing will have to become more important.

"At DOD/DigiTech, we concentrate mainly on the middle and lower parts of the marketing pyramid, and unfortunately that's where digital standards are least certain. At the top of the professional market, the standards seem to be more settled. Ideally, we need an interface that's going to work with just about anything, but I don't know if that's going to happen. I think it makes most sense to start with just the S/PDIF spec first, but it can be quite expensive adding this kind of interface for just two channels, and once you do add a digital interface, the world wants the more professional AES/EBU. For multiple-channel systems, back panel space starts becoming a problem and when you move from a 1U to a 2U package, price starts to become an issue again. Unlike the consumer market, companies like us don't have the same benefits of mass production. Even if we buy the same parts, we have to buy them via a distribution chain, and that pushes the price up."

IT WORKS FOR THEM

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RANDY THORDERSON • DOD/DIGITECH

▶ will be entirely comfortable with that.

"One of the things that worries us is that, as a manufacturer of signal processors, we're seeing signal processing being incorporated into other products such as keyboards and mixing desks. This could cause our customers to be less inclined to buy stand-alone processing units, unless we can continue to offer more for less. Our current DSP processing engine, the S-DISC chip, is only used in our own products, though some of our older technology (the HISC chip) was previously used by other companies in things like synths and small mixers.

Randy proudly brandishing the Studio Quad at the end of a gruelling European tour.

"We are looking into the software control side of our products, especially via PCMCIA technology, and we are also in a position to look at processors on computer cards, such as NuBus or PCI. The question right now is how big is that market? If you're using the computer in your studio, it's usually tied up doing some specific things, and there's the multitasking question of how many things can run efficiently at any one time. In my own studio, my Mac is tied up with sequencing most of the time, and if you're running something like *Digital Performer*, it's a busy box. That may indicate that stand-alone processors will be around for quite some time yet."

Do you think there's room for a halfway house, where external hardware is controlled from within a software sequencer, and if so, should it be via MIDI or some other protocol?

"That's a good question, because as you're aware, the MIDI protocol has limitations. One of the things we've done with new products like our Studio Quad is to make sure you have the tools to do better MIDI interfacing. The SysEx implementation makes it easier for a third-party software designer to get involved. We also believe that we'll have to develop some software interfacing in-house so that it can be released with the product."

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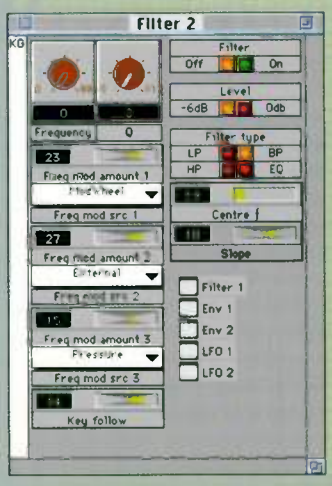

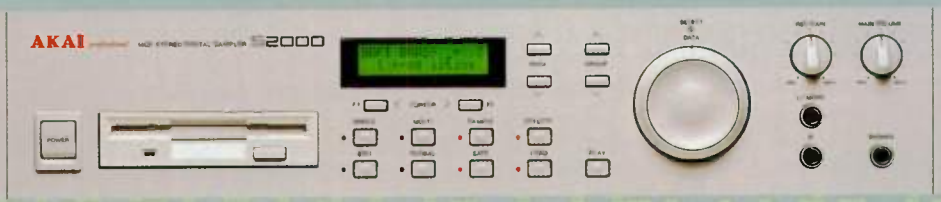

AKAI and the S-Series range of samplers are the industry standard, found in most studios and keyboard rigs the world over.

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

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

SLOT PARA SECT JOIN

Will this mean closer ties with the big four or five sequencer manufacturers in the USA and Europe?

"We have a good relationship with most of them anyway, but I think we'll try to interface with them much earlier on. The graphical interfaces that computers can offer will become more important, and that's something that computers can do pretty 'task free'. It's very different to having an S-DISC card running inside the computer. We recognise that today's boxes are very powerful, which means they have a learning curve and the graphical interface is one way to make that easier.

"Another thing we're doing is looking to increase our product support via the Internet. We'll be setting up a full Web site in early November and you'll be able to pick up product information on any of our products. There are also guys who write public domain software that supports our products, so we want to put that on a public FTP site. That way, people will be able to get hold of new programs and patches to help them get the most out of a box. Arbiter Music Technology, our distributor in the UK, has already got a site running on the Internet."

NEW DIRECTIONS

How about the effects themselves? We've had reverb, pitch shifting, and modulated delay effects for a long time now — have you seen anything that inspires you to go off in new directions, such as effect morphing?

"We're looking at some aspects of that in the new Studio Quad, where we have some dynamic morphing things that respond to playing intensity. But new effects? That's a hard one!

"We're more concerned with accurately recreating real room environments, but I don't know how excited people will get about that, because reverbs are already getting pretty good at this stage. But there are always things that come up when we're designing effects, such as our 4-way panner for use in 4-speaker systems. The other thing people always ▶

SOFTWARE FOR HIRE?

Have DOD/DigiTech looked at the possibility of renting effects software, where the user buys a black box, possibly with a basic feature set, and then anything special that's needed is downloaded for a small fee and runs for, say, 48 hours before erasing itself? Financing software support for existing hardware has always been a tricky problem for manufacturers, so maybe this would be one way to give the software a tangible value?

"Possibly. Once a product has been released, the value of any continuing software development is very difficult to measure. But I don't know that any of our sales network would want a system like you describe in the very near future, at least not until it becomes more established in other areas of our lives. To make that happen, I think that your television set would need to incorporate a credit card swipe slot, so you could order products and services directly from your TV. Once that starts happening, then I think we can start to look at that kind of thing. The technology already exists to build a generic signal processing box, so renting software via modem might be one way to go."

...THE BEST JUST GOT BETTER!

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

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

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"We have a large group of extremely bright guys at DOD/DigiTech, and the majority of them are musicians. It's a rare combination to find people who can use both sides of their brain really well."

want is more flexibility for less money — they don't want to have to spend lots of money just to be able to choose whether to put the chorus before or after the delay. We think boxes will continue to do what they do, only better and cheaper — but as these products grow more sophisticated and more powerful, we have got to continue to simplify the user interface. We've taken the first steps with that already, and you can learn a lot from consumer products like VCRs. In many cases, the power of a product exceeds the user's ability to approach it effectively.

"In the Studio Quad we have what I think is one of the best sounding reverb algorithms we've ever created, but even so, it's basically still a reverb. There's nothing earthshakingly new about the effects in the box, but where it *is* different is in the ease of access and the fact you can do more things at the same time for less money. But you can't just keep putting more power and flexibility into a box unless you really make it accessible to the user."

Over the past couple of years, we've seen quite a few MIDI controlled filters which you patch after your synth to recreate the old analogue sound. Is this something you could easily add to a multi-effects unit?

"Yeah, we're looking into that kind of thing. For me, one of the most impressive devices out there is Roland's VG8 guitar modelling system, which uses a lot of filter modelling. Our engineers keep knocking on my door to ask when they can start work on something like that. The implications of modelling in a signal processing context are vast, but at the same time it's a big piece of technology that would take some time to build. That kind of modelling technique could also come in quite useful in our quest to make a room algorithm sound as real as possible."

Something that has always intrigued me is the possibility of a processor that would allow me to sample the acoustic properties of a physical room, then model that room electronically. Is this possible? Will we ever see a unit that includes samples of the top dozen live rooms in the music world?

"I see that as a definite future area of research, but it would require a new technology. We're in a precarious situation insomuch as we're the number one manufacturer of guitar signal processors in the world and we're making a pretty good run at the middle and low end studio and live sound market. When you're number one you have to worry about market protection, and it's much harder to go forward and develop new technologies when you're protecting that number one spot. But you still have to do it, otherwise..."

...someone comes along and bites your backside? I would imagine that there are still lots of ways you can use existing technology. Filters are a known quantity, yet if you explore what Emu have done in their Morpheus synth, you can see that there's a whole world beyond bandpass resonant filters. By using vowel filters and suchlike, you could create a whole new range of sounds as well as model old standard effects such as the guitar voice box.

"We have a couple of DSP filter experts already looking at that sort of possibility. We also have a guy with a background in voice recognition, and that too has interesting implications for sound development. We have a large group of extremely bright guys at DOD/DigiTech, and the majority of them are musicians. It's a rare combination to find people who can use both sides of their brain really well.

"That's another reason the Internet thing is so exciting — there are lots of ideas floating around out there. We can build up a database which represents people's wish lists."

Still on the subject of filtering, I'm surprised that nobody has come up with a box that lets you sample not actual sounds, but the shifting spectral content of sounds so that you can impose the resulting filter characteristics on other sound sources, almost as you would do with a vocoder.

"Our company is devoting more time to that kind of thing, and it's an area that excites me a lot. There's plenty to be learned from synthesis-type techniques, but our main concern is how to keep the operating system under control, since we are trying to bring the power of our products to the masses."

Can you go for a dual-complexity operating system like you get on some VCRs? On the surface is a fairly basic set of operating parameters, but if you flip back the cover, there's a whole range of more complicated stuff underneath.

"We've taken a little bit of that approach in the new Studio Quad, which uses libraries containing skeletons of algorithms into which you slot your effects. To use it on this level, you probably don't even need to pick up the manual. And once you select the effect, you have a library of settings available for that effect. Should you want to go further, then you can delve deeper into the operating system."

I'm glad to hear that you think that way, because the impression I get of most products is that the designers think it's the only piece of gear anyone has got to think about. In my own studio, for example, I have a shelf over 10 feet long containing nothing but manuals, and there's no way I could ever find time to read through them all, let alone memorise their contents. To my mind, if a typical processor requires more than a handful of pages to guide you through it, it's not going to get used to anything like its full capacity. And professional users have even less time to experiment than home studio owners.

"A lot of the answers may lie in computer interfaces, and in context-sensitive, on-line help systems, but it is something we're very concerned about at DOD/DigiTech, because we really don't want our users wasting time with their manuals. We are sure they've got more important things to do.

BEYOND STEREO

Have you looked at psychoacoustic algorithms for producing wider effects with more sense of space?

"We used to make OEM surround sound products so we know quite a bit about how they work, but we haven't put them into any of our products just yet. From a personal standpoint, I still haven't heard anything in the market that's made me jump up and down with excitement."

I imagine that the designers of the existing systems are hampered by the need to minimise tonal changes and to maximise mono-compatibility, but when you're talking about processing only the effect, I would expect you to be able to use more dramatic processing without the risk of upsetting the overall mix.

"Yeah, I think there's quite a bit to be explored in that area, and looking longer term, it could be that there will be some surround aspect to everyone's normal music listening now that Dolby Surround TV has been accepted. We might even see a resurrection of quadraphonic recording in another form. Then we'll have to come up with quadraphonic effects processors..."

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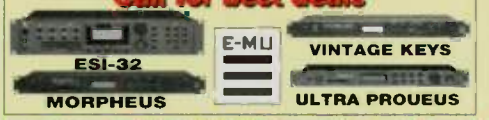

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KEEPING MIDI LIVE!

MIDI TROUBLESHOOTING ON STAGE

PAUL OVERAA offers beginners some basic advice on using MIDI live.

It's happened to the best of us. You set up your MIDI gear on stage, say the right spells and incantations, press the start button on your sequencer or computer... and then either nothing happens at all, or the wrong thing happens. MIDI problems do crop up from time to time, but 99% of the time it's something very simple — wrong connections, faulty leads, or perhaps a MIDI unit or sequencer that has been set up wrongly. Although it is quite rare for MIDI equipment itself to 'go down', hardware failures, especially with computer-based sequencers, are part of that 1% of non-simple problems that can arise. I've been doing live gigs using all manner of MIDI sequencing gear for around 10 years now, and with over 1000 such events under my belt, I feel fairly comfortable using MIDI live. There have been many minor hassles through the years, but I've had only one serious problem — a drive failure on the boot-up drive of my computer.

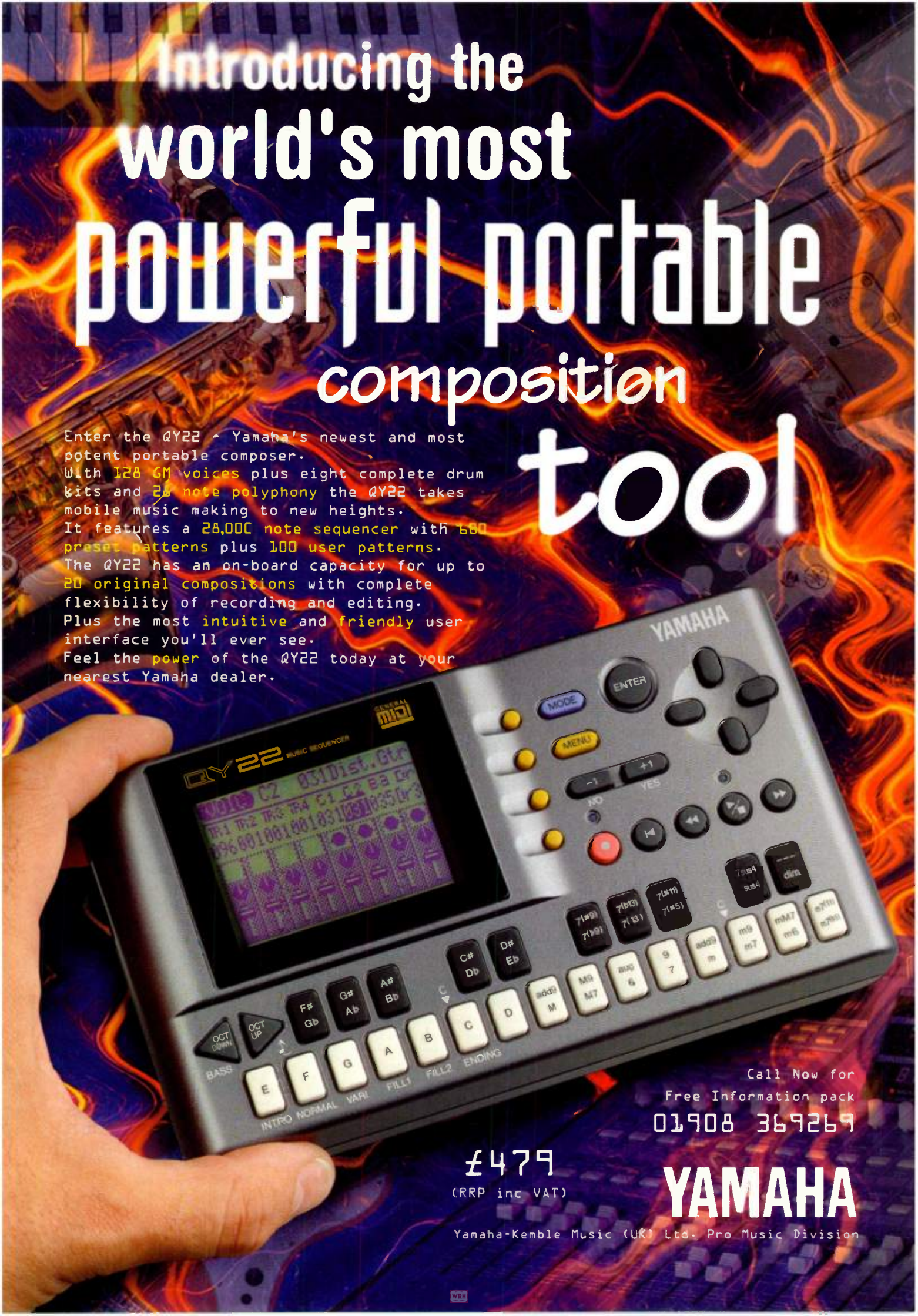
COMMON PROBLEMS

The odd snag no longer worries me, but if you're a newcomer to the MIDI revolution the situation is likely to be different — any problem will be worrying if you're getting ready for a gig. Before you panic, however, it's worth getting into the habit of making a few simple checks. Even though most pieces of equipment have their own quirks, fault-finding will usually follow the same basic scheme. I'll assume, for my examples, that a computer sequencer-driven setup is being used, but the same ideas apply to all MIDI systems.

NOTHING HAPPENS WHEN THE SEQUENCER STARTS

• First, check that your lead connections are correct: the sequencer's MIDI Out to the first unit's MIDI In, then MIDI Thrus to the MIDI Ins of successive units, if you're daisy-chaining MIDI connections; the sequencer's MIDI Out to your Thru box MIDI In, and then a MIDI Out to the MIDI In of each unit, if you're using a star network arrangement.

• If this doesn't highlight any obvious fault, the next stage is to check that the computer or sequencer is actually generating MIDI data — and that it's coming down that first cable. Some sort of visual indication is needed here, and Studiomaster's MA36 MIDI Analyser is ideal for this type of check. Unplug the lead feeding the first MIDI unit or Thru box, plug in the MA36, and you'll get an immediate LED visual indication of what MIDI data, if any, is coming down the line. If you haven't got an MA36, hopefully you'll have at least one synth or expander module that has an LED which blinks as data is received. Although not ideal for fault-finding, these do at ▶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least give you some visual indication that MIDI data is being generated (see the 'MIDI Gadgets' box for details of one or two other devices that can make life on the road easier).

• If these checks reveal that no MIDI messages are being transmitted, replace that first cable with another and try the system again. If necessary, continue to check the other units and lead connections in the same way. Once you're happy with the physical connections, check the channel/mode assignments of the individual MIDI units.

• Don't forget any battery-powered MIDI connectors/pedals, etc. A lot of people make a connection from the sequencer to a Thru box to provide a star network arrangement. I've seen two cases where people have placed battery-powered Thru boxes inside their rack units — it's a great idea until the battery packs up!

A SYNTH PLAYS BUT SOUNDS WRONG

• Usually this is a channel/mode problem resulting either from a unit being set to 'Omni-On', or set to receive the wrong MIDI channel. The solution is to re-check the channel and mode settings for the unit. Don't forget that wrong channel assignments can result in a unit responding to program change commands which were not originally meant for it — so suddenly hearing synths switch to different voices to the ones you expect is another useful sign to watch for.

• Quite a few variations on this theme are worth mentioning. Your sequencer will usually have drum channel facilities which protect drum parts during transposition. If you are using arrangements with transposed sequences and have forgotten to set (or have incorrectly set) the drum channel value, any transposed sequences will include transposed drum track data. The result, of course, is that your drum part will be either non-existent or sound totally different from that expected.

• Another common slip is failing to set the MIDI clock option on a drum machine. If a drum machine is using its internal clock, and you inadvertently pump additional MIDI clock data into it, strange (and often unmusical) things will happen. If you hear this sort of effect, go straight to the sequencer drum channel assignment options and the drummer MIDI clock options, and check that they have been properly set.

LESS OBVIOUS FAULTS

Methodically checking connections, leads and channel/mode assignments will, for the average MIDI system, take less than five minutes. In almost all cases, you'll find where the trouble lies and be able to correct the fault.

Occasionally, a less obvious problem may occur. If, for instance, you use your MIDI gear at home or in the studio, you're likely to change any number of front-panel parameters. The danger is that the gear gets packed away and taken to a gig with these changes still in place. Depending on what you've been doing, you might have reassigned and memorised different controller settings, or changed the program change mapping characteristics.

This type of problem is, for obvious reasons, far more common if equipment is used by several different people — and the more programmable a MIDI unit is, the greater the number of pitfalls. For example, many synths can be configured so that they have several note data channels, and perhaps even a separate control message channel. Some devices can be set to ignore certain types of data, and can even be made to modify or filter the data they receive. All this can add to the confusion if you're not familiar with the equipment being used.

The golden rule is this: if you have to use borrowed or hired MIDI gear, make sure you understand how to interrogate the front-panel parameters of the equipment and get a copy of the manual at the time you collect the equipment. It's better to be safe than sorry! Remember also that if you borrow synths/expanders which have user-definable program change tables, you may need to alter various table entries to suit your own voice/program-change command requirements.

Another hidden nasty in this area is the fact that many MIDI units, when switched on, assume an initial state that is a copy of their state when last switched off. It is conceivable that a MIDI device being used with a MIDI volume pedal and set to zero volume just prior to switch-off could fail to respond when switched on at a later date without a controller pedal. With more and more effects units offering memorised settings and remote assignable controller facilities, it's possible that these problems might become more common, so bear them in mind.

LAST WORDS

Do not court disaster unnecessarily. When out on a gig always make sure you take two or three copies of your data disks (and your sequencer program, if you're using a computer-based system), have a few spare MIDI leads, and some visual means of conducting your fault-finding tests. It seems almost too silly to mention, but a good torch is another handy item to carry around — most flightcases are black inside, and once the lights are down it's almost impossible to check back-panel connections or unit wiring within the flightcase itself without having a bit of extra light around.

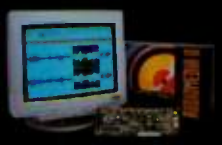
MIDI GADGETS: EVERY LITTLE HELPS

Paul Overaa mentions Studiomaster's MA36 MIDI Analyser for checking MIDI systems. Another, simpler but useful, gadget for checking that MIDI data is arriving is RTPS's MIDI BrightEye, which has an LED at one end and a MIDI plug at the other; when this is connected to the MIDI Out or Thru of any MIDI instrument, the LED flashes if MIDI data is present. You could make this type of device yourself (at its most basic it's just an LED soldered to a MIDI socket) but as the MIDI BrightEye costs just £3.45, it hardly seems worth it! You can buy them from RTPS Systems Ltd, PO Box 81, Bicester, Oxon OX6 9YY. Tel: 01869 278470.

If you use an Atari ST and sequencer program live, one of the most problematic components of your setup is likely to be your computer monitor — bulky and fragile. Hands On MIDI Software have a solution, in the shape of On Stage, a small device equipped with front-panel status LEDs, that replaces your monitor and effectively turns your ST into a MIDI file player. The original version of On Stage was reviewed in the August 1992 issue of *SOS*, though there are now three different variants of the system. Prices range from £39.95 to £99.95. Contact Hands On at 11 Warfield Avenue, Waterlooville, Hampshire PO7 7JN. Tel: 01705 783100. *Derek Johnson*

WORLDS APART

"Any sufficiently advanced technology is indistinguishable from magic"
Arthur C. Clark



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Natural audio

Having led the way in the '80s sampling revolution, Emu have turned their attention to the '90s discipline of hard disk recording with the Darwin digital recorder. PAUL WARD checks out the new species on the block...

The Emu name needs little introduction to anyone familiar with modern music technology. From the days of the 8-bit Emulator sampling keyboard through the highly successful Proteus series to the powerful Emulator IV, Emu Systems have become something of a legend in the digital audio field. It is only fitting then that Emu should eventually turn their attention to the growing market of hard disk recording, with the introduction of Darwin.

Darwin is a stand-alone 8-track digital audio recorder designed to offer the power of non-destructive, random access recording/editing combined with the familiar user interface of a tape recorder.

The 4001 Darwin, upon which this review is based, comes with an internal 1 gigabyte hard drive, which is sufficient for about 200 track minutes of recording time. The maximum permitted disk size is 2Gb, which should be enough for most applications. A 50-pin SCSI connector on the rear panel allows for connection to an external SCSI device for both recording and backup purposes. The manual goes into some detail about setting up an external drive for recording, specifying the minimum drive requirements as a rotation speed of at least 5400rpm, an access time of 12 milliseconds or better, with no thermal calibration/embedded servo design. The manual also goes on to clarify the relative merits of the types of drives available. A further optional SCSI port may be added, primarily designated for connection to a host computer.

FULL FRONTAL ANATOMY

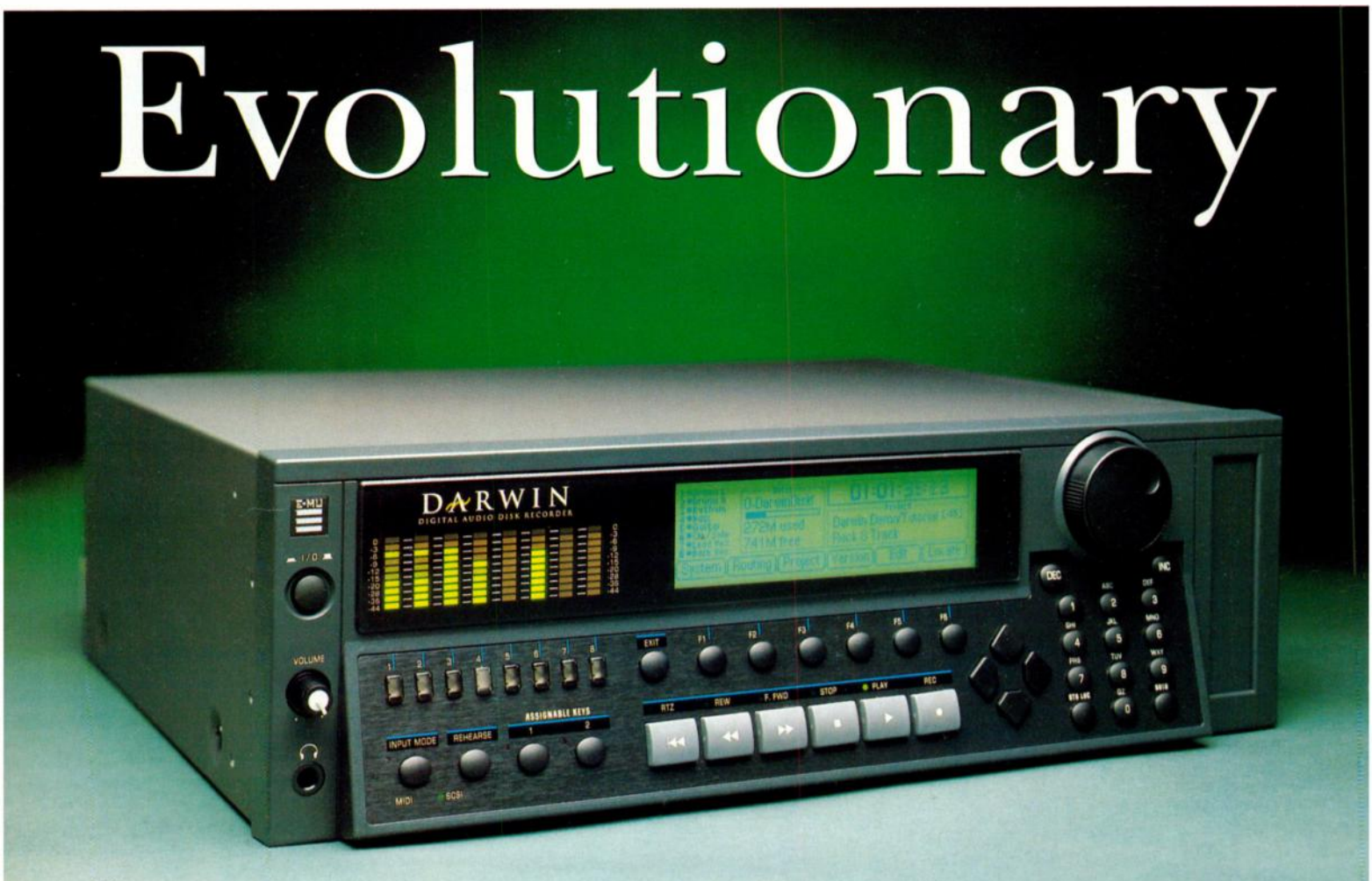
Darwin's front panel is refreshingly uncluttered and the large, friendly, transport keys and bright track level meters certainly help boost the machine's 'instant familiarity' factor. Just below the meters are the eight track record enable keys. These flash when pressed to indicate that the corresponding track is in record mode. Recording will commence on any selected tracks when Darwin is placed into record mode using the transport controls. During recording, the track keys remain steadily lit. Emu also suggest the use of the record enable keys to mute selected tracks when editing. I was initially slightly nervous about employing this technique, but given Darwin's ability to undo numerous edits and recordings, there is little to get too worked up about.

Below the record enable keys are four 'Special Function' keys. The first key, Input Mode, defines how Darwin will handle monitoring during drop-ins — either 'Auto Input' mode, where the recorded track will be monitored until the drop-in is activated, or 'Normal' mode, where the signal arriving at the record enabled inputs will be heard regardless of whether Darwin is actually recording or not.

The second key, Rehearse Mode, allows drop-ins to be rehearsed without any real recording taking place. The final two special function keys are ultimately destined to be user-definable, although with the current software they are permanently assigned to edit selection and clipboard audition functions.

EMU SYSTEMS DARWIN DIGITAL AUDIO DISK RECORDER

Evolutionary



Screen navigation comes courtesy of four cursor keys, six 'soft' function keys and a 'beam me up Scotty' Exit key for a quick getaway. Data input (including alpha-numeric characters) can be effected by a number of methods, including the numeric keypad, increment/decrement buttons and the jog/shuttle wheel. The numeric keypad's primary function is to act as a set of 10 instant locate points which can be accessed by a single keypress. Locate points are set by hitting the Store Locate key and selecting a numeric key to which is assigned the currently displayed time. Four banks of 10 locate points can be stored for each version of a song, and switching between banks is accomplished in the Locate page.

Emu put great store in Darwin's operational similarities to a tape-based system and I think they've done a very good job in this respect. All of the transport keys work pretty much as expected, with one notable difference — near-instantaneous response times. The fast-forward and rewind keys are quite ingenious — they may be pressed up to three times in succession to achieve successively faster 'wind' times, up to 100 times normal speed. There is no cue/review function based on these keys, which I feel is a bit remiss. All cueing has to be performed by way of the jog/shuttle wheel, which requires you to stop playback. I would rather that the fast-forward and rewind keys acted as cue controls when the machine was in play mode. With transport operations as nimble as these, I wouldn't at all mind pressing the Stop key before going into fast-wind operation.

Signals arriving at Darwin's analogue inputs pass first through the +4dB/-10dB pad before being digitised and passed into the routing section. The latter is analogous to a simple patchbay, with the inputs located at either side of the screen display and the eight recording tracks along the bottom. Using the cursor and function keys, any input (including the digital left/right signals) may be routed to any of Darwin's tracks. The internal mixer's outputs are also present to allow for internal mixdown in either mono or stereo. Usefully, Emu have provided several factory programmed routing configurations for the most common types of connection, such as input 1 to all eight tracks or inputs 1 and 2 alternating between odd/even-numbered tracks.

Step?

RECORD READY

Before any recording can commence, Darwin requires the creation of a 'Project'. A Project is a collection of recordings that must reside on a single physical device (drive). Projects may be deleted, renamed or copied, and be given a specified start time. The sample rate (48kHz or 44.1kHz) for a Project is set at creation time and may not be altered later.

A Project contains a number of 'Versions', which can basically be thought of as playlists (or Edit Decision Lists, as they are known in some circles), although these are significantly more sophisticated, as we shall see. Housekeeping functions include renaming, deleting and creating new Versions based on the one currently selected. Each of the eight tracks within a Version can be named with up to eight alpha-numeric characters.

Making a recording is child's play. Select the tracks to be recorded on; have a quick look at the input levels; hit the Record and Play keys (at which point Darwin goes into record/pause); when you're ready to go, just press the Play key and give the guy with the digeridoo a nod to start playing. When the recording is finished (or the guy with the digeridoo has collapsed due to a poor circular breathing technique) simply hit the RTZ (Return To Zero) key, take the track(s) out of record mode and press Play to hear the fruits of your labours.

VIRTUAL SLAVES

Emu make use of the concept of 'Virtual Slave Reels' to describe the way in which their system of 'Versions' works. Not only is this aspect of Darwin's design philosophy by far its most powerful feature, but the analogy to slave reels is a reasonable one, making operation simpler to visualise and creative use easier.

Here's a working example. Let's assume you have made a recording that fills seven tracks, leaving track 8 free for backing vocals. The backing vocals are to consist of three doubled harmony lines that will (for the sake of simplicity in this example) be submixed into mono to appear in the final mix. A new Version is created, using the current Version as the template. In the new Version, you mix the seven recorded tracks internally and bounce them onto track 8. Now you use tracks 1 to 6 to record the backing vocal lines, whilst monitoring the mix on track 8. 'But surely you've recorded over the original backing tracks!?', I hear you cry. But nothing is lost since the original tracks are still safe and well back in the original Version. All that remains is to mix the six vocal lines onto track 7, copy the result onto the clipboard, return to the original Version and paste the mixed backing vocals into track 8. Mission accomplished — and all in the digital domain, too.

EMU DARWIN £3399/£2999

PROS

- Friendly, familiar tape-like operation.
- Superb audio quality.
- Internal bouncing, along with the 'Virtual Tape Reel' principle, makes for a near unlimited number of tracks.
- 16 levels of Undo makes editing and drop-ins a less traumatic experience.
- Access to external SCSI devices for audio recording or backup.

CONS

- Some aspects of the software look clumsy.
- No EQ on internal mixer.
- No access to internal mixer via MIDI.
- Backup only via SCSI.

SUMMARY

Incisive and elegant in some aspects of its operation, yet blunt and clumsy in others. This machine seems a little basic for the asking price, but comes with the respected Emu badge and is undoubtedly capable of excellent results. Darwin may seem more exciting once we see what Emu have in store for those option slots.

Emu Darwin

"As might be expected from a machine of this pedigree, the audio quality of results is superb. Operationally, however, Darwin is a bitter-sweet experience."

If the virtual reel concept still seems a little difficult to grasp, rest assured that using the system is far easier than explaining it! In no time at all I was making new Versions at the drop of a plectrum to allow for double-tracked guitar parts, or adding effects to material originally recorded dry. This really is one of those obvious ideas that makes you wonder why nobody has ever done it this way before. The only criticism I have is that the internal mixer controls are only accessible from Darwin's front panel. This makes mixing internal bounces a bit of a headache. I would urge Emu to allow MIDI access to these controls, if possible, with a future software release to enable the use of physical controllers and mix automation.

CLOSE TO THE EDIT

Emu have endowed Darwin with a basic selection of editing functions. Sections may be cut, copied, inserted, replaced, and erased at will. The affected tracks are selected by use of the cursor keys and the ranges by use of the in/out soft function keys. Sections may be auditioned, allowing the user to preview an edit before it is actually done, and the crossfade time for edit points is adjustable between 0 and 100 milliseconds to help create 'seamless' drop-ins. Any editing decision can be reversed by use of the 'Undo' feature, allowing the last 16 events to be displayed and undone. Darwin actually stores *every* initiated action, including recording or dropping in, and these also form entries on the Undo action list. All in all, the Undo function makes it very difficult to do much irrepairable damage with Darwin, provided you don't let things progress too far (ie. more than 16 actions). The last action may also be redone.

Darwin's audio scrubbing feature is welcome, though I found it difficult to achieve accuracy at low scrubbing speeds since playback became increasingly jerky. This is not helped by the track display, which shows recorded blocks but does nothing to indicate where actual audio signals are

MAKING CONNECTIONS

RCA phono connectors are provided to keep signals in the digital domain, the output capable of being configured as 'Consumer' (S/PDIF) or 'Professional' (AES/EBU) format. The manual specifies that both input and output cables be connected when transferring digital data into the Darwin and that the connected device be set to external clock. None of the equipment that I had available for connection allowed an external clock option to be selected, but transfers appeared to be OK nonetheless. I also seemed to get away with using a single lead from my Yamaha DTR-2 DAT recorder — other devices may not prove so accommodating. Emu claim that digital transfer *from* Darwin to any other digital equipment is completely reliable and that transfer *to* Darwin will usually work, but it is dependant upon the accuracy of the external equipment's crystal clock. If digital transfer is important to you, then I'd suggest you test

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situated. The 'zoom' feature is also arguably redundant in the absence of any waveform display. Small dotted lines in the display show 1-second interval markers in a bid to help matters, but they do little to make the task any easier. In fast-wind modes, possibly due to the screen refresh rate, the dots even appeared to be running in the wrong direction — which completely threw me on one or two edits!

The clipboard is used to copy audio around, either within a Version or across to another. There did not seem to be a way to copy audio data between Projects, which might be a limitation for certain applications. The contents of the clipboard may be auditioned to check edits before they are actioned.

I did notice one or two bugs in the software. After completing some editing functions, the synchronisation of the edited track exhibited a tendancy to go awry. This usually seemed to cure itself once a rewind had been performed, although the same problem also occurred during an internal mixdown and found its way onto the resultant mixed track. One or two nasty disk error messages had me sweating during a particularly heavy editing session. This may have been down to the particular hard disk ▶

this facility before parting with your cash.

Darwin's digital output carries a stereo mix of all eight tracks with the internal 8-2 mixer controlling the volume and panning of each track. The same mix is also available at the headphone output. There is no stereo line output as such, but I found the headphone signal to be adequate for feeding into a mixer, providing a little care was taken to avoid overloading the mixer's input stage.

I was disappointed to discover that hard disk backup can only be achieved to a device connected via SCSI; backups to DAT via the S/PDIF output are not possible. Whilst audio DAT backup may not be the most robust method of data storage, it does seem a little unfair to preclude the option.

There are five external option ports and two internal slots. With Emu's propensity for high quality audio DSP, these are most welcome and lead me to some delightful speculation on possible future developments.

In, Out and Thru MIDI connections are present, although Darwin currently limits itself to responding to MMC (MIDI Machine Control) commands and sending out MTC (MIDI Time Code). When connected to a MIDI sequencer conversant both in MMC and MTC, a 'closed loop' setup may be achieved, where the sequencer and Darwin effectively work in unison by making each other aware of their current status and position. This configuration seemed to work very well with *Cubase* on my Atari, although the start-up time was a little slower to allow for everything to get into sync. Despite Darwin's ability to only act as a 'master' in its present form, those spare ports suggest that external synchronisation options may not take long to arrive.

Four analogue input jacks are provided on the basic machine, with a further four available as an expansion option. Eight output jacks are also to be found. The internal mixer has no effect on the signal level that appears at these outputs. These jacks are all of the standard quarter-inch balanced variety and can be programmed for +4dB or -10dB operation, to match with both pro and semi-pro equipment.

Emu continue to champion automatic voltage switching, providing Darwin with the capability to run in environments ranging from 100 volts to 240 volts and at either 50Hz or 60Hz, with no changes required of the user. Some day all equipment will be designed this way. I hope...

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Emu Darwin

installed in the review machine, but the problem never occurred again, so I was unable to track it down to any specific area of usage. *[According to Emu, this bug was found to be in the original down-revision of the software in the review model, and was not a disk problem. The problem is cured in the latest revision production models - Ed.]*

Every time a punch-in or punch-out is actioned, or any edit function is performed, Darwin adds 'events' to its internal playlist. The user is limited to 2000 events per Version and a single user action will typically create several internal events. The manual equates the 2000 event limit to about 50 punches on all eight tracks with crossfade, or 150 punches with crossfade turned off. Event usage is monitored from the Version Info page. If things become tight, Emu suggest that heavily edited tracks are bounced down to make a new, single event. This is probably advisable for any hard disk recording system.

I was somewhat surprised to note the lack of more advanced off-line editing functions such as volume normalisation, fading, or time-stretch. With such functions now available in many budget and mid-priced samplers, I did expect to see Emu implement a smattering of them here.

For me, the most annoying flaw in Darwin's operating system was the inability to switch between screen pages without playback being halted. This became extremely annoying when flipping into the edit functions, but I did not expect to find the same thing happening when I tried to set locate points (but it does!). There didn't seem to be any way to set locate points on-the-fly, which is a frustrating omission, even for the early software revision. Emu would do well to take a long hard look at this, since it slows down operation considerably.

A WORTHY CONTENDER?

As might be expected from a machine of this pedigree, the audio quality of results is superb. Operationally, however, Darwin is a bitter-sweet experience. The familiar tape-like transport is as comfortable as a pair of old sneakers, yet the halt in proceedings every time you select a new screen page is like having to remove them every time you cross a busy road! I feel sure that a few software tweaks here and there could make Darwin a much friendlier machine, and Emu themselves are keen to point out that they intend to keep registered users aware of any such improvements.

I can't help thinking that we are seeing an immature, 'not quite ready', product here from Emu. Similar devices, such as the new Fostex DMT8 digital multitracker, are considerably cheaper and arguably more versatile. The lack of any facility for mix automation and the absence of any EQ facilities certainly make Darwin unsuitable as an all-in-one desktop recording solution. I see this recorder more likely to find its niche in replacing many of those ageing open-reel multitracks in studios that have yet to take the plunge into digital recording. With the prospect of having to buy some additional form of external backup media, however, the cost of such an upgrade begins to look a little steep. If Emu were to get that S/PDIF port to handle disk backups to 'normal' audio DAT recorders then things would begin to look better, but the asking price still seems on the high side to me.

I'd advise potential purchasers to take a look at the Emu Darwin for the operational simplicity it presents and the versatility of the Virtual Tape Reel concept. If Emu can trim the software and start filling the option slots, then Darwin may evolve into something very worthwhile indeed. Until then, I have to say that I find the asking price hard to swallow. SOS

FURTHER INFORMATION

£ 4001 Darwin (including 1Gb disk drive) £3399; 4000 Darwin (no disk drive) £2999.
A Emu Systems UK, Suite 6, Adam Ferguson House, Eskmills Park, Musselburgh, East Lothian EH21 7PQ.
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F 0131 665 0473.

MANUFACTURER'S FEEDBACK: EMU RESPOND

We appreciate the idea that Darwin has been compared to an old, comfy pair of sneakers — obviously your reviewer has met our design team — but there are also some very high performance, all-purpose athletic training shoe features and concepts which we would like to emphasise.

Operation and control of the unit from various main screens is a design concept which allows the user to cover all major recording operations from the screen or mode of his choice. For example, tracks can be armed and recording initiated from the edit screens. The intention is to minimise the actual necessity for changing screens in the first place.

Like our sampling products, Emu have always believed in allowing our customers to increase the value of their investment in our products. Darwin is no exception, and the options designed to fill the expansion ports on the base unit are an important feature of the product which we feel deserves a little elaboration. (Cushion insoles, perhaps? Reflector tabs, or maybe even elevator heels?)

ADAT 9-pin sync becomes available early in the new year and we have plans for a SMPTE sync card, internal DSP card, and SCSI host-based wave editing to follow that. A PLL card, soon to be available for Darwin, will ensure 100% locking to digital data streams. These were all subjects queried in the review and we would like to assure our customers and potential customers that Darwin will evolve and that we understand their special needs. Available right now is the ADAT Optical I/O Card, which will allow 100% locking to the digital data stream of an ADAT (or ADAT Optical I/O equipped device) for the simultaneous transfer of eight tracks of digital audio. Also available right now is an extra four analogue input card, allowing eight analogue inputs to be recorded at once, a feature that few other disk recorders can match.

A word on backup: because Darwin has a complete .WAV/Windows 95 file structure inside the unit, the amount of non-audio data that would need to be backed-up suggested to us that audio DAT was not an optimal solution, whereas SCSI DAT is. In addition, the ADAT Optical I/O Card mentioned above offers a straightforward backup method for those users who own an ADAT and are intending to use Darwin as an expansion/editing device.

Finally, the 'copy Project' feature allows Projects to be safely copied between different SCSI devices — such as SyQuest, magneto-optical disk, and so on — a feature that is excluded from many competitor's systems. Early in the new year, look out for our removable drive version of Darwin, which will help to make backup a thing of the past. (Yes, as we said before, all units will be upgradable — nobody gets left with holes in their sneakers!)

OK, so Darwin was a fancy name, hinting at Digital Audio Recording, but the concept of evolution and growth is very real and fundamental to Emu's strategy of going forward. Our thanks to *SOS* for the opportunity to add these comments.

Dave Bristow, Product Marketing Manager, Emu Systems Inc, USA

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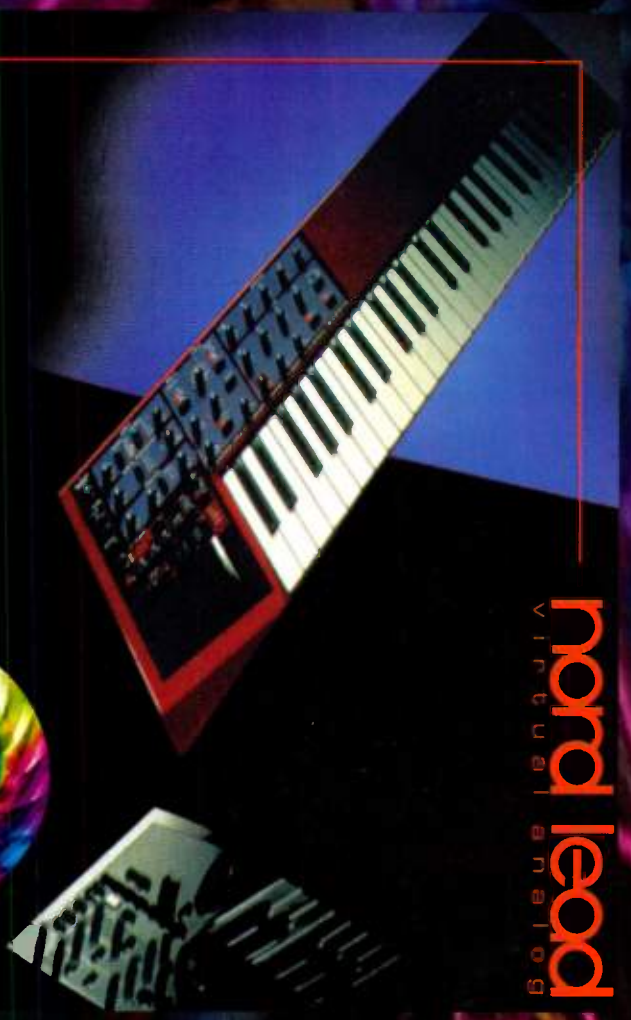

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SOFTWARE AUDIO WORKSHOP & CAKEWALK PROFESSIONAL

A true understanding of any piece of studio gear only comes after using it for months, or even years. Last year's Reader Survey suggested that more features would be welcome from people with such 'long-term' gear experiences, so, in the first part of this occasional series, JANET HARNIMAN COOK reveals the truth about her PC sequencing and digital recording setup...

Advances in chip and hard disk technologies now allow us to enjoy studio production techniques that only a few years ago were exclusive to the elite of the audio recording world. In the late '80s I visited AMS at Burnley, and had hands-on experience of the AMS Audiofile 8-track digital recording and non-linear editing system for an afternoon. It used massive 720Mb Winchester hard drives and was tagged at around £40,000 — certainly way out of my league.

Today a starter system, using a DX2-66 PC computer running *Software Audio Workshop* (*SAW*), can be put together for around £1,700. Such a system will open the door to professional-quality tapeless 8-track digital recording and fast non-linear editing. It will allow you to master your DAT tracks, assemble them into a production master for CD or film soundtrack, record and synchronise live vocals and instruments to a MIDI sequencer, and also act as a an editor for your sampler.

BEFORE *SAW*

My own recording and editing requirements are defined by video soundtrack production work, and include MIDI music composition, voice-over and location sound. These elements are recorded to DAT, prior to assembly as a finished soundtrack. Audio quality must be as high as possible so that the soundtrack will still sound good when replayed through low-fi TV and video.

Originally, I used an Amiga 500 computer with *Music X* sequencing software for music origination, and an ancient TEAC 3340 4-track open-reel tape recorder for assembly. Audio quality was quite good, but the production process was time-consuming and inaccurate, and each bounce between open-reel and DAT meant a reduction in audio quality.

Next, I tried two DAT machines, a sampler, and *Cubase* on an Atari ST. The voice-over takes were auditioned off DAT and the best transferred to an Emu Emax II sampler equipped with 8Mb of RAM and an 80Mb hard drive. For each 8Mb bank, this yielded 107 seconds of 16-bit mono sampling time at 39.1kHz, with eight banks needed for a 40-minute soundtrack.

The required Edit Decision List (EDL), with sample play times and bank changes, was prepared in the *Cubase* grid editor. The audio quality of this system was far better than I had achieved using my previous setup, but the process was still cumbersome, and editing the voice-over segments on the sampler's tiny 32-character LCD and archiving each 8Mb sample bank took ages.

By mid-1994, with three soundtracks behind me, I felt ready to invest in a full digital recording and editing system. The Alesis ADAT was appealing — cheap recording media and easy to operate — but it did not provide the big-screen editing facilities I needed, or the 70+ minutes of recording time required for CD assembly and mastering. The Akai DR4D was similarly disqualified — and so I looked to computer-based systems. My experiences using Ataris and Amigas had been, on the whole, positive and I was curious to know how a mid-'90s system would perform. Sadly, I wasn't convinced that the Falcon could fly, and the Mac was still over-priced, so I decided to look at the PC.

Today, the PC is the fastest-growing computer music production platform. Its global domination of the business market means wide availability, competitive prices and a huge R&D base. PC hardware is also used in top-end audio applications, such as the AMS Neve Capricorn desk, the DAR Soundstation, DAR Sabre and Lexicon Opus digital audio workstations. However, the deciding factor was the release in mid-1994 of *SAW*.

The 486 DX4-100 PC system which I use is quite modest by current standards. My IBM Spitfire hard drive is fast, but we're talking Ford, not Ferrari! I also use, and would recommend, a 17-inch monitor. My soundcard — a Turtle Beach Multisound Classic — was chosen for its sweet-sounding digital-to-analogue convertors (DACs) and built-in Emu Proteus 1XR synth.

SOFTWARE AUDIO WORKSTATION

SAW operates as multitrack recorder, editor and assembler. I have used the system for eight months now, and I love it. The digital quality is superb, and analogue transfer equals the best open-reel tape recorders I have heard. Although it lacks certain sophisticated features of more expensive systems, I found *SAW* easy to learn and reliable. Once I had worked out the necessary techniques, it quickly integrated into my existing setup — in fact, I found the entire production process faster. Clients are pleased by the cost savings made thanks to the reduced editing time, which has typically halved compared with that used with a tape-based system. And, as the system is tapeless, multitrack tape machine maintenance costs are avoided.

On screen, *SAW* is generally well laid out, if a bit blocky. Screen redraws are very fast. Even when the hard drive is almost full, *SAW* runs without a sign of the sluggishness associated with data bottlenecks. Rock-solid SMPTE and MTC synchronisation to tape and MIDI are painless using the Music Quest MQX-32M card. Each *SAW* archive session prints

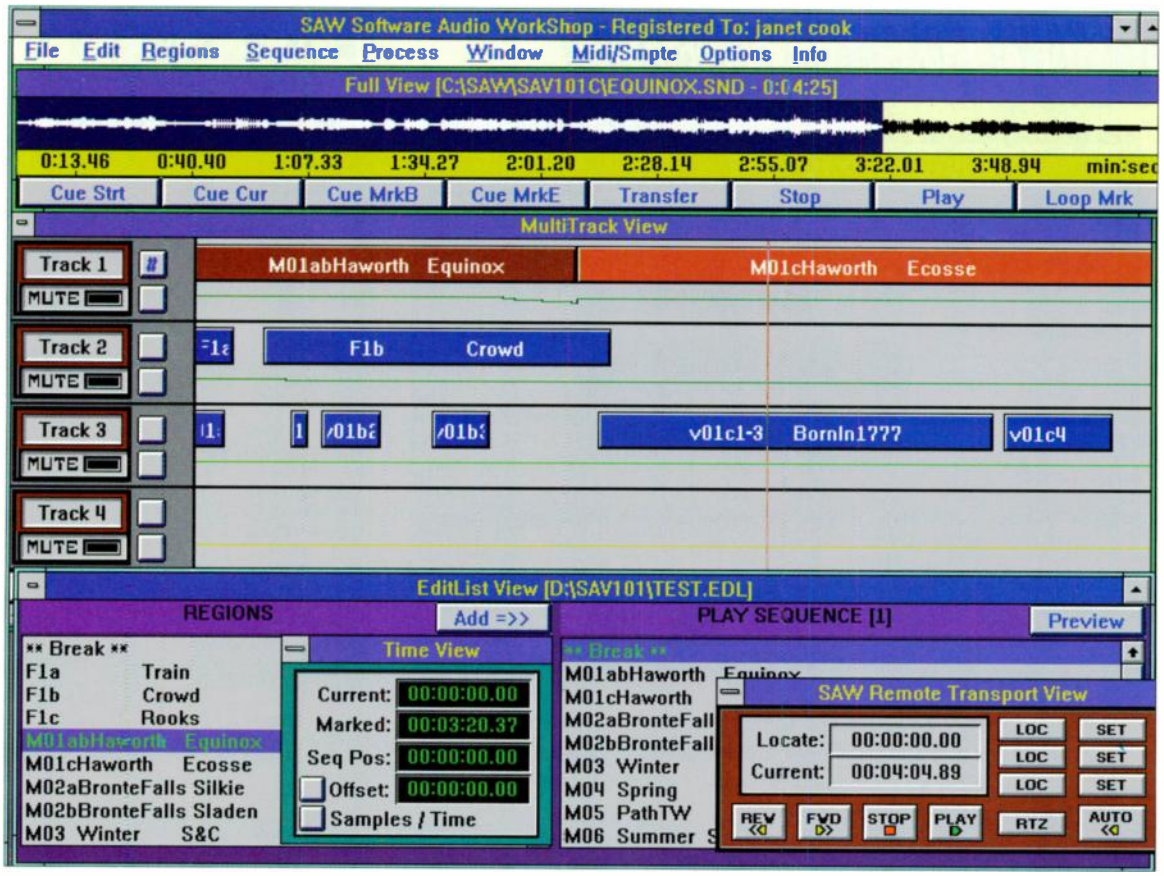
SYSTEM COST

- SAW: £499
- Soundcard (Turtle Beach Multisound Tahiti): £299 (A/D & D/A converters, but no Proteus1XR)
- Digital Soundcard (DAL Digital Only Card-D): £399

TOTAL LIST PRICE: £1197 — but for the package I was quoted £999.

- 486 DX2-66 PC with 8Mb RAM, 250Mb hard disk, 14-inch monitor with DOS and Windows: about £700
- SMPTE/MIDI card (Music Quest MQX32-M): £199
- *Cakewalk Professional for Windows* v3.01: £199.

NB: Prices are changing rapidly, so shop around before buying, and haggle — many retailers give cash discount of 10% or more on a package deal. *SOS* Readers' Ads are also worth watching, although I would advise caution when buying second-hand disk drives or tape machines



Software Audio Workstation.

its Soundfiles to DAT in real time and stores the EDL setup to disk. Valuable space on the hard drive is regained, with the option of later restoration.

• RECORDING

Architecturally, *SAW* has much in common with Digidesign's *Sound Designer*. Audio is recorded to the hard disk as stereo Soundfiles (.snd), portions of which can defined as Regions. These can be of any length — a single word, a complete chorus, or a whole track, and are non-destructively spliced in sequence to form a playlist. The only limit is the amount of free space on your hard disk.

Recording is simple. After routing your source to the PC soundcard, you select 'Record Soundfile' and give it a name. The *SAW* Record Control Panel appears, and you click on Record. When recording is complete, the take can be transferred directly to *SAW* Multitrack or added to the Regions list in the EDL view. It is possible to record whilst simultaneously playing back tracks, and *SAW* will snap the new audio to Multitrack whilst maintaining the relative timings.

SAW can only work at a single sample rate for each session. As my soundcard outputs at 44.1kHz and many of my DAT recordings are at 48kHz, I have to convert the sample rate. This is done in faster than real time from the Regions menu and, like many other *SAW* edits, is non-destructive, as a new Soundfile is created and the data of the original remains unaltered. *SAW* can also import and convert .wav files to .snd and vice versa.

• EDITING

In *SAW* most editing takes place at Region level, and is usually non-destructive. The audio data is shown on screen as an amplitude waveform graphic of the soundfile, and editing can be performed with sample-level accuracy — within a 25-millionth of a second at 48kHz!

Audio can be cut, pasted, reversed, and changed in pitch and volume, fades can be added, sample rates converted, and tempos matched — all without adding noise. *SAW* lacks Pan control, but individual Left-Right levels can be adjusted.

SAW Utilities includes a set of digital audio processing tools that can produce stunning results. In all modules, parameter settings can be saved and recalled. Horizontal guidelines are displayed superimposed on each channel in the Soundfile view, to help set the range of the more important parameters. *SAW* Utilities is only let down by tacky graphics and the absence of numeric calibration on some parameter adjustments. Having said this, let me emphasise that the effects themselves are marvellous and great fun to use.

The Equaliser module is a 7-band paragraphic with high- and low-pass filters (18dB/octave). Each band has boost and cut, definable centre frequency (Q) and bandwidth control. This is a ▶

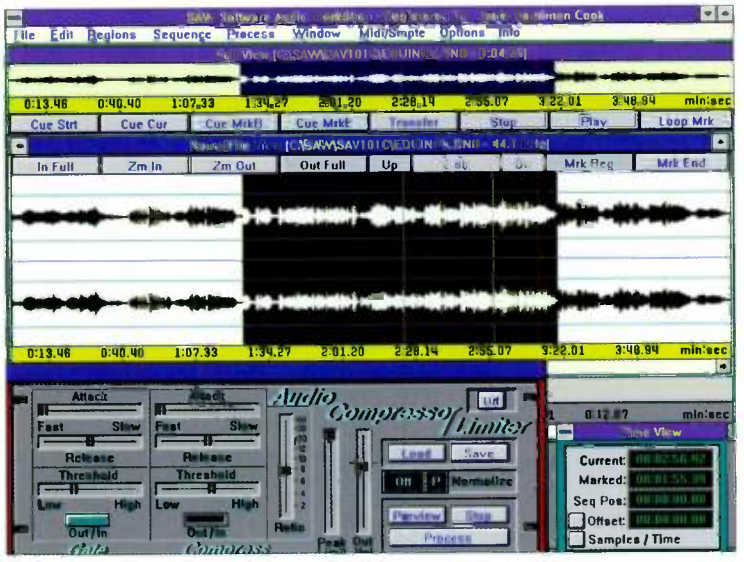
HARD DISK MANAGEMENT

Recording to disk is very demanding, and the hard disk needs to be kept in top condition. *SAW* samples at 32, 44.1 or 48kHz. Sampling at 44.1kHz requires 11Mb of memory per minute of stereo recording, so 30 minutes of stereo audio needs 330Mb of hard disk space, and 30 minutes of 8-track recording will need about 1.3Gb. If you only have one hard drive, you'll typically need about 200Mb to store your programs, so the bigger the better.

The hard disk will run slowly and may crash the system if its data has become too fragmented. When a file is written to the hard disk, its data is scattered across the available free memory locations. As the drive fills up, its file data becomes so fragmented that it cannot be read at the speed required by the system. It is good practice to defragment at the end of each session.

- Delete unwanted files in File Manager and exit Windows.
- At the C:\ prompt type DEFRAG.
- Select the drive and wait: it can take over 15 minutes to defrag a 500Mb drive.

Living With *SAW* & *Cakewalk Professional*



SAW Soundfile view, with SAW Utilities open bottom left.

▶ very powerful and useful processor — camera sound with motor and wind noise can be salvaged, cleaned up and made useable, and completed tracks can have their EQ tweaked to remove rumble and hiss.

The Compressor/Limiter module also contains a Gate and a Normaliser. Though the Compressor certainly doesn't have the character of its analogue counterparts, it does the job, and the Gate performs well, being most useful for quickly removing unwanted background noise during quiet parts of Soundfiles.

Normalising may be a concept unfamiliar to the digitally uninitiated. Simply put, it is a form of automatic volume processing that adjusts peak volume levels so that they fall within a desired margin below digital clipping. Normalisation can be used to optimise the overall volume level of audio recorded too low, or to re-balance uneven stereo.

The Echo Generator has discrete control on both channels for Delay time, Feedback and Strength. The sound quality is remarkable: the delayed signal is clear, undistorted and truly transparent, and all it misses is an oscillator for chorus and flanging.

• ASSEMBLER/MULTITRACK

For simultaneous playback of more than one Region, and to create a playback sequence made up of multiple Regions, *SAW* Multitrack is used. Multitrack graphically displays each stereo ▶

THANKS FOR THE MEMORY

RAM is the computer's on-board memory, and the rule here is "the more the merrier". Lots of RAM will help programs operate more smoothly; they will be faster and more stable, making (some) crashes a thing of the past (well, nearly...).

For anything other than entry-level digital audio, 4Mb is a joke — like trying to Tango in a phone box. With 8Mb you will just about be able to run your MIDI Sequencer alongside your digital audio recorder. With 20Mb, your MIDI Sequencer and digital audio will run smoothly, and there will be sufficient room for a synth editor and a basic office suite, such as *MS Works*, acting as studio log/organiser.

STUDIO EQUIPMENT LIST

PC SYSTEM:
- 486 DX4-100 PC with Vesa Local Bus
- Windows 3.11/DOS 6.22
- 12Mb RAM
- IBM Spitfire Hard Drive — 1Gb E-IDE with 8.7mS access
- Arches 217AHL Autoscan SVGA monitor
- Aztec CD-ROM with digital Out
- Turtle Beach Multisound Classic soundcard
- Digital Only Card-D
- MQX32 SMPTE-MTC MIDI Interface card
- *Software Audio Workshop (SAW)* v5.1
- *Cakewalk Professional* for Windows v3.01

OTHER EQUIPMENT
- Alesis Microverb II reverb
- Alice 16:4 mixer
- Antoria Acoustic and Kramer electric guitars
- Audio Logic RDS 7.6 DDL
- Casio DA7 portable DAT recorder
- Casio DG10 MIDI guitar
- Casio VZ10M digital synth
- Denon & Pioneer cassette decks
- Denon CD player
- Drawmer LX20 compressor
- Emu Emax II sampler with 8Mb RAM/80Mb SCSI hard drive
- ETI vocoder
- KBM & Akai speakers
- Korg 05R/W digital synth
- Lexicon LXP15 multi-effects
- Neumann U89i condenser mic
- Panasonic AG5250 video recorder
- Realistic PZM mics, custom-modified (x2)
- Quad 2 valve amplifiers (2)
- Roland SH101 analogue synth
- Sony DTC690 DAT recorder
- SPL Vitalizer Classic
- Tantek compressor
- Teisco 110F analogue synth
- Valley noise reduction
- Yamaha DX11 digital synth

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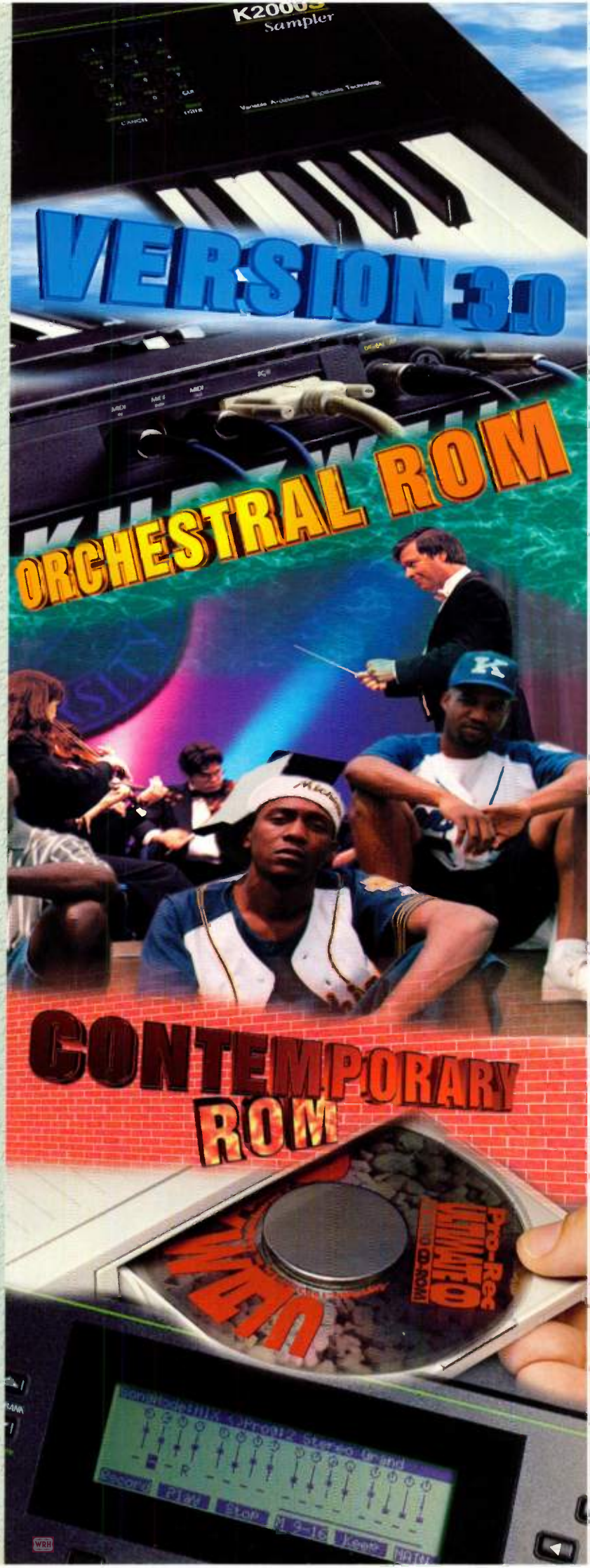


SOS WANTS YOU!

SOS would like to hear from other long-term users of any fairly recent hi-tech gear (whether hard- or software). Drop us a line at the following address if you have some experiences relating to one piece of equipment or setup you'd like to share with other readers!

Please note: SOS reserves the right not to publish material submitted for publication. Copy submitted may also be edited at the discretion of the Publisher.

▶ Track and the sequence of the Regions within it, which may be positioned with sample accuracy. The 'feel' of the music can be changed by offsetting the start times of recorded parts.

The list of Regions in the Play Sequence EDL determines the playback order in each of the four stereo tracks. To re-order the list, you simply change the order of the events in the EDL. Comparing takes is easy — just click on the relevant entry in the Regions list in the EDL, and the take is instantly cued and replayed. Track bouncing to stereo on analogue multitrack requires two channels as destinations, but in HD systems, recorded tracks and playback channels are distinct. Consequently, *SAW* allows 8:2 rather than 6:2, and does not add noise or distortion.

CAKEWALK PRO

Cubase was a hard act to follow, but the Atari's processing was slow, and I was attracted by the prospect of an integrated system combining digital audio from *SAW* with multiport MIDI recording. The MQX-32 card acts as the main MIDI interface, providing two discrete MIDI Out ports. The PC links externally with my Korg 05R/W and at board level with the Proteus 1XR on the Multisound Classic soundcard, to provide a MIDI port for each synth — a total of 64 MIDI channels.

This type of modern multi-port handling requires a powerful MIDI sequencer, and until *Cakewalk Pro* was released, MIDI software on the PC was pretty much a non-starter for me. With *Cakewalk Professional* for Windows, Twelve Tone Systems demonstrated that the PC could reliably run powerful modern sequencing software. This was no mean feat, and the many awards that followed reflect this. But for me it has been a love-hate relationship, and I feel *Cakewalk Pro* is only "nearly fantastic". Its fast, colourful, multi-screen, multi-port, multimedia working is wonderful, but it suffers badly from the absence of some features expected in a professional mid-'90s MIDI recorder. In addition to a host of lesser omissions, there is no Song Arrange page, only minimal drag and drop editing throughout and, most unforgivably, no MIDI activity indicators.

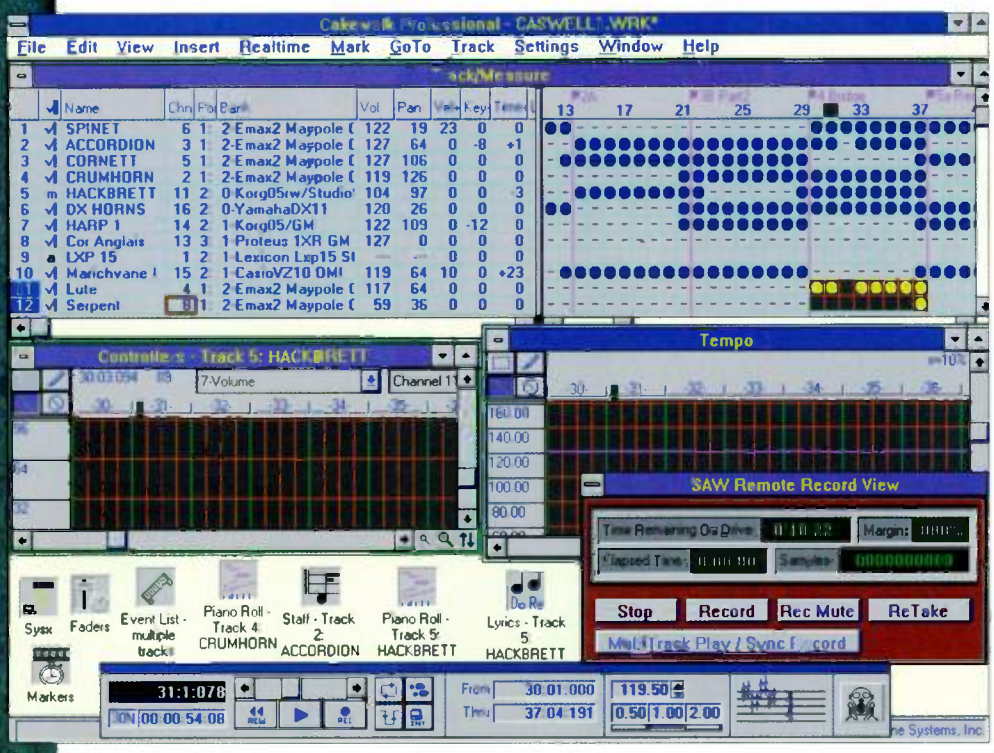
But *Cakewalk Pro* has lots of goodies. Tempo, Note and Controller data can be edited graphically. The Tempo Analyser will read mouse clicks (but, oddly, not MIDI Note Ons), and user-definable Key Binds are available for computer and MIDI keyboard control of the program's functions — I was able to carry over the keybinds I had used in *Cubase*. *Cakewalk Pro* also has a Timebase of a maximum 480ppqn, on-line Help, Fit to Time or Improvisation, and CAL — a powerful event programming language that enables the creation of custom editing commands.

Unfortunately, *Cakewalk Pro* creates a poor first impression on boot, as it presents the Track/Measure page. There's the expected track list, with common MIDI controller settings, and an excellent user-definable display of instrument voice bank lists. *Cakewalk* also contains lists of most common synths' factory voice and drum allocations.

However, the Measures display is a lot of space doing very little, and consists of a grid full of ugly, minimally informative blobs that indicate the presence of MIDI events within each bar. The blobs cannot be grouped together to offer part-based editing, as on the excellent *Cubase* Arrange page. Total chaos is held at bay only by Markers that can be inserted above the measure pane to enable the naming of cue points, and so provide some overall view of song structure. There is no View Magnification and you can only mute a whole track. Sections of the track cannot be muted to, for example, temporarily turn off a phrase or a program change. Lack of drag and drop makes track list ▶

OFF-LINE & OUTBOARD

Using *SAW* Utilities for on-line effect processing is great, but what about your favourite off-line reverb, digital delay, or enhancer? One way to incorporate them is to solo the track you want to process, play it back routed via the desk to the external processor, and record the wet signal only to DAT — bounce this into *SAW* and line it up with the dry source track. You can then, if you want to, offset the wet signal and so revise the effect pre-delay time. When the overall wet-dry balance is found, the two tracks may be pasted together and merged.



Cakewalk Pro Track/Measure page with Transport bar.

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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.*

Still available on the Atari and PC, Yamaha CBX-D5 with FREE Cubase Audio software, *just £1499.*

C-LAB FALCON MKI

Get a Falcon from C-LAB and get on with your music instead of dealing with installation hassles. C-LAB are now shipping Falcons for just *£799* with 4meg. Add a 270meg drive for hard disk recording (up to sixteen tracks with Cubase Audio) and get change from *£2000.*

Sound Studio

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

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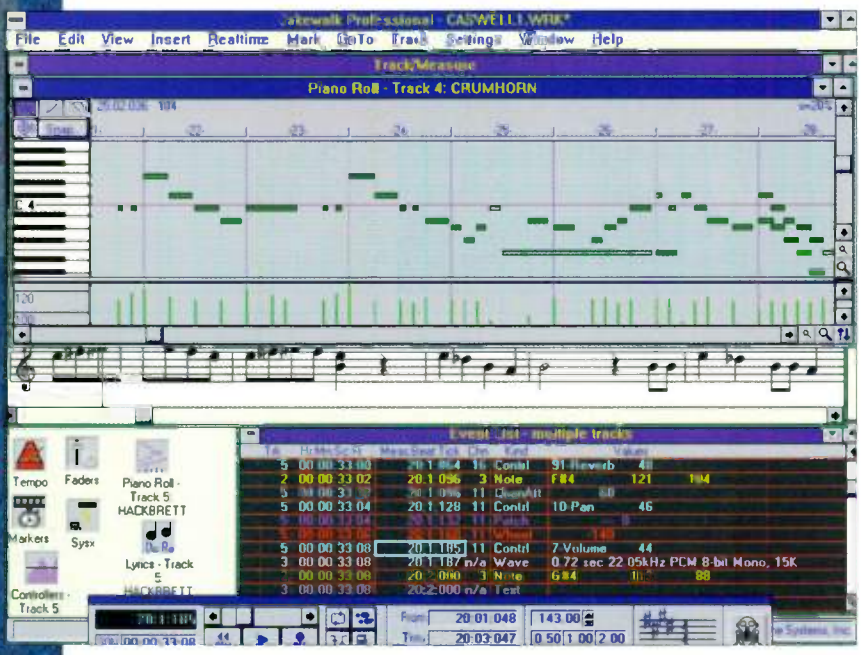

Cakewalk Pro Editors & Icons.

▶ ordering a bit of a bother, and there are no Locator memories to facilitate looping and cueing. A Bar One Offset setting would be helpful, and would allow time for system configuration, such as hard disk voice bank loading. The music could then start at bar one. All Notes Off is a grotesque icon of Edvard Munch's 'The Scream' — rather too close to the truth at times, I felt!

In general, the editors are well laid out. *Cakewalk Pro* is designed to work with multiple screens displayed, so Markers, for example, are not carried through to the editor pages. This is not a real problem, however, as you can view Track/Measure at the same time as the editors you require. Similarly, some note information is only partially presented in the Key editor; to view the full note parameters, you must run the Event editor alongside. Sadly, *Cakewalk* does not save its editor views or icons on exit, so they are not recalled on reload. Nor is there a 'Delete Doubles' command to allow you to strip out duplicated MIDI events that slow the MIDI data flow and reduce polyphony.

The heart of *Cakewalk Pro* editing is the Event Filter. This is used to define which MIDI events are included or excluded from the edit move. It is essential learning, and although it may at first sight appear complex, it is well laid out and straightforward to use.

I found the lack of drag and drop in the Piano Roll Editor very strange — the selection is time-based and selects all notes within a time area unless you are able to exclude them using Event Filter. This is all rather long-winded, but the program is saved by the speed of the 486. Curiously, when you're using the Event Filter, the Key editor blanks out its note display.

But for every way in which *Cakewalk Pro* seems slow, there are 10 ways in which it runs like lightning. It will save a whole song from within its editors — just hit 'Control-S' and it's done — the only downside being that you must stop playback first. I like the Drum Editor, but I miss having individual level control for each drum voice. Oddly, the editor file bars and the minimised icon titles display only the track name and omit the patch name. Velocity scaling is available, but to add, say, a fixed value of 20 to note velocity requires a trip through the Event Filter via the Interpolate command.

CONCLUSION

The *SAW*/PC setup is very much an entry-level system, with a price tag to match, but its performance is outstanding in terms of audio quality and stability. The lack of drag and drop handling, fully tabulated EDL, scrub function, BPM calculator, poor parameter control in Utilities, and only one stereo output distinguish *SAW* from more expensive options. However, *SAW Plus*, due in the next year, runs 16 mono channels with multiple soundcards and full multitrack drag and drop editing.

After working for years with open-reel recorders, and later triggering audio from a sampler, I find *SAW* a delight to use. I recommend it wholeheartedly to the engineer in small studio post-production, for use in radio program assembly, jingles, video/film soundtrack, ad creation, or simply in overdubbing live instruments, effects and vocals to MIDI song demos. *SAW* is an unmissable bargain.

Cakewalk Pro is more of a mixed bag but overall is still a very good package. The forthcoming *Cakewalk Audio* will feature a *Cubase*-like Arrange page and integrate MIDI with sophisticated direct-to-disk audio. *Cakewalk* will need all the whistles and bells it can muster to face competition from Emagic's *Logic/Logic Audio* and the arrival on the PC of Mac-originated heavyweights *Performer* and *Studio Vision* from Mark of the Unicorn.

With practice and patience, I have found ways around most of the shortcomings of *SAW* and *Cakewalk Pro*, and the package has been reliable and cost-effective. Does it make better music and recordings faster? You bet! But of course the better the system, the more we demand of it... SOS

Many thanks to Michael Shackleton, Paul Mahoney, Simon O'Donnell and Paul Wilkinson at Digital Music for helping me wade through PC arcana.

CONTACT

For *SAW*, *Cakewalk Pro/Pro Audio*, DAL Card D, Turtle Beach and Music Quest cards, contact: Et Cetera Distribution, Unit 17, Hardman's Business Centre, Rawtenstall, Rossendale, Lancs BB4 6HH. Tel: 01706 228039. Fax: 01706 222989.

STOP PRESS: *CAKEWALK PRO AUDIO v4.0*

There was just time to slip a few words into *SOS* on my first impressions of this new program, which arrived after I had written the main part of this article. The new program features 44.1kHz hard disk recording. Audio editing is basic, with level, EQ, cut and paste, audio-to-MIDI and MIDI-to-audio quantisation, plus tempo matching. But it is the vastly improved handling of MIDI that has delighted me. The major weaknesses of *Cakewalk* in Song construction and Part writing are now corrected, with *Cubase*-style drag and drop editing in Track and Piano Roll views.

My first impression: superb! Although you will need a DX2-66 PC or higher, with at least 12Mb RAM, unless you need to sync to external video or audio recorders you can save on the cost of a SMPTE card: *Cakewalk Pro Audio* synchronises audio and MIDI internally. File under Significant and watch this space...

Cakewalk Pro Audio v4.0: £339. Upgrade from v3 for: £85.

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Sound on Sound

Worker's Playtime

VISCOUNT MF01 SONG WORKER ACTIVE DATA FILER/GM MODULE

Drawing on their experience in home keyboard and MIDI data filer manufacture, Italian company Viscount have created the MF01, a combined data filer and GM module. ANDY DAVIES gives it a spin...

Computer-based sequencers offer unprecedented flexibility when it comes to recording and editing MIDI compositions, but when taken on the road for live performance, they have a reputation for being unreliable, as well as physically vulnerable and awkward to set up. Due to these limitations, it has become increasingly popular to write and record using a heavy-duty, computer-based sequencer, then transfer the results via MIDI to a MIDI data filer — a far more practical proposition when it comes to recreating sequences live. As an alternative, some performers buy their backing tracks ready made in the form of GM-compatible song files, and it was with these 'live' applications in mind that Viscount devised the MF01 Song Worker.

Viscount bill their MF01 as an 'active data player/sound generator', which in layman's terms translates to a data filer with a GM synth and DSP effects chip built in. This means the MF01 can be used simply for its on-board sounds as a way of playing sequences live along with a bigger keyboard setup, or as an all-in-one backing unit for musicians and singers requiring no other equipment besides a PA.

THE LOWDOWN

The MF01 is essentially a stand-alone unit measuring 340mm x 270mm x 44mm, but it does come with a pair of rack ears, just in case you have a 1U rack space free.

The styling and construction of the MF01 are generally good, but I was taken aback when the clear plastic window in front of the three-digit LED display came off seconds after I had taken the unit out of the box. (On inspection, I found a distinct lack of glue, but I'll assume that this is a one-off abberation.) The fact that a numeric display has been chosen means that you can't view your song names, and it makes some of the more advanced editing facilities less than intuitive.

The front panel is divided into three main areas. On the left is a 3.5-inch disk drive below which are mounted the transport controls — Stop, Play, FF, Rew, Pause and Record. To the right of these are buttons for Enter, Hold, Erase, Mute and Solo, plus two buttons for song and tempo selection. The Program and Utility function buttons are also in this section. The controls for the GM synth include Part Select, Instrument Select, Sound Variation, Transpose, and an overall volume control.

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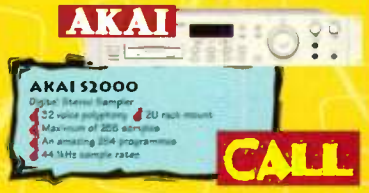

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In, Out and Thru sockets, a stereo output for the GM module, a socket for the wall wart power connector, and a quarter-inch jack socket for starting and stopping the data filer from a foot switch — essential for live work.

DATA FILER

A data filer may be used to record, store and play back either MIDI sequences or MIDI System Exclusive data, such as patch dumps from instruments and effects units. Information can be fed in either directly via the MIDI In socket or from disk. The MF01 accepts both double and high density disks in the MS-DOS/Atari ST format, and is capable of reading and recording any data in Standard MIDI File Format Type 0, making it compatible with the majority of devices in use today. Data transfer on high density disks that have been formatted in double density Atari ST drives is notoriously unreliable, so Atari users should avoid high density disks where possible.

Songs on disk are accessed via the Song Up/Down buttons, with the number of your currently selected choice being shown in the LED display. Simply by operating the transport controls, the selected file can then be started, stopped, or fast wound to any position within the track. Songs on disk can be programmed to play back in any order (using the Chains facility) by using the program button, and a user-selectable intro time (Programmable Pause) can be entered to make for a totally automated set list. Whole disks, songs, or parts of songs can be made to repeat, and various options are available for auto play and auto rewind. As the MF01 reads directly from disk, songs can be transposed in real time, or the tempo can be changed if required. Both of these parameters can then be written to disk permanently.

As with a sequencer, sounds can be changed or muted on any of the 16 MIDI channels, which, for example, allows the user to silence the melody line of a MIDI Song File, or maybe mute a solo, in order to sing or play their own. A solo button is also included which mutes all but the selected MIDI channels — handy for assigning parts to channels, or for listening to a musical line in isolation.

THE SYNTH

The sound module that makes up the other half of this package is 28-note polyphonic and contains the usual 128 GM sounds, which can be played as a conventional synth expander by connecting a keyboard to the MIDI In. Also included are up to two variations on some, but not all, of these main sounds. In some cases these variants are similar to the originals, but others are quite different. In total, 281 sounds are available, including nine drum kits and the obligatory GM sound effects. The sounds are all decent examples of the GM set, and the majority are technically clean and quiet when monitored from the main outputs. However, the headphones, which are on a mini jack socket, pick up a noticeable amount of interference from the disk drive, which surely could have been avoided.

Sounds cannot be edited, but any parts, as Viscount call them, can be assigned to any MIDI channel by use of the Part Up/Down buttons. (The exception to this is channel 10, which is always reserved for drums.) The sound of the selected part can then be changed using the Instrument Up/Down and Sound Variation buttons, or via MIDI using programme change commands. All data read from disk is automatically sent to the MIDI Out port. This facilitates the use of other MIDI devices along with the MF01, and options are available to mute any outgoing or internal MIDI channels, making it possible to set up a combination of both on-board and external sounds for playback.

There are many options and clever features hiding under the Utility button — disk-to-disk copying, MIDI filtering, and file management, to name but a few. Unfortunately, the operating system for these higher functions is far from straightforward, and the cryptic messages displayed by the LED window do little to help. In their defence, Viscount have put a quick reference guide in the back of the manual, but I feel this would have been far better screen printed on top of the unit, along with the sound groups.

VERDICT

The MF01 offers a very useful and attractive package to the musician who is looking for an all-in-one box solution to playing sequenced data live. It may also suit the studio user who might like to add 16 GM tracks to an existing sequencing system, or simply use it as a repositary for patch data.

Of course, you have to bear in mind that devices like this can only handle 16 MIDI channels — there's no MIDI data filer that I know of with multiple MIDI ports — but then most songs for live performance can be rationalised to 16 parts or less. My only real criticisms are of the rather uninformative LED display and the consequently cryptic nature of some of the more complex editing functions. For routine work, the operating system is very friendly.

Pricewise, the MF01 seems destined to trade punches with Roland's SD35, about the only other combination data filer/sound generator I know of, and in my opinion it offers a sensible combination of features and good quality sounds. On balance, a very practical and useful device. SOS

VISCOUNT MF01 SONG WORKER £625

PROS
- Good range of GM sounds.
- Easy to use general functions.
- Many in-depth functions also available.

CONS
- Cryptic display.
- Difficult editing of in-depth facilities.
- Noisy headphone output.

SUMMARY
A good investment for the gigging musician using sequenced backing material, or the person requiring a general-purpose MIDI data filer plus a decent set of GM sounds.

FURTHER INFORMATION

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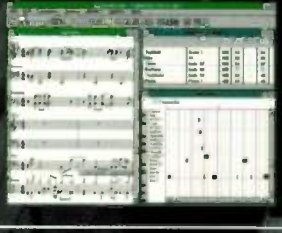

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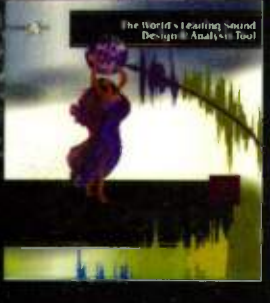

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▶ In this case, it isn't a problem for the gate to decide whether it should be on or off, as long as you've set the controls correctly, and you do have a little margin for error. But if you have a complex source, you may have more difficulty. By 'complex source', I mean two or more sounds going on at the same time, one of which you're trying to separate out. This happens when gating a real drum kit, or when you have recorded a vocal at home and some extraneous noises have entered through the windows, walls and door of your unsoundproofed studio. The gate isn't musically aware and can't tell the difference between wanted and unwanted sounds; it opens whenever the incoming level exceeds the Threshold. To help the gate decide when to open and close, you can use the two Filter controls. As you can see in Figure 2, these are initially set to the two extreme positions, where no filtering takes place. If you don't need them, leave them in this position, as extreme settings can slow the gate down a little. Newcomers to gating sometimes twiddle these controls at random, expecting something miraculous to happen. Nothing miraculous, (or even mildly awe-inspiring), will happen unless you have twigged what the Filters are for and how they affect the gate's performance. The Filters only affect the Key signal driving the gate, not the sound being processed, and Drawmer have thoughtfully added a Key Listen feature which allows the effect of the Filters to be heard when setting up. If the external Key input isn't being used, the main input also feeds the side-chain, so you'll hear a filtered version of the input in Key Listen mode. If the unit is set for External Keying, you'll hear the external signal processed via the Filters.

To illustrate how the Filters might be used is best achieved by example: suppose, for instance, that you're gating a snare drum and want to stop the hi-hat (which is bleeding though into the snare mic at quite a high level) from opening the gate. Without the Filters, you can't find a Threshold level where the snare drum opens the gate and the hi-hat doesn't. However, the two sounds have very different frequency characteristics; the snare drum covers pretty well the full frequency range, while the hi-hat is strong mainly at high frequencies. It seems obvious that if you can prevent the high frequencies from getting through to the triggering circuitry, only the lower frequencies of the snare will open the gate. In this case, all you need do is turn down the high frequency control to 2kHz or so. You can hear the effect of the filter in Key Listen mode, and the object is to retain as much of the snare sound as possible, while removing or reducing the contribution from the hi-hat. You'll have to tinker with the Threshold again, in all probability, but there's now a good chance that you'll be able to gate out the hi-hat completely, with no unwanted false triggering.

My next example concerns vocals: much of the background noise entering a vocal mic is probably low frequency in character, since low frequencies tend to leak more readily than high. The human voice, on the other hand, has very strong harmonics between about 1Hz and 5kHz, so set the LF and HF controls to these frequencies respectively. Achieving a precise setting may be difficult, because you may now find that 's' and 'f' sounds at the beginnings of lines don't have enough energy between 1kHz and 5kHz to trigger the gate. In this case, lower the frequency of the LF Filter until the gate triggers reliably but the low-frequency spill is still excluded. For very low-frequency spill, a lower Filter setting of around 250Hz might be more appropriate and is less likely to cause the gate to 'miss' wanted sections of vocal.

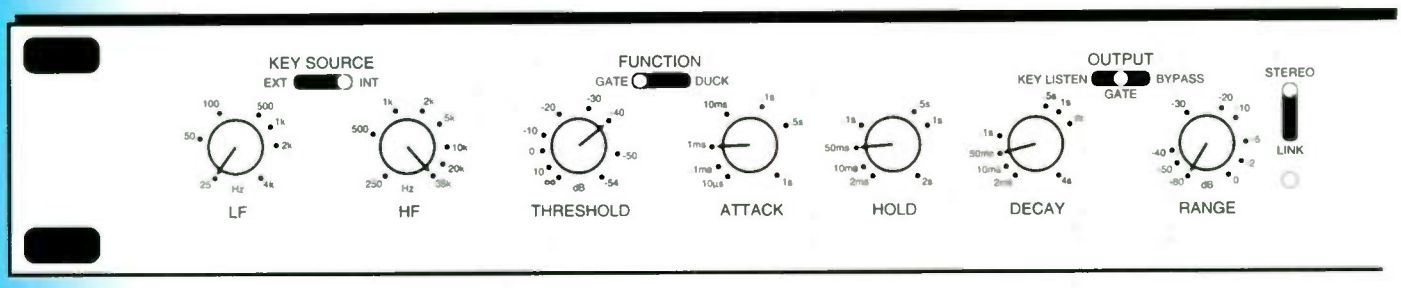

Figure 2.

THE SECRET OF THEIR SUCCESS?

This article is centred around the Drawmer DS201 which, as mentioned at the start, is almost a studio standard. But what's the reason for Drawmer's success? Is it that their gate is better than everyone else's? The DS201 is certainly very good, and reassuringly predictable in operation, but I don't think that's the sole reason, as there are good gates around from other manufacturers. I'd say that the principal reason for Drawmer's success is that they brought out the DS201 at a time when noise gates were thin on the ground, and most importantly, they sold it at the right price. I have heard comment in industry circles to the effect that Drawmer could have charged more and still had a success on their hands. One thing is certain; Drawmer set the pattern for how a noise gate should perform and how much it should cost.

FURTHER ADVENTURES

A creative trick that the DS201 tackles extremely well is gating one sound from another. This has become known as the 'Shamen sound', since they appear to like it a lot, but you can use it successfully on many styles of music.

If you take a look at your DS201, you'll notice a switch on the left of the front panel called 'Key Source'. The key is the signal that opens the gate, and in normal operation it will be the same signal that you're gating. But it doesn't have to be — you can send one signal through the gate and use a completely different signal to switch the gate on and off, and you can automate it via MIDI even though the DS201 doesn't have a single 5-pin DIN. Let's try an example... ▶

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USING DRAWMER DS201

Let's suppose you have a track half-finished on your multitrack tape, on which you have timecode or a sync track. Strap on your battered old guitar and plug it into a fuzz box (or set your multi-effects unit to a distortion preset, if you want to be posh). Record chords that change only in line with the melody/harmony, one chord per change of harmony, without introducing any rhythm at all. Now get out your drum machine and create a closed hi-hat pattern in any rhythm you choose. It doesn't have to be hi-hats but the hi-hat sound is suitably short. Synchronise the drum machine (or sequencer) to the tape and get it playing along in time to the music. I'll assume that you are already familiar with synchronising this type of equipment and you don't have any problems achieving this.

- Patch the guitar track through the noise gate, as shown in Figure 1.
- Patch the output from the drum machine supplying the hi-hat sound to the Key input of the same channel of the gate.
- Switch the key source to 'Ext' and set everything in motion.

You'll find that the guitar sound is chopped up into the rhythm of the hi-hat. You may need to adjust the Threshold setting from the starting position to get this working cleanly, but you won't be far away. To fine tune the effect you may want to adjust the Attack, Hold and Decay. Since the hi-hat is a very short sound (at least, I hope you used a short one) you shouldn't have any trouble with jitter, and you'll have complete freedom to set the envelope of the guitar sound according to the needs of the track. If you set a long Attack, you might need to advance the hi-hat so the gate opens a little bit earlier. Hold, you will find, sets the length of time the gate will stay fully open, after which it will close abruptly. Decay sets the time it takes for the gate to go between fully open and fully closed once the level of the triggering signal has descended below the Threshold. This allows you to experiment with various envelope shapes; gates with no Hold control are a little more restrictive in this department.

I'd say that the principal reason for Drawmer's success is that they brought out the DS201 at a time when noise gates were thin on the ground, and most importantly, they sold it at the right price.

But what if you don't synchronise MIDI equipment to tape? How can you achieve a similar effect? Well, you could always open and close the gate manually. Just patch a synth into the key input. A sustained sound at a constant level with a quick attack and decay will give you a switch with which you can open and close the gate at will — more convenient and quieter than using a console's muting or routing switches. Or you can try something a little more clever:

- Find, among the drum tracks on the tape, a drum with a suitable rhythm — maybe the bass drum for starters. It's probably better if it's by itself and not mixed in with anything else, but it's not the end of the world if it isn't.
- Feed this into a digital delay and adjust the delay and feedback controls so that you get repeat echoes in time with the track.
- Now apply these repeat echoes to the Key input of the gate. You will have to fiddle around with the Threshold of the gate and the degree of feedback applied to the echoes, but you should find that this triggers the gate quite nicely and chops up your guitar chords into a pattern of eighth or sixteenth notes.

Producing a particular rhythm with this technique might not be possible in the same way as when you synchronise a drum machine, but there are still lots of things you can do — and we're not finished yet.

DEEP BASS

Staying with my non-MIDI example of a multitrack recording for the moment, you may find that the bass drum you recorded didn't really have the depth of sound or produce the degree of satisfaction you were looking for. You could, by other means, replace the bass drum with a triggered sample, but then you'd lose the natural sound and the subtlety of real drumming (and even after all these years of MIDI, good drummers are still worth their weight in gold). Another solution is to find a low-frequency sine wave from somewhere — from your console's oscillator, your Akai S1000 or synthesizer — and patch it to the gate's input. Route the real bass drum to the key input (while still including it in the mix) and carry out the external triggering procedure as before. Now you'll get the bass drum plus a low-frequency pulse to mix in to provide all the beef you need. You'll probably want to experiment with the frequency of the sine wave (don't blow your speakers!) and with the Attack, Hold and Decay of the gate, so that the addition of the sine wave isn't too obvious.

AND FINALLY

Just to finish off, let's take a look at that good old standby — gated reverb. Nowadays, we invariably use the gated reverb preset on our trusty multi-effects units, but sometimes the traditional ways are still best. The easy way to produce real gated reverb would be to apply the signal plus reverb to the gate's input and use internal triggering, ignoring the key input. With the DS201 however, this limits the settings of the Hold control available to you, since you'll sometimes get jitter. A better way is to feed the dry signal to the key input and the dry signal plus reverb — or even the reverb only — to the normal input. In this way you have full control over the gating, and you can get a very wide range of reverb envelopes, which are normally not available with multi-effects units. You can also use this technique with real reverb — if your bathroom or stairwell is big enough. There is a wonderful world of sounds available to the person willing to experiment with the Drawmer DS201, and even if you're the owner of a different type of gate, many of the techniques discussed still apply. SOS

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Although the new Alesis QS6 is based on the same synth engine as the Quadrasynth, it features new packaging, new sounds, a new operating system and a lower price. Also included is a Mac/PC CD-ROM containing programs, demos, samples, MIDI files and, most importantly, the means to import your own sample waveforms.

The original Quadrasynth [reviewed *SOS* May 1994] sported a 6-octave keyboard, 16Mb of ROM samples, and combined a very clean sound with massive polyphony — but, unfortunately, it lacked a strong sonic character. The QS6 is obviously an attempt to set right the shortcomings of the Quadrasynth without having to go right back to the drawing board.

Physically, the QS6 is smaller than the Quadrasynth and features anodised aluminium casework rather than plastic which makes it stronger, and presumably provides better RFI shielding in readiness for the new European regulations. On the deficit side, the keyboard has shrunk to five octaves, and gone are the four 'Quad knobs' and the ADAT digital interface. The large custom LCD has been replaced by a generic 2 x 16 character green backlit display, and though it is really too small to be ideal, this may not be a problem if you own an Apple Macintosh or an IBM PC clone, as included on the CD-ROM disk is a QS6 editor for MOTU's *Unisyn* editor/librarian software.

The pitch-bend and modulation wheels are placed above the first five notes of the keyboard, on the left side (as with the old Yamaha DX21 synth), but in reality this makes no difference at all to your playing comfort. A rubber coating gives the wheels a good tactile response, and the sensibly long volume and data sliders are positioned to the right of the modulation wheel. The rest of the top panel is dedicated to 32 rubber patch selection buttons and various edit keys. The patch select buttons double up for selecting the numerous editing pages, and usefully, all the keys have their functions discreetly printed next to them. Also, the sound types are broken down into logical groups such as strings, synths, effects and so on, each group being accessed via its own button.

The back panel contains most of the usual connections plus a switchable serial connection to a PC or Apple Mac, but there's only one pair of stereo outputs — no digital audio interface and no MIDI Thru connector. The single stereo out limits the flexibility of the QS6 in a multitimbral studio setup to some extent, but the excellent internal effects

system goes some way towards compensating for this. The computer interface makes it possible to use the machine alongside a computer sequencer without the need for a separate MIDI interface. Also on the back is a PCMCIA card slot, which takes standard Type I SRAM or Flash RAM cards. More on this later, as it really is important to understanding how powerful this synth can be.

The power supply for the QS6 is an external mains transformer, with a proprietary connector to the keyboard. While these are generally considered a nuisance, at least you can buy 110V and 240V versions if you travel to and from the States a lot.

SOUND GENERATION

The synth engine in the QS6 is basically the same as that in the Quadrasynth Plus Piano [reviewed *SOS* Nov 95]. However, the QS6 contains a completely new 8Mb of sample ROM and the sounds seem to possess much more character than their predecessors. Due to the limited memory space compared to the original Quadrasynth's 16Mb, the acoustic piano is not particularly convincing, but the QS6 will accept the same 8Mb piano card as the Quadrasynth.

The QS6 also shares the same two main modes as the Quadrasynth Plus Piano: Program mode and Mix mode. Program mode lets you stack up to four oscillators, each playing from the samples available (note I didn't say ROM), each passing through its own Sample+Synthesis stages. Here you can adjust the Start Delay Time, Pitch Envelope, Lowpass Filter, Filter Envelope, Amplitude Envelope, and finally send the signal through one of four effects busses. You still get a maximum of 64 voices of polyphony, but as with the Quadrasynth, there are no resonant filters. This might be a big limitation given the current popularity of analogue-style synth sounds.

With four oscillators going full tilt you still get 16-note polyphony, which means you can produce some very fat-sounding orchestrations without having to be too careful about how many notes you use. The QS6 offers more modulation routings than can be found on most modern synths, helping wring the maximum flexibility out of the sound generation system. There's also mono or (for the clinically insane) poly portamento available, plus a couple of novel parameters for conserving polyphony.

Drum sounds are managed in a special program mode, which lets individual samples be assigned to single or groups of keys; this is where the power of the QS6 becomes apparent. Unlike drum sounds on most keyboards, the QS6 lets you play with pitch envelopes, filters, mute groups, envelope decays, velocity mapping to both pitch, filter and decay, and effects routing. This all makes the drum generating capabilities of the QS6 second only to the likes of the Kurzweil K2000/2500 and other more expensive studio toys.

SOUND STORAGE

The Programs are stored internally in five banks: General MIDI, Preset 1, Preset 2, Preset 3, and User, each bank containing 128 sounds. This provides access to 512 presets plus one bank of 128 user Programs. Most of the QS6 sounds are not unique, but they are very playable and I felt more are likely to get used than on most other synths I've tried.

Returning to the previously mentioned PCMCIA card slot, this allows you to store up to a further eight external banks of patches on a 512K card, giving potential access to over 1600 Programs at any one time! And if the thought of programming 1000 sounds fills you with dread, look no further than the supplied CD-ROM, which contains a vast selection to get you started.

Mix mode enables Programs to be layered or used multitimbrally to provide up to 16 separate parts on 16 different MIDI channels. Programs can also be assigned velocity and keygroups, allowing complex orchestral and synth setups to be generated easily. This makes the QS6 a powerful master keyboard, the only potential problem being that five octaves may not really be enough for some players.

ALESIS QS6 £899

PROS
- Attractive price.
- Excellent sounds.
- 64 voice polyphony.
- Free CD-ROM containing sequencer, editors, samples.
- Built-in Mac/IBM computer interface.
- Expandable through PCMCIA cards.

CONS
- Rizla-sized LCD screen!
- Software-only MIDI Thru.
- Only one stereo output.
- No resonant filters.

SUMMARY
A highly specified keyboard with massive polyphony and plenty of expandability options. PC and Mac users will find the included software immensely useful.

In Multitimbral mode, care has to be taken over how you deploy the available effects. Some Programs may need individual effects (such as distortion) whereas others can make do with accessing a general effect, such as reverb. Multiple audio outputs would have helped get around any limitations that might arise in this area, but I appreciate that tough choices must be made when designing to a price.

Once again, Alesis have been more than generous with the amount of memory given to multitimbral setups; there are four preset banks, and one user bank, each containing 100 Mixes, and you can store a further 800 Mixes on the same 512K PCMCIA card that is already holding 1024 Programs! This gives potential access to almost 3000 sounds at any one time, exceeding even the mighty K2000's limit of 2000 Programs and Setups.

In Mix mode the QS6 also provides full General MIDI support (but not GS, Roland's GM variant). Playing some of the demo sequences provided with the CD-ROM on both the QS6 and a Roland SC55 Sound Canvas shows how much better the QS6 interprets some of the more demanding passages.

Q SOUNDS

Overall the QS6 sounds are very good in their 'dry' (uneffected) state, but with the judicious use of the powerful onboard effects processor, they can be made to sound quite special. The samples are arranged into 17 distinct groups: Piano, String, Noise, Sound FX, Chromatic, Brass, Voice, Rhythm, Organ, Woodwind, Ethnic, Guitar, Synth, Drums, Percussion, Bass and Wave. Altogether there are 580 multisamples and the sound palette includes a generous selection of synthesizer sounds, a bank of very playable rhythmic loops, as well as the more obvious acoustic instruments such as strings, brass, guitars, basses, wind and so on.

Though it's hard to put your finger on exactly what an instrument sounds like, the overall feel of the QS6 is not unlike a Kurzweil K2000 crossed with an Emu Vintage Keys module. The sound quality is simply excellent, courtesy of the 48kHz sampling rate, and the noise floor is below that of most modern analogue mixing desks.

Assessing the samples as a whole, the dance genre of music is very well represented with classic TR909 and TR808 drum machine sounds as well as TB303 basses, along with a host of techno and industrial samples. The sound design team at Alesis have really done their homework this time — apparently, they flew in dance producer Arnd Kiser from Germany, who influenced much of the direction of the QS6 and even programmed the first of its demo tracks. Consequently, the QS6 sounds very European (bizarre really, since the European sound is based heavily on Japanese gear!), and would not be out of place in any dance setup — though I don't for a moment want to suggest that the instrument is limited in any way to purely dance styles of music; the QS6 can offer something for everyone.

QUALITY EFFECTS

The effects processor in the QS6 is very similar to the Quadraverb 2. The latter was designed by the same team of Marcus Ryle and Michel Doidic, who were also responsible for developing the Oberheim Matrix 12, the ADAT software, and the original Quadrasynth. The DSP chip is the same one used in both the Quadraverb 2 and the Quadrasynth Plus Piano.

The QS6 effects section receives four buss sends from the active Program or Mix, and provides up to 11 different effects running simultaneously in one of four configurations. Effects are not stored as parameters of a Program or Mix, but as separate entities. This enables you to re-use a favourite effects patch by simply selecting its patch change number from within the Program or Mix that you are working on. This can lead to problems though; for example, when you tweak an effects patch to make a particular patch sound better, you may wind up compromising another sound which utilises the same effects setting. The bonus is that a sound can have its effects changed via a MIDI program change command (sent from a sequencer, say), giving back some of the flexibility lost when you put everything in one box.

As you would expect from the Quadraverb 2 hardware, the effects themselves are very clean and punchy with first-rate reverb algorithms. The internal routing capabilities are totally mindboggling, and this is one area where the *Unisyn* computer editor really comes into its own, clearly showing what signal is routed where.

The effects processor also shines when it comes to real-time effects editing and control using the data controller. Many of the QS6's presets use either the controller or modulation wheel to change effects parameters, such as delay time and wet/dry mix. This can lead to some unwanted aural artifacts being generated as the DSP maxes out, but with careful use provides yet another interesting performance opportunity for the QS6 owner.

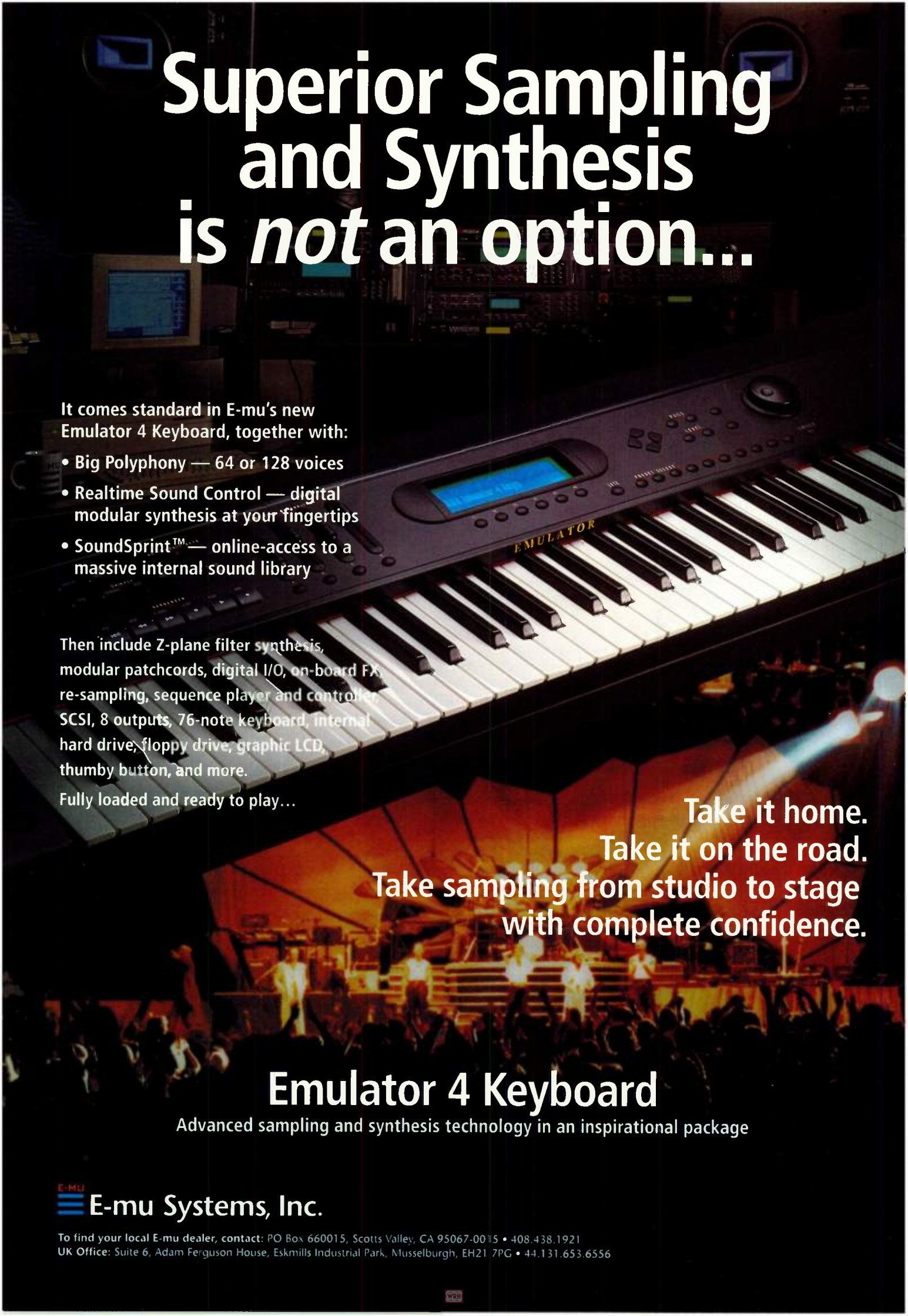
CD-ROM GOODIES

Those words on the packing list, 'Dual format computer CD-ROM containing software' is Alesis' way of saying 'absolutely everything required to make music straight out of the box'. And providing you have a Mac or PC, they mean it too: *Cubase Lite* (sequencer), *Unisyn* (graphic editor), *Cool Edit* (full PC editor) and *Sound Forge* demo (sample editors), 1000 additional patches plus 80Mb of extra samples, and that's not counting the sequences and countless other bits and pieces.

QS6 SOUND SOURCES

The QS6 contains samples taken from the following devices:

- EMS VCS3
- Fairlight IIx
- Minimoog
- Moog Rogue
- Oberheim OB8
- Oberheim OBx
- Oberheim 4 Voice
- Prophet 5
- PPG Wave 2.3
- TR909
- TR808
- TB303
- Yamaha DX7
- Roland Jupiter 6
- Roland Jupiter 8
- Rhodes piano
- Wurlitzer piano
- Alesis SR16 drums
- Alesis D4 drums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"Though it's hard to put your finger on exactly what an instrument sounds like, the overall feel of the QS6 is not unlike a Kurzweil K2000 crossed with an Emu Vintage Keys module. The sound quality is simply excellent..."

Cubase Lite has been on the market for some time now, and provides powerful, low cost sequencing in the same vein as its predecessors. If you have been using *Cubase* on an Atari ST, its files are directly compatible with both Mac and PC versions of *Cubase Lite*, making file transfer a breeze.

Alesis are justifiably proud that they managed to get Mark Of The Unicorn to write an editor for the QS6, since at a stroke it wipes away 99% of the concerns over the keyboard's small LCD. The *Unisyn* editor provides complete library storage and editing facilities for all modes of the QS6, and makes creating new patches a doddle.

Cool Edit is only available to PC users, and provides good sample editing and file conversion facilities. It is a shareware program, so if you use it you should send the author a small fee, and that usually keeps you informed of any updates. Sadly there's nothing similar supplied for Mac users, though there are many shareware and freeware editors available on the Internet and shareware CD-ROMs.

The sound team at Alesis have obviously been busy creating Programs and Mixes for the QS6; not only are there 640 of them inside the keyboard as soon as you turn it on, but there's an additional 1024 on the CD-ROM. If you buy a PCMCIA memory card, then the 80Mb of Northstar samples on the disk will be of interest to you. Contained in this small library are some excellent Hammond organs and shakuhachi samples just waiting to be loaded in via the included *Soundbridge* software.

Finally, there are several useful demo sequences plus bits and pieces of software kicking around on the rest of the CD-ROM, such as *Twiddly Bits* demos from Keyfax Software, Steinberg MIDI files from Heavenly Music, and a couple of Trantracks sequence files to show off the GM side of the QS6.

RAM...IFICATIONS

One of the most important features of the QS6 is that it is expandable, primarily through the use of PCMCIA cards which are available at reasonable cost. These cards not only allow you to store vast numbers of patches, they can also hold samples, and included on the CD-ROM is a small application called *Soundbridge* which lets you download AIFF sample files onto cards plugged into the back of your QS6. No expensive and cumbersome card blower is needed, just simple plug-and-play. What really makes *Soundbridge* neat is that it can download an entire SampleCell or SampleCell II 'Instrument', complete with loops and velocity splits, without need for conversion. This opens up the sonic palette of the QS6 to any Digidesign SampleCell format CD-ROM without any work on your part.

The AIFF file format is standard on the Macintosh, and for PC users there are numerous utilities (*Cool Edit* for one) to convert WAV files to AIFF files. With a Power Macintosh or AV Macintosh, you can use any number of utilities to create 16-bit samples from CD-ROM drives or the external sound input port. Unfortunately, if you own an IBM PC clone and you wish to make samples from external sources, then you need a SoundBlaster or similar sound card to perform the required AD conversion.

Downloading samples is very easy, though rather slow since the data is transmitted over the serial connection to the QS6. First of all, you compile a 'List' of samples and SampleCell Instruments that you wish to download to the QS6. Then each sample or Instrument is assigned a group, which you name, and you specify whether or not the sound is to be pitched (Chromatic) or unpitched (Drum). You can have as many groups and samples as your available RAM can accommodate. The next step is to click on the Compile button, and if you have a big (8Mb) card, go and make yourself a cup of coffee. When you come back, all your samples will be arranged in the card.

Although the QS6's native format is 48kHz, 16-bit samples, it will correctly replay 16-bit samples taken at any sample rate. So if you are trying to conserve memory space, and are prepared to sacrifice some bandwidth, then using 32kHz or lower sample rates will still yield usable results. Full marks again to Alesis for this feature.

There are some rough edges to the *Soundbridge* software; for example, you can only write to an entire card at once, overwriting everything that is already stored. You can't build up a sample card in sections, but with careful use of the Lists feature it soon becomes a doddle to make up sample cards. While not quite as immediate to use as a hardware sampler, the combination of a QS6 and a computer with editing software is infinitely more flexible and powerful.

CONCLUSION

The QS6 is a very logical 'next step' for Alesis and the CD-ROM is really the icing on an already excellent cake. The real killer for the competition is the price, £899 inc VAT, which buys you an awful lot of synth plus a working software sequencer, *Unisyn* QS6 editor, and (with the addition of a PCMCIA card) the ability to load up to 8Mb of samples in one go.

Of course, not everyone will be comfortable with a synth that has no resonant filters and only one stereo output *[it didn't stop the Kawai K1 from becoming a bestseller - Ed]*, and although the basic sounds are excellent, the flexible modulation facilities and powerful internal effects do help you stretch the synth to its limit. I feel the QS6 operating system is a definite improvement over the original Quadrasynth, the sounds have more impact, and the only real weak spot is the acoustic piano.

At the price, the QS6 takes a lot of beating, and if you happen to be a Mac or PC user, then the bundled CD-ROM extras put this synth in a uniquely advantageous position. SOS

CD-ROM FREEBIES

The 'free' dual format Mac/PC CD-ROM supplied with each QS6 contains the following:

- Fully working Steinberg *Cubase Lite* (Mac & PC) sequencer.
- Full MOTU *Unisyn* editor for QS6 (Mac & PC).
- Alesis *Soundbridge* (Mac & PC) sample transfer utility.
- *Freeloader* (Mac & PC).
- *Cool Edit* (PC) editor.
- Demo *Sound Forge* (Mac & PC) sample editor.
- 80Mb of downloadable samples from Northstar.
- 1000 additional patches.
- Several Steinberg and Trantracks MIDI Files.
- Keyfax Software *Twiddly Bits* demo.
- Multimedia presentation.

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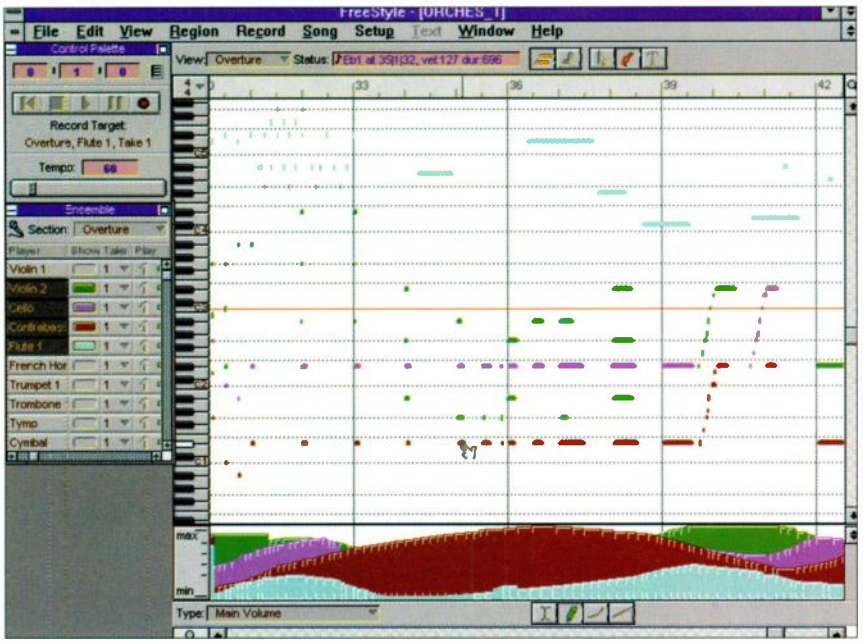


Unchained Melodies

MOTU *FREESTYLE* PC SEQUENCER

This unconventional sequencer program aims to let musicians work like musicians rather than computer programmers, and has already met with an enthusiastic response in its original Mac version. PAUL NAGLE hand-picks his virtual musicians and gets jamming.

MOTU *FREESTYLE* PC £149

PROS

- **The friendly face of MIDI recording.**
- **Designed for musicians, not technicians.**
- **Probably the easiest way to knock up those General MIDI ditties.**

CONS

- **No tempo map.**
- **Screen updates can be slow.**

SUMMARY

With a heavy bias towards General MIDI, *FreeStyle* manages to keep the musician in touch with the business of recording music without (almost) all that techie stuff. An elegant interface with some nice features means that this could be far more than just a beginners' sequencer.

Formed in 1980, and specialising mostly in Mac software, Mark Of The Unicorn have only recently taken the plunge into the icy waters of the PC market. Their first Windows sequencer, *FreeStyle*, already has an excellent reputation on the Mac (see review in *SOS* January '95) and in many ways mirrors the philosophy of that computer: it takes care of all the complicated stuff in the background, letting you concentrate on the business in hand. *FreeStyle* differs from most of its competition by being a 'trackless' sequencer — well, sort of. Music is composed using 'Ensembles' — hand-picked collections of musicians who each record their efforts into 'Takes'. It is these Takes which roughly correspond to the tracks of other programs.

Typically with *FreeStyle*, music is created in sections which are assembled into a finished composition using the graphic Arrange window. You can, however, record in a linear fashion within the Arrange window, or mix and match both methods. Personally, I like this kind of freedom, and found assembling the bare bones of a composition incredibly fast and intuitive. If you're expecting just another software emulation of a multitrack tape recorder, *FreeStyle* might be a bit of a surprise, its feel being more 'musician' than 'sound engineer'.

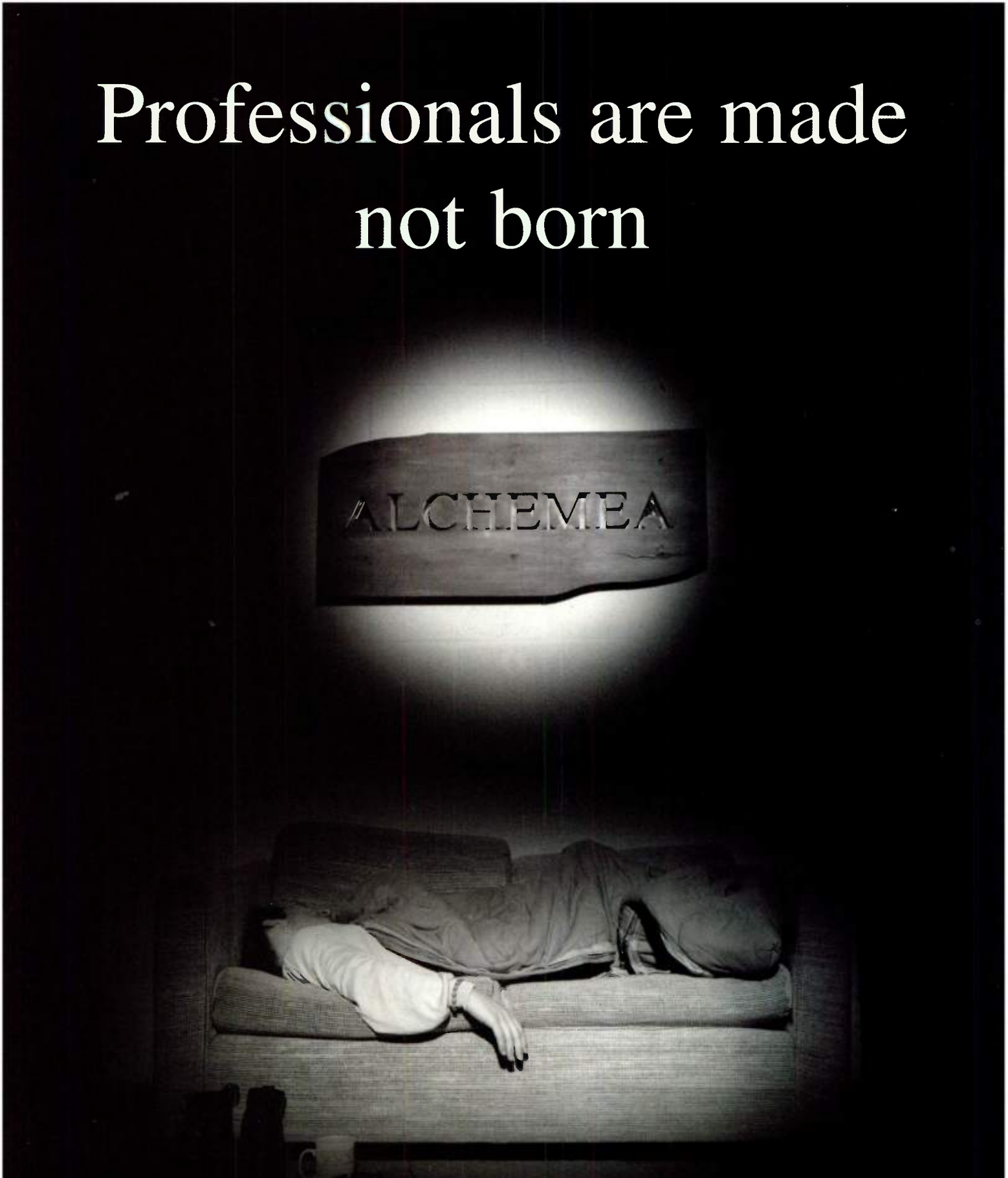
SETTING UP

The program is supplied on three high-density 3.5-inch disks, with a handy set of keyboard stickers included for labelling remote control keys. The manual is clear and warrants a thorough read, despite the program's simplicity. Installation was only hampered by the baffling way in which *FreeStyle* chooses to refer to MIDI ports. Oddly, it has specific, built-in knowledge about some interfaces (none of mine, alas), or you may choose the more traditional options of Multimedia Windows drivers. MOTU take the liberty of writing loads of stuff to the Windows directory under the sub-directory FREEMIDI — this contains information about many popular synths, and can be customised to communicate with *FreeStyle* about instruments it does not recognise, or for user patch lists. If you have more than one MIDI port, you need to work out which is which by trial and error, since *FreeStyle* refers to them only as Windows MIDI Output 1, Windows MIDI Output 2, and so on. At this point you realise that *FreeStyle* is not designed for a large MIDI rig. If you're setting up a single General MIDI synth, it's a piece of cake; and other configurations *are* possible, they just take a little longer. It would be a useful future enhancement if *FreeStyle* could be made to work in tandem with MOTU's own *Unisyn* universal editor/librarian program and take all patch and instrument definitions from there.

IN USE

Having selected your virtual Ensemble, either from the supplied list or by creating a new band from scratch, you record your music in sections which loop round, drum machine-style. Notes played in pickup or overhang measures are recognised and handled automatically by the program, so that loops run smoothly even when you play 'grace' notes. Each musician in the Ensemble can record multiple Takes, making it easy to put down several ▶

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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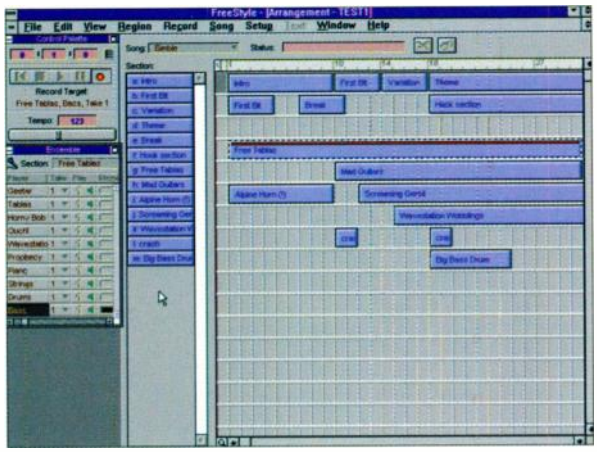
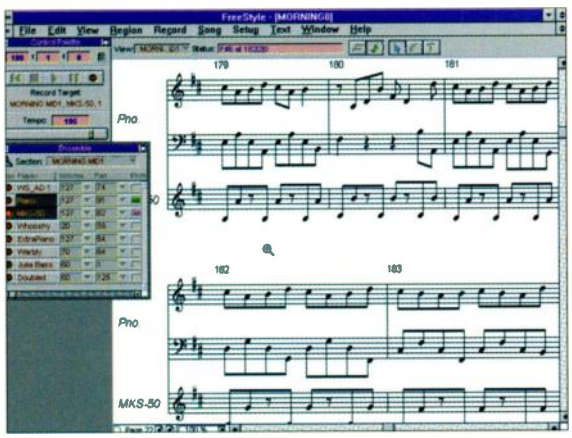


Freestyle's Arrange window. Note the 'Musician' names on the left.

▶ different solos and pick the best later.

Once several sections have been recorded, they can be dragged into position on the Arrange window. From here you can play the full song, overdub new Takes or, by double-clicking on a section, get down to some detailed editing. As a section can be referenced multiple times, any changes made to it will be reflected in each occurrence. A handy Copy Section command allows for easy creation of variations.

The Score editor.



FreeStyle provides two ways of graphically editing your music. The 'piano roll' features as many or as few of your musicians as you wish to see, with coloured representations of controller events displayed alongside the notes they affect. You can quickly zoom in and out of selected areas by holding down the control key as you drag over notes, and all the usual move, copy and delete actions are available. If you need to edit down to individual note level, a double click takes you to 'note detail'.

Whilst not attempting to compete with full-blown scoring programs, *FreeStyle*'s score editor provides acceptable notation editing and printing for most everyday uses, allowing text to be placed anywhere on the page, clefs and transposition to be defined for each Player in the Ensemble, and new notes to be painted in or scrubbed out. Notation screen updates were pretty slow, and I tried to keep the number of Players displayed to a minimum to overcome this.

Overall, I'd say there were enough editing options here to keep any but a dedicated technophile happy, and I only really missed a MIDI event list because I've become used to having one.

BITS 'N' PIECES

FreeStyle's Quantise menu, with its time offset and swing options, offers sufficient flexibility for most uses, my own included, whilst the Transpose menu speaks in familiar musical terms, such as "transpose up a minor third" — no need to count semitones here.

The metronome is wonderful. It can be a drum riff, selected from those supplied or one of your own. This banishes the 'tap tap tap' blues and is something every sequencer should have. It doesn't have to be a drum riff, either — it could be anything from a bassline to a sequence or arpeggio.

Using the Remote control feature, entire compositions can be created without needing to constantly touch the computer keyboard. Activated by a given controller or 'Key Clump' of notes (which you would never normally play), this feature lets you record multiple Takes, switch Players, turn on loops, and so on. Great stuff.

Finally, communication with the outside world is possible using the synchronisation menu. *FreeStyle* will accept or transmit MIDI clock information, and since it currently lacks any form of tempo map, you may find it more convenient to drive it from a drum machine. The program reads and writes standard MIDI files, with the restriction that only the first tempo event is recognised on import.

CONCLUSION

Priced at £149, *FreeStyle* has some tough competition from *Mastertracks Pro*, *Micrologic* and *Cubasis*, yet it has enough individuality to set it apart from these. The 'trackless' approach may be appreciated by those musicians without a studio background, and the neat way *FreeStyle* manages Players and Ensembles would be of benefit to anyone trying to get the most out of a General MIDI module. I'm told a tempo map facility is high on the list of future enhancements, but in the meantime the only way of including accelerandos or ritardandos is to play them manually, ignoring the program's tempo (and bar lines). If your music usually hammers along relentlessly at the same speed, this won't be a problem, but I found it quite frustrating. My only other complaint relates to the sluggish rate at which the screen updates — especially in notation view. My 486 DX2-66 machine has 16Mb of RAM and handles other screen-intensive programs such as *Cubase Score* very well, but *FreeStyle*, at times, seemed to go into a time warp...

Glib summing-up time: I'd say that *FreeStyle* was designed for musicians who don't want or need to get deeply involved with the fiddly bits of MIDI, but just want to make music. Well-suited to a small studio, it would also be an ideal 'scratch pad' in a larger system. SOS

SYSTEM REQUIREMENTS

- 486 or better processor
- 8Mb RAM
- Windows 3.1 or Windows 95

Version reviewed: 1.03

WEBBING IT

If you have a World Wide Web browser, check out MOTU's site at http://www.motu.com/
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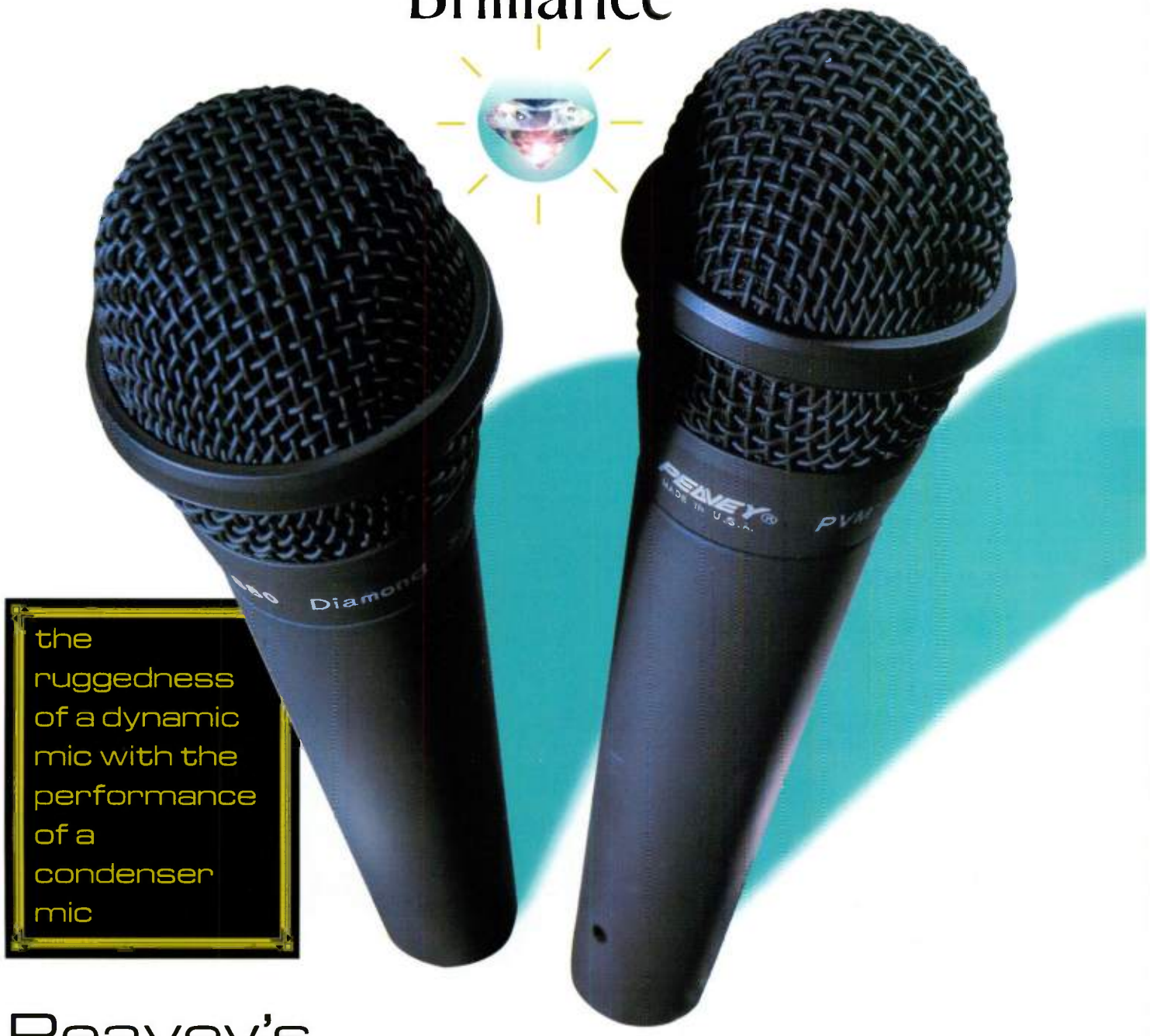

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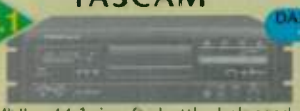

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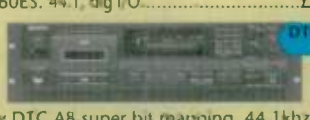

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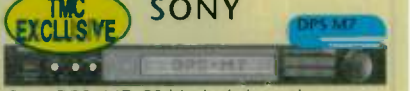

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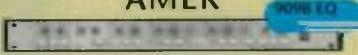

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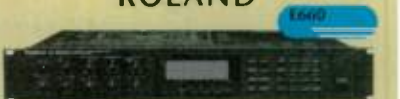

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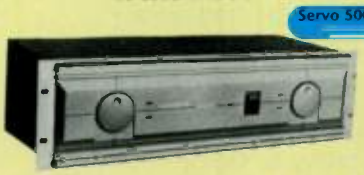

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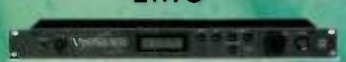

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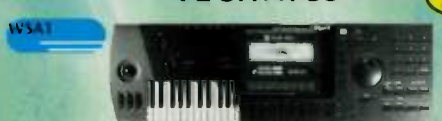

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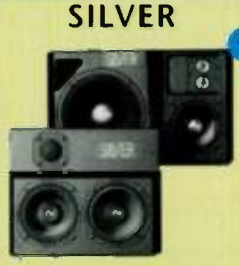

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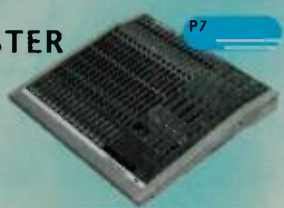

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TOWERING INFERNO • RECORDING *KADDISH*

Over three years, Towering Inferno (led by core duo Andy Saunders and Richard Wolfson) engaged the services of over 50 performers to produce their self-financed opus Kaddish — described by Brian Eno as "the most frightening record I have ever heard!" PETER JONES charts the development of this ambitious project.

Towering Inferno's album *Kaddish*, which was released by Island Records in August 1995, is an emotional epic spanning 75 minutes and evoking the darkest hours of the Holocaust, as well as the tranquil beauty of European folk music and Jewish prayer. Featuring the voices of acclaimed Hungarian folk singer Márta Sebestyén (who also appears on the new Deep Forest album) and Hungarian performance poet Endre Szkárosi in a 'punk/folk/metal/Jewish/classical opera', it tackles the thorny subjects of repression and survival, both past and present. Leading Towering Inferno members Andy Saunders and Richard Wolfson share a European Jewish background (Russian/Lithuanian and Russian/German respectively), which, they feel, gives them the right to open up this subject to popular culture. As part of this personal reaction to the erasure of much of Europe's cultural heritage, Saunders and Wolfson have married images to their 'sound sculpture' in a massive multimedia event which has already packed the Queen Elizabeth Hall and then returned to London in October 1995 following a European tour.

During its development, the *Kaddish* project received the support of none other than Brian Eno, who championed the album, and recommended it to a number of record companies himself. Since then, this support has brought him to Saunders' and Wolfson's live show and led him to appear on their promotional video. His comments are as positive as ever:

"My feeling is that a piece of work should seduce you immediately, or should beat you over the head, which this one does. It's very immediate, there's no doubt it's affecting you when you're listening to it."

The album not only satisfies on a musical level, but comes through with a sound of its own, thanks to the production values applied by Andy and Richard, and the manipulations of Swiss engineer Gregg Skerman. Gregg has been the band's live sound man for some years and was their first choice for recording the album. His skill with acoustic instruments came to the fore as they progressed, and although much edited, the album's sounds are largely acoustic.

IN THE BEGINNING

Record deals were still a long way off when Towering Inferno formed in 1986 as an "ambient, techno and heavy metal" combination. Recording for what became the *Kaddish* project commenced in 1991, but the band had no idea at that point that such a long and interesting journey lay ahead of them: "We went in to do a 12-hour drum session to begin with", explains Richard, "but we just kept on having more and more ideas".

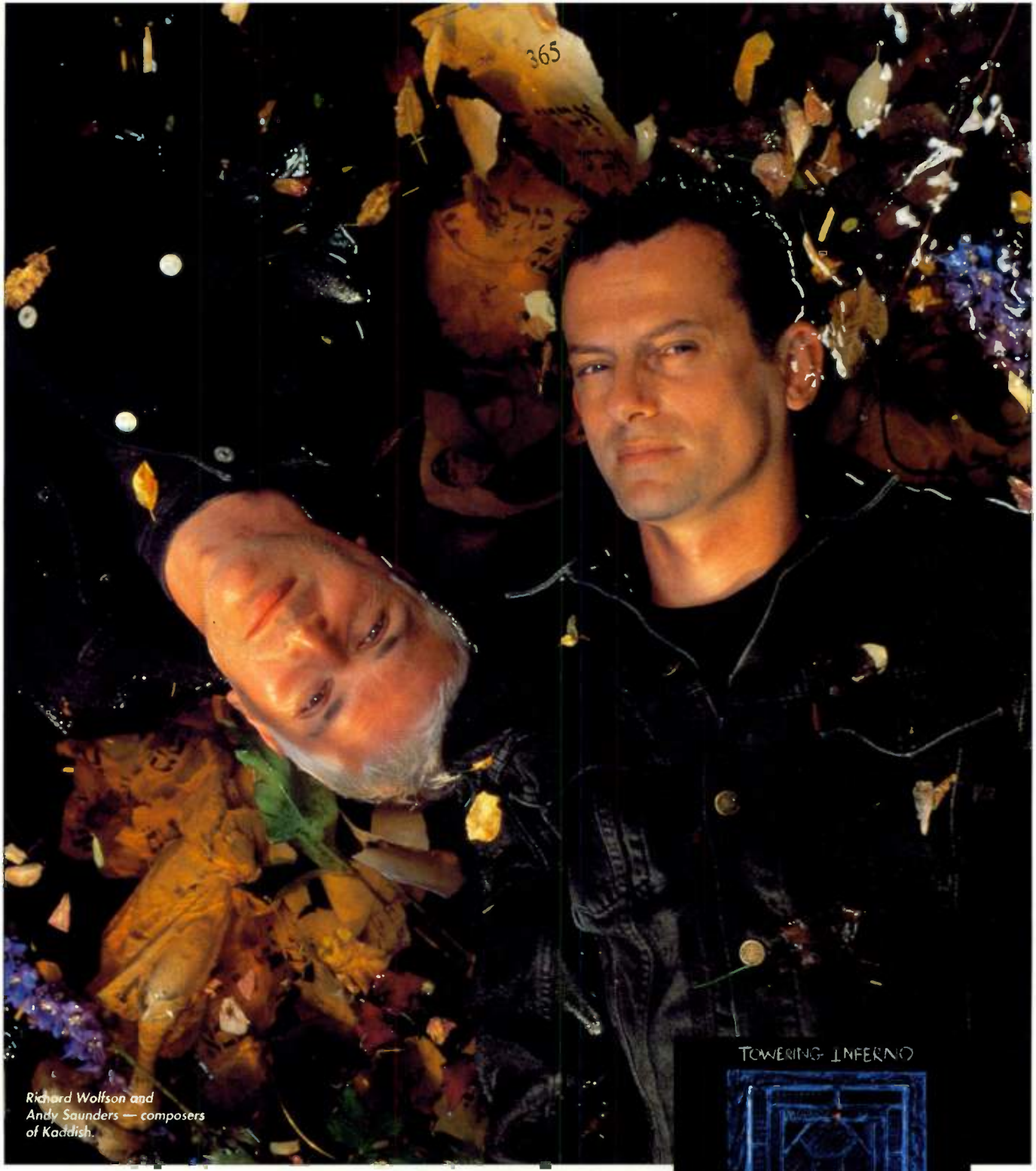
The session, at the Diorama in London's West End, was the first of many and had a great influence on the album, as Richard confirms: "We knew we had to get a mythic, religious sound and we knew from playing there that the Diorama has a five or six second reverb. We made the decision that the only way we were going to get the sound we wanted was to record all the drums and acoustic instruments at the centre of the dome". This was no easy task, as the modest studio lies at the other end of the building to the main hall and nobody had realised the potential of linking the two. The team spent weeks planning the assault and hired a 40-metre multicore and a number of microphones for the job.

To add to the difficulties, the hall's location meant that there was a traffic noise problem, and this forced them to adopt a night-only recording policy. This persistence and ingenuity paid off and rewarded them with a sound which, as Andy enthuses, "the best digital reverb in the world couldn't reproduce". This was captured by a number of Neumann KM84s, suspended in pairs at varying distances from the sources. Each sound/part was recorded on up to 12 tracks, providing distant, mid-field and close proximity effects for later treatment and submixing. The drums in particular benefited from this almost classical approach. Some drum sounds were sourced from drum machine samples, but even these were exposed to the Diorama treatment, fed through large monitors in the dome and recorded in the same way.

Later in the process of making the album, Richard and Andy were to arrange further sessions, including more drums and percussion with Steve Kellner, Gaspar Lawal, John Marshall and Chris Cutler, saxes with Elton Dean,

Towering Inferno perform live.

Photo by: Liam Longman.



Richard Wolfson and Andy Saunders — composers of Kaddish.

the five-piece Electra Strings and the 100-strong London Welsh Chorale. This particular exercise was one of the most taxing recording events of the album and involved only their conductor Kenneth Bowen having the luxury of headphones. Using a simple keyboard tuning cue and exhaustive part rehearsal, the choral sections on the record were done with the assembled voices singing in time with the conductor. Subsequently sampled and organised, this aspect of the recording, although nerve-wracking, worked very well and was used to great effect on the sublime 'Sto Mondo Rotondo' among other pieces. At 'pre-mix' sessions, whole tracks were fed through high-quality stereo equipment to record the resultant 'reverb', ready for mixing in to complete the sound picture.

As with many a protracted project, as Andy explains, technology moves on: "When we started, there was no affordable stereo sampling, no Akai S1000. We eventually got one and it became an integral part of the writing process". Richard continues: "We did a lot of creative things rather than sampling other people's loops. We actually did finished mixes of pieces, became dissatisfied with them, and then sampled whole sections of them with all the sounds and production ideas, to use as building blocks for whole new pieces". In addition to these 'songs within songs', they trawled their own past and used clippings from five years of live performance to add to the collage of sound that was to become *Kaddish*. ▶

TOWERING INFERNO

Photo by Liam Longman.

A recent performance of Kaddish at The House of World Culture, Berlin.

HAPPY ACCIDENTS

Saunders and Wolfson used an Atari 1040ST running *Cubase* to organise the long samples of playing and singing stored in their Akai S1000 — 15 hours in all. Any sequenced playing was left unquantised, with the accent on the musicality of the performers to provide the feel. The setup, stretched to its limit with samples and information, was not infallible, but some happy accidents did occur, as Richard explains, in some cases inspiring composition.

"The opening of 'The Rose' at the beginning of the album is based on a simple repeating pattern recorded in free time on a Korg M1; it's about 10 seconds long. One day, that programme picked up a flute sample and played something entirely different. We weren't sure how, but it ended up as the flute section of 'Not Me'. Later on in the process we had the same programme playing saxes and they were all different, so we worked out a way of crossfading them all. Because of this, each section of 'Not Me' has a different sound, but unconsciously they all fit together. Someone described this as aural morphing, which is something I haven't heard of before".

Since completing the album, Richard and Andy have added a Kurzweil K2000R to their collection, an instrument which Andy likes for its "richer and truer sound, and timestretch at the turn of a knob".

PRODUCTION

'Fuzz Rabbi' is not something often seen written on a mixing desk scribble strip, but in producing *Kaddish*, the Towering Inferno team constantly pushed themselves to the limit, testing subliminal effects and experimenting to enhance the all-important atmosphere of the tracks. Countless fuzz boxes were tried on different instruments and made their presence felt, not only on the prayers of Rabbi Tamas Raj (see the 'Adventures in Budapest' box), but also on Endre Szkárosi's poetry (where a Fuzzface provided the distortion) and, of course, the distorted guitars. After exhaustive efforts to use 'classic' guitars and amps to produce the desired effect, the basic RAT distortion pedal was paired off with the unlikely Ibanez Roadstar guitar, feeding through an ancient Roland 301 Space Echo. The output of this is the sound you can hear on the metallic 'Reverse Field'. Richard was as surprised by this setup as anyone, "but we liked it so much, we've actually bought another Ibanez and another Roland Echo."

Reverbs on the mix were another area for experimentation, and every effort was made not to compromise the spatial effect of the Diorama. This called into question the standard arrangement of Yamaha NS10s on the desk, and after some abortive mixes, B&W DM40 speakers and a Studer amp were brought in. Andy was frustrated by the lack of clarity from the Yamahas: "We couldn't hear the reverbs properly, and it became obvious we needed a more truthful representation of the sound".

A Lexicon 480 was used, mainly with small room settings, to give life and size to otherwise dry sounds, sometimes being substituted or added to with a PCM70. A notable difference in the approach to reverb was the avoidance of standard stereo pairings, and a lot of time was spent balancing sounds in the stereo picture, with reverb on one side and a dry signal on the other, to get 'wide-screen' effects. Simple, basic delays were the only other effects used, Yamaha SPX90s adding background bounce to rhythm parts, without actually being heard.

MIXING & MASTERING

The recording studios used included the Diorama, Camden Lock and Porcupine in London, and of course 3M in Budapest, but the bulk of the mixing was done with Gregg Skerman at Lavender Hill Studios. Mastering was done onto the studio's Panasonic DAT machines and edited with a Sonic Solutions system at a later stage, where many of the crossfade effects were created.

This chapter of the album was to be as detailed as all the others, and took 10 weeks to complete, with Dave Bernez at the Townhouse Post Production suite spending many evenings adding the finishing touches: level matching, developing the running order and applying minimal amounts of EQ. As the album was mixed to DAT, the mastering process remained in the digital domain, starting with a transfer to the Mac-based Sonic Solutions hard disk system. Some clever overlays were added to some of the tracks as the creative process overflowed into the final editing stages: programming and crossfades were

Endre Szkárosi provides text/voice.

ADVENTURES IN BUDAPEST

Saunders and Wolfson both drove to Hungary to meet up with Endre Szkárosi and Márta Sebestyén and record the Hungarian contributions to the album. After a search, the group found themselves at 3M Studios in Budapest, the place where Márta's acclaimed group, Musikas, generally record. The studio was unusual, equipped with an Eastern desk neither Richard or Andy recognised and a Fostex half-inch 16-track, but the sessions went well and they returned with a wealth of brilliantly performed material. This included an unusual addition from Chief Rabbi Tamas Raj, whom they visited to interview. After their explanation of the project, he offered to recite the Jewish prayer of mourning, Kaddish, which Andy captured on their handy Casio DA3 DAT machine. Andy: "What's more, it was spoken in the rare and beautiful Transylvanian dialect, and he graciously gave his permission for it to be used on the album".

completed and a trial running order set up, before DAT listening copies were made for final checking. After everyone had listened at home, minor adjustments were made and more listening followed. EQ was gradually introduced where necessary, using a Sony SDP1000, and some judicious compression added using a Sony DAL1000. Early in 1994, the final Sony 1630 CD master was made.

EUROPEAN CONNECTION

Having completed this huge and ambitious project, Andy and Richard needed an outlet. At this point, ReR, the Anglo-European label responsible for the release of bands such as Faust and Cassiber, stepped forward with an offer of a release on their TI Records label. It then took the band four months to figure out how to perform the work live; it was decided in the end to do half the mixing live on stage, with samples laid out on keyboards and live DAT material being flown in manually, with very few sequences running. Eight musicians were enlisted to play the work live and at the world premiere performance at the Belluard Bollwerk International Festival in Fribourg, Switzerland, in July 1994, the audience were visibly moved. The 1995 schedule included four dates in Vienna and shows in Moscow, Berlin, Warsaw, Budapest, Spain, Germany and London. The ICA in London was the venue for a live BBC Radio 3 broadcast of the performance on 1st October 1995, and the USA is set to experience the Towering Inferno early in 1996.

Since their involvement with Brian Eno and their profile-raising concert last February, the band have struck a deal with Island Records which should support their future work. More patronage has come from the traditionally conservative BBC, who have commissioned a soundtrack for a radio play, and have followed this by more offers of work. A new album is already in the planning stages, and aims to be "an exploration incorporating *Film Noir* and dance music." SOS

FROM STEVE REICH TO MEGADETH: INFLUENCES

Inevitably, comparisons have been made between *Kaddish* and existing musical styles, but even these have been on the flattering side and include Gorecki's 3rd Symphony, Steve Reich, even Megadeth, on the menacing 'Reverse Field'. The band themselves cite their own influences as including John Cage, Faust, This Heat, Erik Satie, even My Bloody Valentine. As far as Andy is concerned "the last great breakthrough in music was Brian Eno's Ambient Series, in the sense that it brought something completely marginalised (background music for supermarkets) into the foreground".

"I love the way you can never quite work out where the sound is coming from", says Richard, "and things loom at you out of the mist. In Brian Eno's work, there are always subliminal sounds — a backdrop of noise".

Similar noise can be found on *Kaddish*: "It sounds like tape hiss, but it's actually rain in Budapest", explains Richard. "During the recital of poetry by Endre [Szkárosi] over the choir on 'Sto Mondo Rotondo', a thunderstorm broke outside, so we threw the studio doors open and recorded it live."

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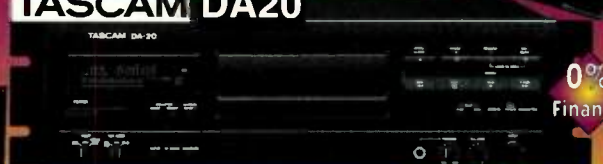

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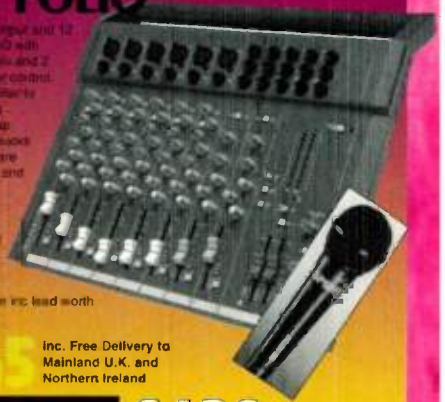

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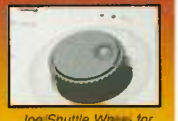

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Alesis ADAT XT

invert buttons on your mixing desk.

One feature I had hoped to see on the XT is a basic MTC (MIDI Time Code) output. Sadly, there isn't one. Even a simple system with 25 or 30fps selection and no offset control would have been useful, as most users can take care of offsets inside their sequencer packages. As it is, you still have to buy an external third-party box (available from J.L Cooper and others) or a BRC.

FRONT PANEL ACCESS

Before continuing, I'd like to cover the functions that are now accessible directly from the front panel. Previously, pretty much all of these could only be used if you had a BRC, though there's one important addition in the form of a switchable 44.1/48kHz sampling rate. This doesn't make any difference to the audio quality, but for anyone mastering onto two tracks of the XT who then wants to clone onto DAT or a hard disk editor (via something like an AI-1 interface), it saves having to pass through a stage of sample rate conversion. However, when the machines are under the control of a BRC, the BRC provides the master clock, and at the moment this is set to 48kHz only (unless you cheat using the varispeed), so perhaps a BRC software update is in order?

The metering can be directly switched from absolute to relative mode, much as it can on the BRC, and tracks can now be copied from one to the other in the digital domain. The punch-in crossfade time can be selected from 11 to 46 milliseconds. In systems of two or more machines, an offset can be added to allow a chorus from one machine, say, to be pasted to several different locations on the other machine. Such offset copying obviously isn't possible with only a single XT.

The display helps when setting up offsets — a miniature bargraph display shows you the amount of track delay you've entered. Individual tracks may be delayed by up to 170ms to compensate for timing errors, or simply to create effects, and very usefully, the front panel now includes a full 10-point autolocator accurate to 10ms — the same resolution as the tape counter. Another first is the ability to drop individual tracks in and out of record using the Record-Ready buttons — with the revered ADAT, you had to first select your tracks with the Record-Ready buttons, then place them in and out of record all at once.

The display now has three rather useful peak display modes (no hold, short hold, hold peak until cleared) and plenty of status information is available in the window; dedicated, illuminated legends are now used for specific functions instead of the more cryptic display of the older ADAT. For example, when formatting, the word 'Format' is illuminated and the current sample rate is always shown; when two or more machines are establishing lock, the word 'Chase' is displayed followed by 'Locked'. Far nicer...

The original ADAT offered only two autolocate points plus a return-to-zero function, but the XT features a full 10-point autolocator which is quite independent of the BRC and, to my mind, rather more logical to operate. BRC users can, therefore, enjoy the luxury of 10 additional locate points with the proviso that the XT's own locate points can only be accessed from the XT's front panel, *not* from the BRC. Exactly the same is true of the auto punch-in/out function — if auto punch-in is executed from the BRC, then the XT's own auto punch-in function isn't used, but if an auto punch-in is executed from the XT's front panel (which works between autolocate points 2 and 3), the BRC doesn't get involved at all, other than as a remote transport control.

There's also a loop function that allows the section between locators 1 and 4 to be repeated indefinitely, with the option to work in loop record mode so that you can keep cycling over a section until you get it just right. Occasionally, you can get caught out by not turning off the track copy or loop functions when you've finished with them, but at least the information is shown in the display if you look for it.

Sadly, the meter outputs fitted to the earlier ADAT have not been carried through to this model, so anyone with an RMB meter bridge (apparently only me, according to the sales figures!) will be left with an expensive paperweight when they upgrade.

IN PERFORMANCE

I managed to verify that the front panel functions worked OK with very little effort, thanks to a very clearly written manual. The biggest difference is in the transport speed, but the best lockup time is also slightly improved, clocking in at around 2.5 seconds. However, the transports of multiple machines seem to keep much better pace with each other during enganged fast-wind, so the whole lockup procedure is much more consistent with few legitimate manoeuvres taking more than three seconds. If you try to drop into play directly from fast-wind, however, the system hunts for a while, taking up to seven seconds to lock if you've just done a very long

"The XT is a natural and worthy evolution from the phenomenally successful ADAT... It delivers better performance, more features, and much nicer styling for just a little less than the original price of ADAT."

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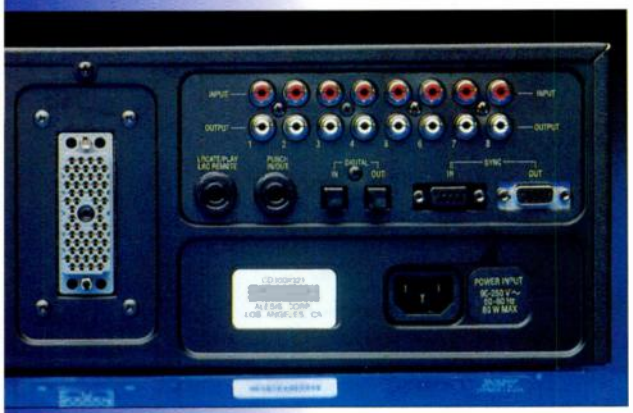
Roland

wind. On the other hand, if you've just spun back a few bars to perform a drop-in, the lockup time can be almost as quick as if you had used the locators. Even so, the rule remains the same as it was with the original ADAT — let the machine park before you hit Play, or use the locator points if you want the fastest possible lockup times.



Where the new XT system definitely scores is that it is far less prone to hunting aimlessly if you try to lock up when the two transports are fast-winding at different time locations. The way in which the transport gets the second machine into the right position seems much improved, even when you deliberately offset the two machines — so perhaps this intelligent 'learning' transport software really is a bit clever.

Tape handling seems smoother than before, with less clunking and more whirring, no doubt again a result of the new control software. Due to the incessant demand for longer recording times, it's now possible to select 180, 240 or 260 minute (PAL) tapes, giving from 40 minutes to a maximum of 62 minutes recording time. The use of 180 or 240 tapes was possible on the older machine, and once again the function is selected using an odd combination of existing buttons. It's also possible to use the shorter 60 minute tapes on an XT, though there's no need to tell the machine because it can recognise these tapes from their shell casing. The same length of tape should be used in all machines, and if the XT is being used with a BRC, the tape length setting will be memorised when the system is turned off. As expected, the first two minutes of the tape is reserved for header data, which includes the BRC setup and song data. Unlike the Fostex RD8 ADAT, however, there seems to be no way to save a setup of the XT's own locator values onto the tape.

Despite the increased number and smaller size of the control buttons, the fact that there are relatively few 'hidden' functions makes XT operation extremely simple. One hidden function that I did find informative was the error readout. In normal mode, you get a simple blinking red indicator if a serious error occurs, but by selecting the Error Rate display (Set Locate and Rec Enable 3), a continuously updated error rate is shown after the tape counter display figure. This will always show a few errors in normal usage and counts the errors per 14 drum revolutions before resetting. Readings of less than 10 are considered fine and new tapes will apparently read up to 100 errors with no problem. Rates above 1000 are corrected by interpolation — which means the machine is actually making up data to fill the gaps. So if you get error readings much over a couple of hundred, I'd recommend cloning the tape as quickly as possible. On a new 3M ADAT tape, I got typical error rates of between 2 and 7, which I feel happy about.

To touch the XT is to want to possess it, and I've already bolted the two review models into my rack and filed the heads off the mounting screws!

So what about the sound quality? The new converters are technically superior to the original ones, and on some material it is possible to hear a difference, though it is very, very slight. If anything, the sound is smoother and less metallic than it used to be, but then I never had any argument with the sound quality of the original ADAT.

SUMMARY

The Alesis ADAT XT certainly looks a lot nicer than its ancestor and the rigid chassis gives it a reassuring feel, but I'm still a little irritated by the lack of any meter sockets and I know that some users will frown at the inclusion of phono sockets. Personally, I think phonos are fine if you're not going to keep unplugging them, and if you want to run balanced, there's always the EDAC connector. The faster wind speed is much welcomed, as is the apparently gentler tape handling. Although the best lockup time is still around 2 to 2.5 seconds from a standing start, the lockup procedure does seem far more consistent with no unexpected long waits.

Front panel access to the previously hidden features is a great bonus to non-BRC users, but anyone using BRCs has little to gain in this area (other than the admittedly useful ability to drop individual tracks in and out of record, and of course the better error rate readout). There's also little to be gained on the speed front if you are mixing ADATs with ADAT XTs in a multi-machine setup, because the slower machines will always dictate the maximum search rate. On the plus side, just one XT working as a master does provide access to all those hidden functions without the need for a BRC. In fact, the only real let-down is the lack of an MTC output, a disappointment that I know a lot of people will share.

All things considered, the XT is a natural and worthy evolution from the phenomenally successful ADAT and is pitched at the same markets. It delivers better performance, more features, and much nicer styling for just a little less than the original price of ADAT, and once you've played with one, I think you'll like it as much as I did. Alesis have made their mark on audio history with the ADAT format, and have confirmed their commitment to the ADAT project by continually refining and updating the software. I'm sure that the new XT will enjoy similar support, which leads me to speculate on the possibility of a shiny, silver BRC II, an add-on MTC box, and possibly a periscope attachment for those of us who want to the read the meters when the XT's are whirring away under a table or round a corner? Regardless of what the mobile phone people say, it looks as though the future is silver. To touch the XT is to want to possess it, and I've already bolted the two review models into my rack and filed the heads off the mounting screws! SOS

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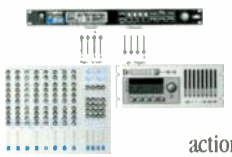

And unlike processors, you're never left wondering how the Studio Quad is configured. The large custom LCD display always keeps you on top of the action, supplying you with all the information you need. The effect routings are constantly displayed in the algorithm grid, and 24 character names leave plenty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

TAKING IT TO THE GIG...

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

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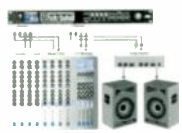

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4 inputs, 4 outputs: Multi-Effects

Multi-Effects Processor should be.....

MAKING IT YOURS...

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

INSTRUMENT APPLICATIONS...

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

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First Time Lucky

A GUIDE TO BUYING YOUR FIRST SYNTH

The Synth Buyer's Guide in the last issue of *SOS* was designed to help first-time buyers decide which of the 100+ keyboards and modules currently available new in the UK would best suit their needs. However, there's no denying that the jargon involved in choosing a synthesizer can be very daunting — and though buying a synth is not the huge financial investment it was when the average keyboard cost several thousand pounds, it still represents a significant outlay. The last thing anyone needs is to end up with a machine they want to get rid of in six months, losing money in the process.

Nevertheless, navigating the large number of new synths available isn't the impossible task it might seem, once you know the hardware options available, the key points in a synth's features list, and their significance to the first-time buyer.

Yamaha SY85.

THE OPTIONS

• WORKSTATION

This type of keyboard is becoming increasingly popular, since it offers a modern sound generator capable of producing a wide variety of realistic and impressionistic sounds, coupled with a sophisticated multitrack sequencer for recording multi-part musical arrangements, and digital effects to enhance the sounds. As a workstation is designed to be self-contained, it in theory provides everything you need to produce a finished composition, including a disk drive that allows you to save your work — both song and sound data — to 3.5-inch floppy disks. A workstation makes a good choice as a first synth if you want to keep your setup simple and cost-effective.

• KEYBOARD SYNTH

A keyboard synth offers all the sound generating and effects capabilities referred to above, and even occasionally a basic sequencer, but does not have a disk drive, as it's usually expected that it will be used in conjunction with other equipment, including, possibly, an external sequencer. If you only want to play live with a band, or just for practice and fun at home, a keyboard synth may be all you need. It's also the best bet if you like the idea of sequencing with a computer software package (allowing you to see your work in detailed graphic form on a monitor), as you won't then need a built-in sequencer or disk drive.

• MODULE/EXPANDER

Simply put, a synth in a box without a keyboard. In order to use a module, you'll need a MIDI keyboard of some kind — either another synth which you can use to play your module's sounds,

or a mute MIDI 'master' keyboard (if you'd like more information about MIDI and MIDI instruments, see the *SOS* MIDI Basics series, which ran from August to December 1995). Modules do not usually have sequencers or disk drives (though, just to confuse things, one or two of the expensive ones do), but many have built-in effects. As you expand your setup further, modules can be the ideal way to add more sounds, as they are often much cheaper than keyboard instruments, and are always more compact. But why would you want to buy a module as a first instrument? Many musicians brought up with the piano often miss the 'feel' and action of the piano when moving over to a synth; a viable option is a combination of module and decent master keyboard, especially since many master keyboards currently on the market offer a weighted, piano-like feel at affordable prices. Though a few synths and workstations come equipped with piano-weighted keyboards, these are expensive, top-of-the-range instruments. However, a budget module plus a weighted 76-note master keyboard need cost you no more than a sub-£1000 synth.

Modules come in all shapes and sizes, ranging from tiny, pocket-sized boxes, through chunky desktop units, to truly substantial machines designed to fit into professional 19-inch studio racking.

THE FEATURES

Now that we've covered the types of synth you'll be considering, let's examine the significant features you'll find mentioned in specifications:

• POLYPHONY

This term refers to how many musical notes a synth allows you to play simultaneously. If an instrument is referred to as being 8-note polyphonic, for example, it will allow you to play up to eight notes at one time before the earliest notes played are cut off. Most current instruments are 16-note polyphonic or more — and some now manage an incredible 64 notes, which is obviously only useful if you have a sequencer. In general, if you're looking for a first synth, you should try to get as much polyphony as you can for your money. However, you should note that even if a synth is described as having a given polyphony, this is not necessarily the whole story. The voices offered by modern synths are often made up from more than one 'element' and a single voice could be made from as many as four elements. Consequently, an instrument which is said to have 16-note polyphony might play only four notes when using a four-element voice.

Though the general trend in modern instruments is towards more and more polyphony, there is also a significant backwards movement in synth design towards less — including a return to monophonic synths, which play only one note at a time. Interestingly, the trend towards 'monophony' is found not only in recently-revived analogue designs, but also in cutting-edge Digital Signal Processor-based instruments, where the technology is currently too expensive to allow more than one or two notes at a time to be generated. If you're looking for a first synth and are buying only one, the chances are that you won't want a monosynth. Despite the fact that old and new analogue monophonic synths are very commonly used in current dance music, even if dance is what you want to do, you won't be able to make much music with one monosynth!

• MULTITIMBRALITY

This term is as important as polyphony where modern synths are concerned, as it refers to how many different *sounds*, or 'timbres', a synth will play at one time. This is of particular significance if you want to use your synth to produce sequenced multi-part arrangements. As an example, if your synth was 8-part multitimbral, you would be able to sequence a track featuring a bass part, a piano part, a drum part, a sax part, a synth pad, and a guitar part, and still have two parts left over! Most instruments these days are 16-part multitimbral, which offers a great deal of scope for creative arrangements. By their very nature, monophonic instruments cannot be multitimbral, and people using exclusively monosynths have to amass several synths to create the same multitimbral capacity as one modern multitimbral synth. A more laborious, but cheaper, method of making it sound as though you have more monosynths than you really have is to multitrack different parts onto tape.

"Navigating the large number of synths available isn't the impossible task it might seem, once you know the hardware options available, and the key points in a synth's features list."

• KEYBOARD TYPE

If you're buying a synth or workstation, there are certain factors to consider about its keyboard:

Velocity Sensitivity: A traditional piano keyboard can be described as 'velocity sensitive', because the harder you strike the keyboard, the louder the notes sound. This effect is due to the physical construction of a piano. Synth keyboards are constructed in a completely different way and can either mimic this effect electronically, or not. Most modern synths, fortunately, do have velocity-sensitive keyboards and will thus allow you to play expressively.

Aftertouch: Another point to consider is whether the synth keyboard is equipped with 'Aftertouch'. This is a ▶

Gem S2R.

RAM RAIDING: SYNTHS WITH SAMPLE MEMORY

The following instruments have sample RAM either as standard or as an optional extra:

WORKSTATIONS
- Ensoniq TS10 £1999
- Ensoniq TS12 £2199
- GEM S2 Turbo £1499
- GEM S3 Turbo £1799
- Korg Trinity, Trinity Plus, Pro, ProX £2395, £2795, £3195, and £4795 respectively
- Kurzweil K2000 £2250.50
- Peavey DPM4 £1999
- Peavey DPM488 £2499
- Solton MS50 £1799
- Yamaha SY85 £1125

MODULES
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- GEM S2R £1399
- Kurzweil K2000R £2250.50
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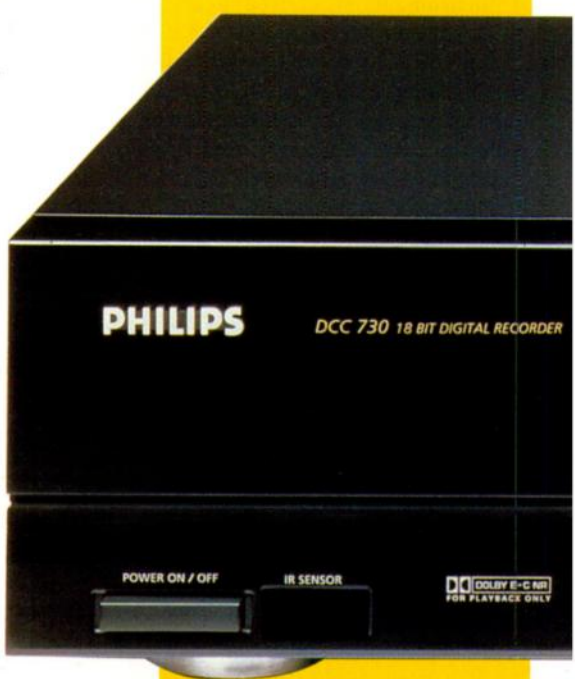

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BUYING YOUR FIRST SYNTH

Yamaha's SY35: the only new machine still using a form of FM synthesis.

completely un-piano-like effect whereby increased pressure of the fingers on the keyboard *after* a sound has been 'triggered' generates an extra dimension in the sound (typically some kind of modulation or vibrato effect) to add to its expressiveness. While aftertouch is a nice feature to have on your keyboard, you could probably live without it on a first synth if you had to.

Length: Most current synths have a 61-note C-to-C keyboard, which is felt by both designers and musicians to be sufficient for most musical purposes. However, some people (especially pianists) feel cramped by this 5-octave span, so several mid-priced and more expensive instruments are available with 76- and even 88-note keyboards.

Feel: Synth keyboards vary from manufacturer to manufacturer, and most bear no resemblance at all to a piano. If keyboard feel is important to you, the only way to assess it is to try out all your target instruments personally.

• EFFECTS

The incorporation of digital effects into synths has been arguably one of the most important advances in modern synth design, especially for beginners or those on a tight budget. Effects can make a huge difference to the sound of an instrument, and can even render a mediocre sound appealing. If you don't already have a stand-alone effects processor of some kind, you should certainly make sure that your first synth has built-in effects, as this will save you the expense of having to buy an external unit. Even if you acquire a separate effects unit later, the fact that your synth has effects means that the dedicated effects box won't then be tied up in processing your synth.

The quality of effects on modern synths varies enormously; at the bottom end of the scale they can be very basic, while at the other extreme some manufacturers use the same high-quality effects chips in their synths as in their stand-alone multi-effects processors. When looking at manufacturer's information for your target machines, a few clues can tell you whether the effects are likely to be comprehensive or basic: the

THE PRICE IS RIGHT...

When you're buying your first synth, the chances are you don't have money to burn (unlike a certain duo of 'art terrorists' whose name begins with K). We've put together a selection of instruments currently available in the UK which fall below fairly arbitrary price limits. Don't assume that these are the only synths on the market: for a full breakdown of those available, see last month's *SOS*, and that Synth Buyers' Guide we mentioned at the start of this piece. It includes a basic spec and price for every machine.

MULTITIMBRAL KEYBOARD SYNTHS UNDER £1000

- Alesis QS6 £899
- Ensoniq SQ1+ £899
- Kawai KC20 £669
- Korg X5/X5D £799/899
- Peavey DPM2 £999
- Roland JV35 £999
- Roland XP10 £599
- Yamaha SY35 £599

NOTES: The Alesis QS6 is so new that it missed last month's Synth Buyer's Guide, but it is reviewed in this month's *SOS*, starting on page 70. Our personal preference for a first-time buy from this list

longer the list of available effects (and the more effects you can use at once) the better.

• SYNTHESIS METHOD

The method used by a given instrument to generate its sounds is probably completely academic to most first-time synth buyers, who are likely to be far more interested in simply getting access to the kind of sounds they've heard on record. The truth of the matter is that a good synth programmer can make a quality modern digital synth sound like almost any other type of synth (and approximate most real-world instruments too) — and many modern synths have a selection of presets which mimic these other synth types for you if you're not into programming.

S + S: The most common method of sound generation at present is the so-called Sample + Synthesis method, which uses short samples of real instruments (or even of other synthesizers) as the raw material for sounds. These samples can be modified by a traditionally-styled synthesis section which, although digital, is similar in layout to that found on older analogue instruments — hence the term 'Sample + Synthesis'. You won't find brochures from manufacturers describing their synths as 'S+S'; they usually have their own proprietary terms for methods which fit into the S+S category — for example, Korg call theirs 'AI2', and Yamaha's term is 'AWM2'. S+S synths can produce a wide variety of sounds, and are recommended if you want an all-rounder which will provide recreations of real-world instruments, atmospheric synth pads and washes, synth and traditional basses, and so on.

Analogue: Analogue synthesis fell out of favour during the mid-'80s, but has enjoyed a renaissance in the '90s, with the result that old analogue instruments are now in short supply, and correspondingly expensive. Some manufacturers have responded to this resurgence in popularity by making new analogue instruments, using similar components to the originals, and designed to sound as much as possible like their vintage counterparts. However, like their forebears, new analogue synths usually have very limited polyphony — often just one note.

Analogue synths are notable for their warmth and depth of sound, but are not at their best imitating real instruments; their rise in popularity has been fuelled by their extensive use in dance music. They are most often used for bass and lead lines, and, as noted earlier, are best used in conjunction with other monosynths, or to augment a digital synth with their distinctive sound. You couldn't really get by with just one analogue monosynth as a first-time buy!

FM: If you're buying a brand-new synth, you're unlikely to come across Frequency Modulation, or FM, synthesis unless you buy a Yamaha SY35, the only new machine which incorporates this technology — and even here it's a simplified version, used in combination with AWM S+S. We're not aiming to provide an in-depth explanation of synthesis techniques here, but briefly, FM works on the principle of sine waves being modulated by one or more other sine waves to produce more complex waveforms. The second-hand market is plentifully supplied with FM instruments, as FM was Yamaha's 'next big thing' for the mid-to-late '80s, and sold very well. ▶

"If you're looking for a first synth and are buying only one, the chances are that you won't want an analogue monosynth!"

Roland XP50.

would probably lean towards the Korg X5 or the Ensoniq SQ1+. Just missing out (by £49) on being included in this list is the Kawai K11, which we also think is a good first synth, and whose price can probably be modified downwards slightly by a discreet word with your friendly local hi-tech dealer! In fact, a bit of bargaining doesn't go amiss whatever your potential purchase...

WORKSTATIONS UNDER £1500
- GEM S2 £1499
- Korg X2 £1499
- Korg X3 £1299
- Roland XP50 £1499
- Yamaha QS300 £1199
- Yamaha SY85 £1125
- Yamaha W7 £1399

Yamaha W7.

NOTES: Yamaha's QS300 is the one to go for if you like the idea of auto-accompaniment styles, as it has lots of these. The real bargain of the bunch is probably Yamaha's SY85, which, although around three years old, has a wealth of useful features, including sample RAM (see the section on this elsewhere in this article), and is the cheapest workstation currently available new. We wouldn't like to make any hard and fast recommendations as to which is the best on the list, as they are all very nice machines; the choice probably comes down to the sound you're after.

MULTITIMBRAL MODULES UNDER £500
- Boss DS330E £459
- Casio GZ50M £199
- Kawai GMega XC3 £384
- Korg 05R/W £499
- Peavey Spectrum Bass £279
- Peavey Spectrum Synth £349
- Peavey Spectrum Organ £349
- Roland SC7 £290
- Roland SC33 £470
- Roland SC55 ST £365
- Roland MSE1 String Ensemble £499
- Roland MOC1 Orchestral £499
- Roland MVS1 Vintage Synth £499
- Roland MDC1 Dance £499
- Yamaha MU5 £239
- Yamaha MU50 £429

Some of the modules on this list are there simply because the price is right, and not necessarily because they would be suitable as first-time buys. The Roland MSE1, MOC1, MVS1 and MDC1 are part of the Roland Sound Expansion series, and each module is dedicated to sounds in a particular genre — great if that's the genre you're working in, but not ideal if what you want is a set of all-round, general-purpose sounds. The same kind of limitation applies to the Peavey Spectrum Bass and Organ, which are dedicated to specific purposes. We think good general-purpose buys from this list are: the Korg 05R/W; Kawai GMega; Roland SC33; Yamaha MU50.

BUYING YOUR FIRST SYNTH

DSP/Virtual Acoustics/Physical Modelling: These terms are used to describe the newest wave of synth technology, based around fast Digital Signal Processor (DSP) chips. These synths define a model of a given instrument in software, and then synthesize how the instrument should sound based on this model. They are currently rather expensive, as the technology is new, but cheaper variants are expected in the near future. Though the first DSP-based synths, notably Yamaha's VL1 and VL7, concentrated on recreating acoustic instruments with considerable accuracy, one manufacturer (Clavia of Sweden) has made a synth (the Nord Lead, reviewed in *SOS* May '95) which uses this type of cutting-edge digital system to produce a convincing model of an antique analogue synth.

Clavia Nord Lead.

• AUDIO OUTPUTS

The majority of synths you'll encounter will have a simple stereo output, on either quarter-inch jacks or phono connectors. To be honest, the type of effects available in most current instruments ensure that this will be all you'll need to output your finished music. However, that's not the end of the story. Some instruments provide a little more in the way of flexibility, in the form of an additional stereo output or a collection of separate outputs. A second stereo out may allow you to group your work into two stereo submixes, or separate the outputs from a dual effects processor. Either feature is fairly pointless unless you have an external mixer, and a mixer of some sort is a necessity when it comes to the multiplicity of individual outputs — typically eight — offered by many synth modules. While stereo outs are fine on your first instrument, separate outs are a nice bonus if you can afford them, providing a bit more flexibility when your setup becomes more sophisticated. Using these individual outputs allows you to isolate individual voices from the main stereo mix, so that they can be equalised and processed using an external effects unit — perhaps there is a solo part that you feel would benefit from a specific effect not supplied by your synth. Separate outputs are usually found only on mid-priced modules and more expensive keyboard synths and workstations.

• SAMPLE RAM

A fairly recent development in synth technology allows a user to load custom samples into a workstation synth and treat them as if they were part of the instrument's own collection of waveforms. This feature means that you need never get bored with the factory waveforms in your synth, as you can always add to them. Another common way of using sample RAM is for loading a drum loop into the synth, which can then become part of a sequenced composition. All instruments so-equipped fall under the workstation banner, although a few disk drive-equipped modules also offer the option, and in one or two instances, the hardware to actually do the sampling itself can also be added to the synth. If you're just starting in the synth world, you're unlikely to want to worry about adding extra waveforms to your synth via samples — you'll probably have enough to think about with the waveforms already in there! You're also unlikely to have the sampling hardware needed to inject the samples into your synth. However, if you come from DJ/dance circles, samples could be of great importance to you, and this feature could be invaluable when used in conjunction with a sampler of some kind.

• SEQUENCERS

If you're about to buy your first synth, we hope you know, in theory at least, what a sequencer is! However, just in case: a sequencer will allow you to record what you play on your synth keyboard.

Emu Sound Engine.

It can be compared to a multitrack tape recorder, except that it does not record audio, but rather the MIDI data generated when you play the keyboard. It stores this data and uses it to re-trigger the correct notes when you want to play back what

IT'S MORE FUN TO COMPUTE: SYNTHS WITH COMPUTER INTERFACES

MODULES

- Emu Sound Engine £565
- Kawai GMega £689
- Kawai GMega XC3 £384
- Kawai GMouse £TBC
- Korg 05R/W £499
- Korg X5DR £675
- Roland SC7 £290
- Roland SC50 £595
- Roland SC55 ST £365
- Roland SC88 £869
- Yamaha MU5 £239
- Yamaha MU50 £429
- Yamaha MU80 £739

KEYBOARD SYNTHS

- Kawai K11 £1049
- Kawai KC20 £669
- Korg X5/X5D £799/£899
- Roland XP10 £599

you have recorded. A sequencer will allow you to record many parts (typically 16) which can then be played back together to make as full an arrangement as you like. Sequencers also offer editing facilities, to let you make changes to your tracks after you have played them — so you can correct wrong notes, tidy up timing (using a feature called quantisation), transpose notes and/or whole tracks, cut or copy sections of a track and paste them to other parts of the track, and so on. In fact, the sequencers present on many workstations rival the facilities offered by computer-based software sequencers, though they lack, obviously, the large-screen graphic approach of a computer system. Sequencers from different manufacturers operate slightly differently, but they all perform the same basic task, and none should be beyond you if you read the synth manual. The only way to decide which approach suits you best, unfortunately, is to study reviews and promotional literature religiously, and/or go and try out several at the best-stocked music store you can find.

• COMPUTER INTERFACES

Over the last couple of years, there has been an increasing trend for manufacturers to incorporate direct computer interfaces (compatible with Apple Mac and PC clone computers) into instruments they see as being particularly suitable for 'desktop music'. These instruments are all General MIDI devices (see section on General MIDI) and most are modules, though there are now one or two keyboards similarly equipped. The attraction of such an instrument is obvious if you have a suitable computer: you don't have to buy a separate MIDI interface to allow your computer to talk to your instrument, thus saving you money. The downside is that some GM instruments of this kind, usually the cheapest ones, are limited in their synthesis capabilities, and can often *only* be used with a computer, as they lack front-panel controls. Don't be put off by these points, as there are computer interface-equipped GM modules which are very fully-featured and have user-friendly front-panels: Roland's Sound Canvas (SC) range, Yamaha's MU80, Korg's X5DR and Kawai's GMega are a few examples.

• CARD SLOTS

Many synths are equipped with one, two or even more card slots. The cards that fit in these slots are usually specific to a given manufacturer (or even instrument), and come in two flavours: RAM (Random Access Memory)/ROM (Read Only Memory), or PCM (Pulse Code Modulation). The RAM/ROM card option is straightforward: these cards are used to supply extra banks of patches for your synth, which are accessible without having to overwrite the main patches in your synth. RAM cards are rewriteable, but ROM cards are not. ROM cards are a common (and slightly cheaper) method for selling sounds, used by third-party developers. RAM cards are also used to provide extra sounds, but are often supplied blank for the user to fill up with his or her own sounds. Some workstation synths even contain RAM card slots, which might seem strange given that these instruments can save patches to floppy disk, but the advantage here is that patches saved to a RAM card are instantly accessible alongside the patches already available on the synth itself; they don't have to be loaded from disk first.

"The only way to decide which manufacturer's approach to sequencing suits you best is to study reviews and brochures religiously, and/or try out several at the best-stocked music store you can find."

CUT-PRICE KEYS: BUYING SECOND-HAND

We've concentrated mainly on buying a new synth, partly because it's often a safer bet if you don't know much about hi-tech gear — you could end up with something faulty or unsuitable if you don't know what to check for when buying privately. In addition, if you buy your first synth new, you can take advantage of initial help and support from both the manufacturer of the synth and the retailer you buy it from, not to mention the warranty. Often, a retailer will throw in the odd sustain pedal, keyboard stand, RAM card or box of blank disks in order to clinch the sale, if you play your cards right. However, if you decide that you're confident enough to go for a second-hand buy, this has its advantages — the main one being price. Music technology moves so fast that synths that were state of the art and correspondingly expensive just a couple of years ago are real bargains second-hand — see our two-part feature highlighting just some of the good second-hand buys around in the July and August 1995 issues of *SOS*. Also check out the December '95 *SOS* for a full magazine index, where you can locate reviews of any older instruments you're interested in.

If you decide to buy a synth second-hand, it's worth taking a few common-sense precautions — you wouldn't buy a car without looking under the bonnet or taking it for a test drive, would you? If you have a friend who is already into keyboards, all the better — see if they will come along when you view a used instrument. And take your time: a vendor with nothing to hide won't mind you going through all the presets and asking loads of questions.

- Observe the synth's condition. This might seem obvious, but if an instrument is shabby and scratched, chances are it's been used heavily. Of course, a few scratches don't necessarily mean faulty electronics, but be a little more wary. At the very least, cosmetic faults may give you some room to haggle.
- Check each key on a synth or workstation with soft and hard pressure. This may seem like a tedious thing to do, but if there are any faulty keyboard contacts, it's better to find out before you part with your cash, not at home when it's too late. Sometimes fixing such a fault is fairly easy, but it can be symptomatic of a more serious problem.
- Check all switches, knobs, sliders and sockets. Again, it's better to spot anything that crackles or misfires at the viewing stage. Repairs here may not be quite as simple as cleaning a few contacts on a keyboard.
- Look out for noise in the audio output. Some older digital synths actually produce a certain amount of hiss, which is normal and is usually masked in use, but don't be afraid to ask if something sounds a little out of the ordinary.
- Check the display for backlighting (if it should be there), clarity, missing characters and so on.
- Is there a manual? As a newcomer, you'll probably prefer to have one, and the older the instrument you buy, the less likely you'll be able to purchase a manual as a spare from the manufacturer. Luckily, many older, popular instruments are supported by third-party user guides, and of course, it's often possible to use the *SOS* Readers' Ads to locate original or photocopied manuals.
- Is there a box? This isn't nearly as important as some people think, although the inclusion of a box invariably adds to the value of a classic, hard-to-find instrument. While retaining the original packaging may give the impression that the previous owner took care of the instrument, it's not necessarily the case. If you're buying mail order or from a distant Readers' Ad, a box obviously aids safe carriage.
- The really paranoid amongst you may also think twice if an instrument is already powered up when you go to try it out. Perhaps the owners started it up themselves to hide a fault. Of course, with some really old, analogue gear, a warm-up would be welcome, since tuning may not be stable for a quarter of an hour or so.
- For more detailed hints on what to look out for when buying vintage synths, check out Gordon Reid's short feature on the subject in *SOS* September '94.

BUYING YOUR FIRST SYNTH

The main problem with RAM cards is that they can be pricey; if your synth lacks a disk drive, you might like to add an external MIDI data recorder, such as Yamaha's MDF2. This is a floppy disk drive that records MIDI data, including patches, direct to a cheap 3.5-inch floppy. If you're a creative person and enjoy programming your own sounds, a MIDI data recorder could quickly pay for itself in savings made from not buying RAM cards.

PCM cards are a different thing altogether, and provide sampled waveforms to be used in addition to those supplied with your synth. If your synth is weak in orchestral or piano waveforms, for example, the synth's manufacturer or a third party may develop a PCM card full of new samples to fill the gap. PCM cards are often supplied in a set with a RAM card containing extra patches that take advantage of the new waveforms.

• GENERAL MIDI

General MIDI is a standard agreed upon by synth manufacturers which is designed to allow MIDI song files composed on one GM instrument to be played back faithfully, with the correct sounds, on any other. Synths outside the GM standard can arrange their on-board factory patches in any way they like, so that playing back MIDI files across non-GM synths could result in your electric guitar solo being played back by, say, a tuba patch! General MIDI avoids this problem by specifying a patch list of 128 staple sounds (plus drum kits), which are numbered in the same way in each GM synth. So, for example, patch 39 will always be 'Synth Bass 1' on any GM synth. In practice, patches differ in sound considerably, since each manufacturer programs their own interpretation of the patch name, but it's certainly a lot easier to modify a sequence to play properly between two GM synths than it is between two non-GM synths. If you don't intend to use MIDI files, there's probably no reason why you should buy a GM synth in preference to a non-GM synth. However, GM instruments do provide a comprehensive set of basic sounds.

Solton MS40.

• PRICE

The cheapest new keyboard synths on the market have retail prices of between £599 and £899, while the cheapest workstations typically cost around £1200. The lower prices of the basic keyboard synths might tempt you in that direction, but remember that if you want to do any sequencing or save your work to floppy disks, you'll have to add on the cost of a sequencer (which could be a cheap second-hand hardware sequencer costing around £100) and a MIDI disk drive unit (which could cost up to £300), or a computer plus sequencing software (costing anything from £250 for a second-hand Atari setup, to over £1000 for a new Apple Macintosh or PC with the latest software). This could make the extra money for a workstation seem well worth it. Bear in mind, though, that computer sequencing has a graphic approach which many beginners find easier to cope with.

Synth modules start at around £200, though the average price is more like £500, with controller keyboards costing from £250 for a 61-note synth-action model and £400 upwards for a 76-note weighted, piano-action version. Names to look out for in this area are Fatar, Samick, Roland, Peavey and Yamaha. If you want to sequence with this setup, remember that you'll have to add an external sequencer and MIDI disk drive, or a computer and software, as detailed above.

CLOSING WORDS

Hi-tech music-making is not the cheapest of leisure-time pursuits. However, it needn't reduce you to selling your aged grandmother, as a memorable series of ads from a well-known synth manufacturer suggested recently — as explained above, you could get up and running for as little as £450 with a budget synth module and controller keyboard, and add sequencing for another £250 with a second-hand Atari setup, or even less if you already have a PC. Just collect the brochures, digest the information, ask stupid questions, and above all, buy *SOS* every month! (Well, we would say that, wouldn't we...)

AND THAT'S NOT ALL...

When you've bought your synth, you'll probably need a few extras:

- A stand — a cheap and simple X-stand will do to start with.
- A pair of headphones or a keyboard combo. Synths can be patched into your hi-fi, but watch levels, as some synths are capable of destructive amounts of bass or high frequencies.
- A sustain footswitch, if one wasn't provided with your synth. This behaves like the sustain pedal on a piano, and is an invaluable expressive tool.
- Floppy disks, if you're buying a workstation.
- A flightcase, if you plan on gigging or moving your synth a lot. These can be expensive, but shop around; they sometimes turn up in the *SOS* Readers' Ads.

CONTACTS

Alesis, Ensoniq: Sound Technology plc, Letchworth Point, Letchworth, Herts SG6 1ND. Tel: 01462 480000. Fax: 01462 480800.

Casio Electronics, Unit 6, 1000 North Circular Road, London NW2 7JD. Tel: 0181 450 9131. Fax: 0181 452 6323.

Emu UK, Suite 6, Adam Ferguson House, Eskmills Park, Musselburgh, East Lothian EH21 7PQ. Tel: 0131 653 6556. Fax: 0131 665 0473.

Fatar: Arbiter Pro MIDI, Wilberforce Road, London NW9 6AX. Tel: 0181 202 1199. Fax: 0181 202 7076.

GEM: General Music UK, Unit D Chelford Court, Robjohns Road, Chelmsford CM1 3AG. Tel: 01245 344001. Fax: 01245 344002.

Kawai UK, Tel: 0836 740283. Fax: 01759 380294.

Korg UK, 9 Newmarket Court, Kingston, Milton Keynes MK10 0AU. Tel: 01908 857100. Fax: 01908 857199.

Kurzweil: Washburn UK, Amor Way, Letchworth, Herts SG6 1UG. Tel: 01462 482466. Fax: 01462 482997.

Novation, The Ice House, Dean Street, Marlowe, Bucks SL7 3AB. Tel: 01628 481992. Fax: 01628 481835.

Peavey Electronics Ltd, Great Folds Road, Oakley Hay, Corby, Northants NN18 9ET. Tel: 01536 461234. Fax: 01536 747222.

Quasimidi: Key Audio Systems Ltd, Unit D Chelford Court, Robjohns Road, Chelmsford CM1 3AG. Tel: 01245 344001. Fax: 01245 344002.

Roland UK, Atlantic Close, Swansea Enterprise Park, Swansea, West Glamorgan SA7 9FJ. Tel: 01792 702701. Fax: 01792 310248.

Samick: Audio Awareness, 10 High Road, Chadwell Heath, Romford, Essex RM6 6PR. Tel: 0181 598 8081. Fax: 0181 598 8984.

Yamaha (UK), Sherbourne Drive, Tilbrook, Milton Keynes MK7 8BL. Tel: Product info line 01908 369269. Fax 01908 368872.

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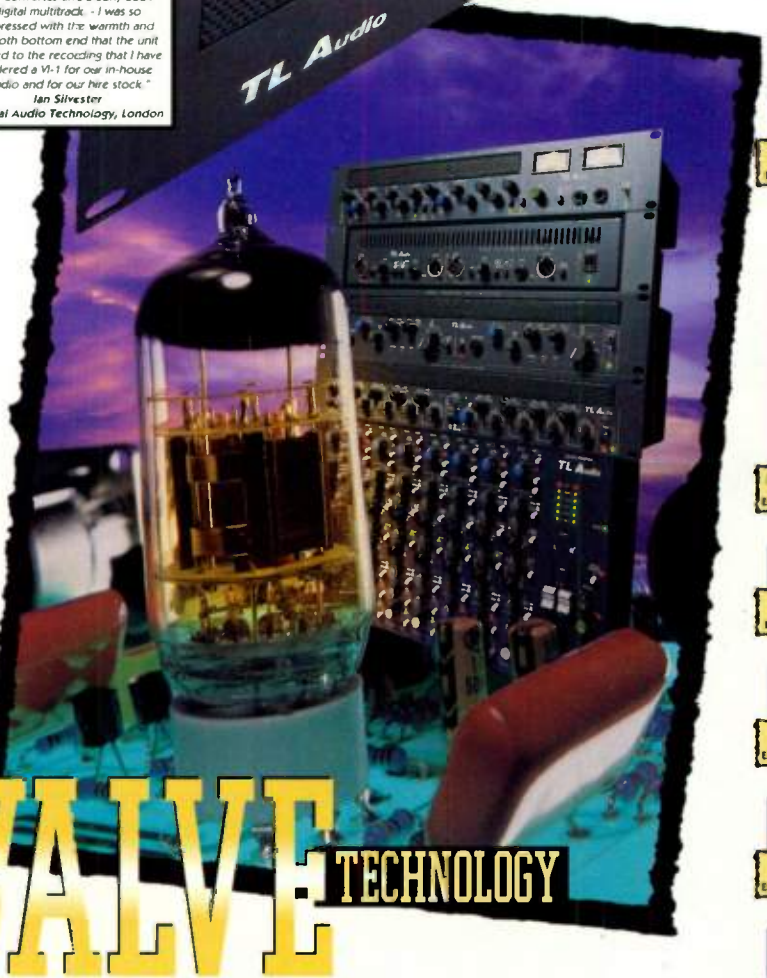

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The Holy Trinity?

KORG TRINITY PLUS MUSIC WORKSTATION

PART 2: GORDON REID concludes his review of Korg's new family of workstations.

Last month, we devoted five pages to reviewing the new Korg Trinity in its basic model. This time, we take a closer look at the Prophecy motherboard incorporated in the Plus, Pro and ProX models, and have a further peek at the Trinity's sounds and 'Insert effects' section. We also give Phill Macdonald of Korg UK an opportunity to explain some of the new workstation's potential deficiencies. So, without further preamble, let's get stuck in...

THE TRINITY PLUS

The difference between the Trinity and the Trinity Plus is simply the addition of the MOSS synthesis Prophecy expansion board installed as standard within the 'Plus' (for more on MOSS and the Prophecy, see this author's review of that instrument in *SOS* October '95).

Once installed within the Trinity, the MOSS board provides another bank of sounds (Bank S) that you can program, play, and insert into Combis and Sequences as if they were no different from the PCM-based banks A and B. You then have access to the full power of the Prophecy: analogue modelling, VPM (Korg's version of FM synthesis), brass modelling, reed modelling, plucked string modelling, noise + comb-filtering, and three analogue-style sync, ring-modulated, and cross-modulated models. Then there are the Prophecy's effects: two types of wave-shaping, overdrive, wah-wah, distortion, chorus, flanging, panning, delay, and reverb, all of which you can insert into programs before, and in addition to, the Insert and Master effects. Indeed, since the Prophecy sounds now have access to the Trinity's effects, you could argue that they're better than before.

Korg claim that there are no differences between the Trinity's and the Prophecy's MOSS programming systems, but considering the Prophecy as a whole, I really missed the arpeggiator. Some may argue that the Trinity's sequencer more than replaces such a 'basic' tool — but I don't agree. The Prophecy's arpeggiator tucks many neat tricks up its silicon sleeves, and while you could, with work, duplicate many of these using the 'pattern' capabilities of the Trinity's sequencer, this would remove the real-time nature of the beast.

On the other hand, the Trinity Plus invalidates

my only two serious criticisms of the original Prophecy: the inadequate 3-octave keyboard, and the awkwardness of the programming interface. I never could understand why Korg limited the Prophecy to just three octaves, and the Trinity's five (or six, or seven, depending which model you are tempted by) are a huge improvement. Even more significant is the Trinity's screen. Because of its enormous flexibility and tiny display, the Prophecy can be a pain to programme. Korg could, and should, have overcome the problem by providing a bigger screen. This, of course, is exactly what the Trinity Plus does, replacing obscure messages with full parameter descriptions, putting up to thirty related parameters on screen at a time, adding envelope graphics, and making programming a doddle. On balance, I'll forgive the omission of the arpeggiator...

While on the subject of the display, I suspect that many people will wonder why they can't adjust envelopes (and this applies as much to ACCESS sounds as MOSS sounds) by pointing at handles on the curves and dragging them across the screen. Unfortunately, the human finger is simply too large to do this with sufficient accuracy. After all, there are 199 values for many parameters (-99 to +99) and should you want to move between two consecutive values you would need a finger like a hypodermic needle. In addition, if you want to set two envelope values close to each other, it's debatable whether you can get enough accuracy from the screen. Perhaps it's surprising, therefore, that Korg haven't offered a track-ball or a mouse port on the synth itself. On the other hand, by the time you've located a mouse over a desired handle, held down the button, dragged the curve to the new location and released, it might have been easier and quicker just to touch the appropriate place on the screen and then use the existing up/down controls.

The only other point worth debating — seeing as the sounds are *exactly* the same as those on the Prophecy — is the loss of the Prophecy's 'log' controller, and this is also only a minor niggle. The Trinity's ribbon controller boasts the same pressure sensitivity as the Prophecy's, and the joystick is within easy reach. Seven axes of control (plus the pressure sensitivity of the keyboard) may not be quite as good as the log, but they're good enough for me.

MORE ON ACCESS

Last month, we reviewed the demonstration tracks supplied with the Trinity, but there wasn't space to say much about the individual sounds. So, let's look at a few of the ACCESS-generated PCM-based sounds produced by both the Trinity and Trinity Plus...

It's easy to check out the quality of a PCM ▶

PATIENCE IS A VIRTUE...

Retailing for a not inconsiderable £2,395 and £2,795 respectively, the Trinity and Trinity Plus are significantly cheaper than their 76-note and 88-note siblings, the Pro (£3,195) and ProX (£4,795). However, if you're thinking of starting with a basic Trinity or Trinity Plus and then adding the more advanced options later, I advise you to sit tight until Korg announce the upgrade prices.

KORG TRINITY PLUS £2795

PROS

- The power of a Prophecy.
- Seamless integration within the Trinity.
- Programming on the large screen.
- MOSS access to the Insert and Master effects.
- Five octaves rather than three.
- A Prophecy for £400 rather than £995.

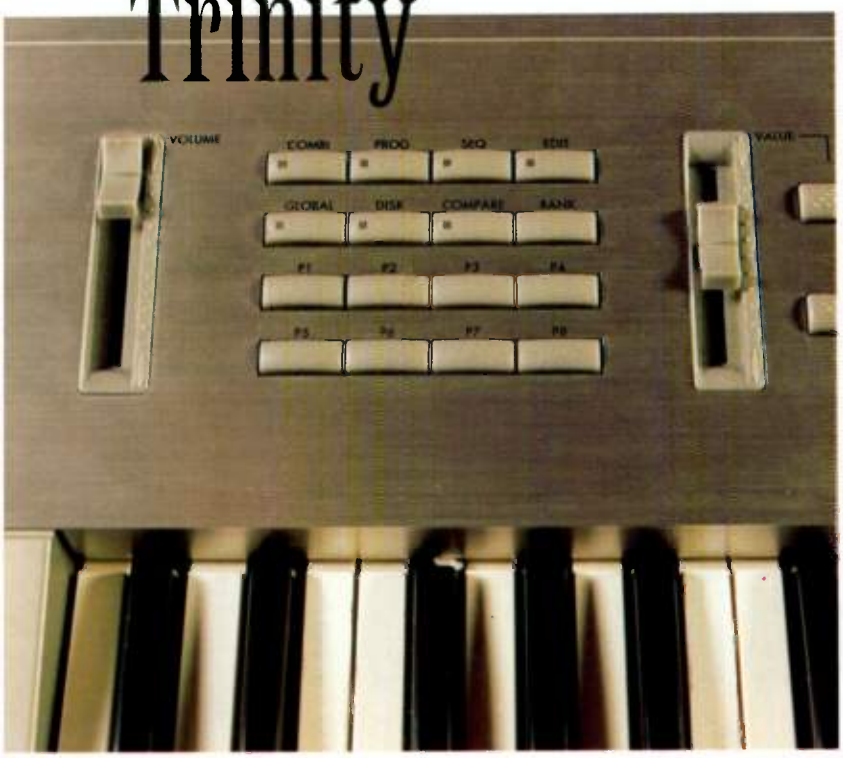
CONS

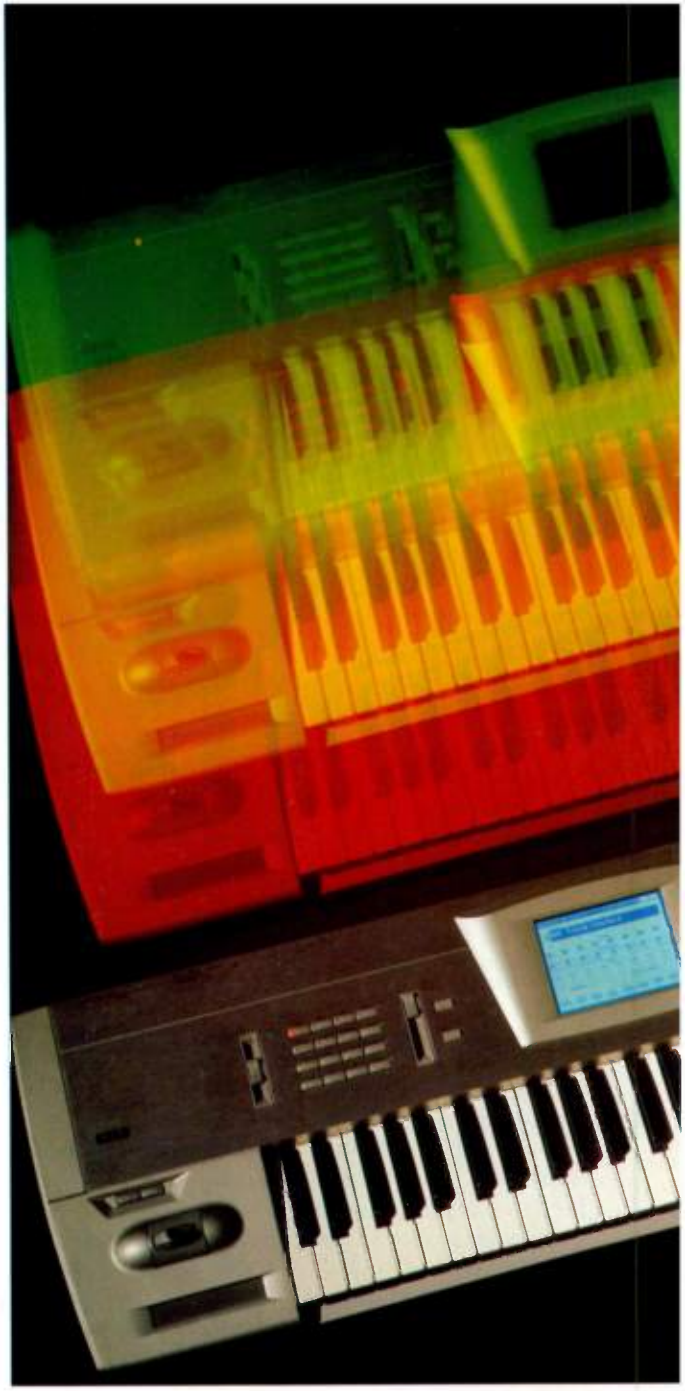
- Loss of the arpeggiator.
- Loss of the 'log'.
- A further strain on the number of outputs.

SUMMARY

If you're seriously thinking of buying the basic Trinity, you'd be certifiably crazy if you didn't try to find the extra £400 for the Trinity Plus.

Korg Trinity





synthesizer's samples. Initialise a patch, set all filters wide open, simplify all the ADBSR envelopes to just 0/0/100/100/0 (or whatever), kill the LFOs and effects, and then step through the multisamples to inspect the waveforms. Doing this on the Trinity reveals a tonal uniformity that may be a consequence of the recording process, the PCM creation process, or the programs that Korg used to prepare and normalise the samples. But considering what an analogue synth can do with just a square wave and a sawtooth waveform, it's hard to imagine a limit to what the powerful filters, LFOs and envelopes, not to mention the effects, of the Trinity can do to its 375 multisamples. So, while I shy away from writing reviews that send you away to try the 'Heavenly Choir Strings Spectral Pad' at patch location GSX650, it's worth pointing out a few of the Trinity's strongest suits.

The violins and solo strings are particularly impressive. Programmed with appropriate vibrato, and with a great response to the performance controls, they're instant *Fiddler on the Roof*. Then there are the analogue and FM basses, 12-string guitars, techno sounds, drums, strings and spectral pads. I was also very impressed by the excellent tonewheel organ simulations. The Trinity's overdrives and rotary effects could transform any vaguely organ-style sound into a rich Hammond-like swirl. With good PCMs as a starting point, the result is magic.

THE PRICE OF THE PROPHECY

Given that there are only four differences between the implementation of MOSS on the Trinity Plus and a stand-alone Prophecy (you lose the 'log' real-time controller, the five real-time controller knobs, the arpeggiator, and the Prophecy's final EQ stage) it's remarkable that the difference in price between the basic Trinity and the Plus model is only £400. On the other hand, the keyboard, case, screen and controls comprising the user-interface are expensive components within any synth. Add to them the electronics that provides the key scanning, interprets the controllers, and drives the display, and you've probably accounted for about 90% of the build-cost of the instrument. Obviously, the Trinity's MOSS synthesizer uses the same keyboard, screen and controllers as the native ACCESS sound generator, so the expansion board is able to dispense with the Prophecy's 'house-keeping' V55 processor and all its attendant electronics. As a result, it ends up little more than a third the size of the Prophecy's motherboard. All in all, the additional cost of £400, compared to the Prophecy's asking price of £995, is probably about right.

Whether this implies that there could be a Prophecy *module* for, say, £500 or £600 in the next few months is unclear. Korg UK have stated that despite initial shipments of the Prophecy going "like hot cakes", there are no plans to produce a Prophecy module. Their philosophy seems to be that if you want access to Prophecy sounds without coughing up £1,000, you should buy a Trinity as your main keyboard!

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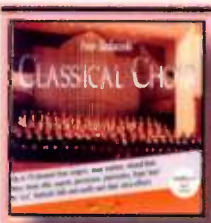

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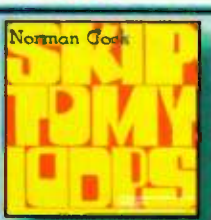
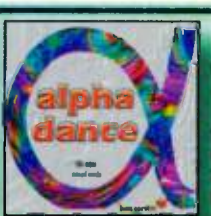


A massive collection of loops from 84 bpm to obscenely fast, plus Vocals, FX, Bass, Percussion, Guitar, Reggae, Flute, Sax, Brass, Synth etc. Those in the know will tell you that this collection REALLY kicks. *"Another AMG masterpiece"* (Mixmag, UK).



NO HYPE - Just great ORIGINAL & FRESH dance production material. On these 2 CDs you'll find both the audio material & over 200Mb of Akai CD-ROM Data - ready-looped & mapped. A complete spectrum of sounds including vocals. Our regular customers rate this highly for true usability.

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Dance

X-Static 1 - Remixology

The XXXX-Largest CD ever?? 4000 samples from the now deleted X-STATIC GOLDMINE 1 and XL-1. If you don't own these two classics then this new CD is essential! All of the 600+ loops are now tempo-mapped for ease of use. Choose any of 4 formats at the same price!!! - Audio CD, or Akai S1000/ Roland/PC '.WAV' CD-ROMs. At £59.95 it's got to be the best value dance CD-ROM ever.

XX-Large The Killer

Over 100 minutes (different samples on L & R tracks). 750 synths, chords, organs, voices, pads. Techno/ trance hooks, 250 Basses, 750 Drumloops (80% in stereo, tuned and grouped into BPMs from 130-200 BPM), Analog Drum Machines (adjusted to every possible variation). *Really good value* ☆☆☆☆☆ *5 stars*" (Sound on Sound).

Classical

Miroslav Vitous Symphonic Orchestra

REALISM! An orchestral sample library that even top conductors are proud to own. Two years in the making. FIVE CD-ROMs exploring every subtle nuance. Very expensive, but the best. See catalog for full details, or call to discuss. We highly recommend a full demo at our private CD-ROM auditioning suite. Many film composers have bought this library and been delighted. A mini version is also available on a single CD-ROM.

Synth & FX

Ambient Volumes 1 & 2

By IAN BOOTY. This collection achieved a ☆☆☆☆☆ five-star review in both Sound on Sound (UK) & Keyboard (USA). Comes very highly recommended. A wealth of synth FX, atmospheres, instruments & textures from one of the UK's leading synthesists.

Funky Elements

Both audio CD volumes now combined into one CD-ROM (Over 500Mb / 1600 samples!) - all prog-rammed into filter patches ready to play. Fat with feel, this disc is guaran-teed to serve up that ol' funk sound. ☆☆☆☆☆ Five Stars" (Sound on Sound). Loops, drums, horns, guitars, all you need. A best selling library.

L.A. Riot 3

2-CD Set 1000's of Hip Hop & R&B samples. •Mad-hard construction kits •Bomb-ass breaks •Basses •Loops •Horns •Scratches •Dope FX & Squeakies •Crazy guitars •Vocals •Synths •Piano •Rare groove elements. Every 5 construction kits are same BPM & key for mixing & matching. Fresh, well-organised and a true goldmine for the serious producer. "Sheer authenticity & attitude... An all-American urban soundscape of immense realism... A hard act to follow... Quite simply a classic. ☆☆☆☆☆ (Sound on Sound, UK).

Peter Siedlaczek's Orchestra

One of our most popular products An entire orchestra at your fingertips, mostly playing Tuttis. The string sections are perfect for those lush string pads & lines and eleven other categories are provided . Aural dimension & realism at an affordable price.

Vince Clarke

Lucky Bastard

"One hell of a useful CD. 9 out of 10" (Future Music). A huge set of sequences specially created by Vince Clarke using his massive collection of classic analogue synths. Fast creative sampling.

Black N Black Volumes 1 & 2

By Steve McIntosh & Joe Charles. One of the biggest & best set of kickin' R+B samples. All loops,Vocals, Brass lines, & Drum hits specially recorded. Features: Reggae, Ragga, Swing, Jazz house, Euro house, Mad house, Slo jamz, Rap, Guitar licks, Bass lines, Garage, Disco. "☆☆☆☆☆3/4" (Sound on Sound).

Loop Soup

This 2-CD package contains ALL the rhythm loops from all the great AMG dance CDs - (from Norman Cook, Megabass Remix!, Pascal Gabriel, Coldcut, and from both of the AMG "Now!" CDs). A monster collection by some of the UK's best dance producers.

Peter Siedlaczek's Orchestral Colours

Siedlaczek's name means pure class. Rich & evocative orchestral samples to bring colour & inspiration to your music • Hits & Finales • Moods & Timbres • Orchestral layers, chords, arpeggios, tremolos & Glissandos • Runs & Sequences. A film composers dream. *Quality is immaculate. You've never been able to access such usable orchestral realism so cheaply before.* ☆☆☆☆☆ *5 stars*" (Sound on Sound).

Analogue Dreams

There are over 3000 analogue synthesized samples on this 2-CD package. The list of rare synths & analog drum machines used looks like a museum inventory: Dreams, squelches, or mind-blowing effects, there's a synth sound here to fit the bill. Get the CD-ROM version and you'll have everything sampled, looped and laid out into superb performance patches.

Zero-G Datafiles

World's best selling dance sampling CDs. Featuring over 3250 samples spread across 3 CDs. Tremendous variety. Excellent value for money. Recommended by magazine reviewers worldwide.

Funky Ass Loops

Produced by the New Power Generation (who do all the drums & programming for Prince). "Seriously HOT! 5 stars for content, value and sound quality" (Keyboard, USA). This super-funky disc will prove to be the inspiration for many hits. All grooves played live - but not just with traditional drums - you won't believe the sounds used, and you get all the separate component samples as well.

String Sections 1

From Roland's own CD-ROM series: Gold Series (500-800 Mb, £398.00 each): •Orchestra Vols. 1&2 (Strings & brass) •Rhythm Section Vol.1. Project Series (150 - 200 Mb, £109.00 each): •Drums & Cymbals Vol.1 •Guitar & Bass Vol.1 •Orchestral Percussion Vol.1 •Orchestral Winds Vol.1 •Solo Strings Vol.1 •Brass Sections Vol.1 •Super Sax Vol.1 •Symphony Orchestra Vol.1 •60's & 70's Keyboards Vol.1 •Solo Brass Vol.1 •String Sections Vol.1.

Composer Series (£139.00 each): •Jazz Vol.1 •Dance Vol.1.

Distorted Reality

- but already in the hall of fame...

Cutting Edge Textures, FX and Loops, exploring an experimental world of extraordinary colours. From 3-dimensional Harmonic Sound Morphing, to trance-inducing ambiences, enormous modular drones & astonishing timbral contortions. An essential resource for the producer, composer or sound designer in search of unique sound. You simply have to hear these sounds to believe them, and we can't praise this product highly enough.

Dance / Industrial 2

A 2-CD set of Loops, plus all the component percussion elements used to make them, plus their programming on an accompanying MIDI-file floppy disk. A very professional approach from East-West (USA). ☆☆☆☆☆ 6 stars" (SoS). 154 loops and 1500 samples on 2 CDs. Comes with Midifiles on floppy (state Mac or Atari).

Sly Dunbar

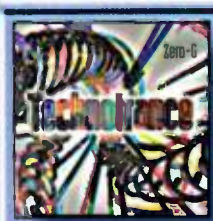
Reggae Drumsplash. The World's No.1 Reggae drummer & Producer (half of Riddim Twins Sly and Robbie). There's nothing else like this on the market! • Reggae • Ska • Dancehall • Bhangra. Comes with MIDI-files on floppy disk for the loops. READ THE FANTASTIC REVIEWS - undisputably the NUMBER ONE sample CD on the market for reggae production.

Classical Wild Takes

In the same vein as "Orchestral Colours" but perhaps more FX orientated, this is another superb selection of orchestral stings, phrases and orchestral effects samples for use in film, broadcast and any music requiring that big, expensive and professional orchestral sound. From a different German developer, but, like "Orchestral Colours" this CD is also superbly recorded and presented.

Analog to Digital and Back

Unique sounds, layers, textures, FX, from the worlds classic vintage synths. Ambient, Techno, film, rock, whatever - these 2 discs will inspire you with fresh sounds of immense power or subtlety. Raved about by Dance producers for their usability and versatility for everything from Ambient/Trance to the hardest of Hardcore Techno.



Zero-G Technotrance

All the classic techno synth & FX samples you need, each presented with a short demo to show their effectiveness. One of the world's very best techno sample CDs, having achieved top-rated reviews in USA, Germany & UK.

The Rhythm of Life

IMMACULATE PERFORMANCES and FLAWLESS PRODUCTION!

49 tracks of creative percussion grooves plus single hits in many exotic styles.

"A connoisseur's product." (Sound on Sound).

The Piano

FINALLY, a virtual grand piano has been made that actually sounds and responds like the real thing. Recorded with patented 3D technology, these 8, 16, and 32 megabyte banks will bring your favourite concert grand into your studio.

Analogue!

By Martin Phillips - the producer of Moachford, Erasure, London Beat, The Beloved and Jeseus Jones. Analogue synth sounds, analogue drums and effects.

A particularly fine and tried+tested set of synthesized samples. These sounds really WORK in the mix, as you would expect from one of UK's top producers.

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New Releases

NEW

Jungle Mayhem

Hardcore dancefloor ammo for speed freaks. Massive collection of ultra-fast grooves, construction kits & samples - a lethal production weapon in the right hands. If you need Jungle this is unmissable. Features: • Special jungle loops (ready transformed, 4 - 32 bars, 155- 164 bpm) • Massive drum rolls & mega fills • Perc Loops and Kits • Intense Pads & Chords • Bass Notes • Manic FX • Nasty Vocals.

NEW

Beats 'N' The Band

The ultimate beats collection for serious Hip Hop, Swing and R&B production. Grooves with attitude and altitude to lift your music into a new dimension. Each loop has it's own swing factor, enabling you to easily quantise your track to the same groove. CD-Rom version coming very soon.

NEW

Techno Toolbox

Features the sample libraries of Germany's most respected Techno producers including Eye & Hartbouse, Ralf Hildenbeutel, Jam El Mar (Jam & Spoon, Dance 2 Trance), Cat Martin (Spacefrog, Energised), and more. Coveted key sounds of many of the world's top techno producers: custom drum, synth, bass, loop samples. "Within the first 3 minutes of this CD I had goosepimples" (Frontpage Mag, Germany).

NEW

Electroshock Part II

The sequel to a very successful techno dance library, this 2-disc set looks set to do equally well.
CD1: 70 minutes audio plus MAC (AIFF) & PC (WAV) ROM data.
CD2: 68 minutes audio plus AKAI ROM data.
Huge collection of fresh analog+digital stuff for serious techieheads, incl rare vintage synths & construction kits.

NEW

EUROTECH

Specialising in Euro-dance/ Europop. This style of music has dominated the charts all over Europe over the last few years & seems set to continue so. A very commercially attractive set of sounds, and all original. The loops are fast (192 of them are over 140bpm!). All bpms given. A hot techno resource.

NEW

One A Jazz Trip

Hip Hop In Full Swing! Stomping grooves, licks and loops, played in predetermined keys and tempos to be used interactively: Bass, Guitar, Keys, Horns, Drums and Perc., Jazz pads, riffs and chords. Perfect for all HipHop, Rap, Soul, TripHop, Acid Jazz and Funky flavors. For any music project that needs a vibe, swing or that Jazz Thing. Produced and played by musicians who love and respect music.

NEW

Industrial Mayhem

Brutal & sweet sampling for Industrial, Intelligent Techno, Goth Techno or anything in need of an Experimental Edge. Uniquely twisted, bizarre and savage stuff. Drum-, Bass-, Synth-, FX-, Vocoder-, Feedback- & Noise-loops. Grinding Guitar Riffs & Feedback. Synth FXs, Sweeps, Basses, etc. Creepy & Cheesy Sound FX, Music FX & Voices. Over 1000 Samples. A unique collection.

NEW

Breakbeats & Loops

R&B, Jungle/Trip Hop - whatever the trendsetters call it - it all comes down to the Right Flavor of the Grooves. Many future styles will probably rely on breaks like this. Tons of Grooves, Hits & Loops to give you a unique feel for Rare-grooves. Produced by PHAT FABE aka Fabian Thorsen (Sade Cherry & Shalita Rachel). Tempo-maps provided (plus MIDI-files on CD-ROM version).

NEW

Crunchy Nut Drum Loops

Crunchy Nut Loops - A collection of Shattering Grooves from Drummer Jim Carmichael (Freak Power, K-Creative etc.), played with vibe in mind, these loops are encrusted with funky substance and fortified with extra compression to start your day in the positive way.

NEW

Chill Out & Dub Grooves

Chill out & Dub Grooves, Trancey Phase Loops, Synthetic Vibes, Floating Hypnotic Trance Chants, Hypnotic Space Echoes, Zipping Sonars & Dreaming Didgeridoos & Jungle Weather. 1500 Ambient House Loops & Chill-out Samples. (Loops made to fit with LOOPMAPS - tempo maps to make loops easily interact with each other)

NEW

West Coast Funk Stew

2 CD set from USA featuring L.A.'s top Funk session players, and produced by a top US rap engineer. Over 1000 Drum, Bass, Guitar, Horn, Keyboard and Vocal loops & samples with a deeply funky flavour.

NEW

Phat & Phunky

Another dynamite set from East-West: Over 2000 samples on 2 CDs: 165 grooves, each with its component samples given separately (drums & instruments) together with the sequence data for each loop on a separate MIDI-file floppy disc (PLEASE STATE ATARI/IBM or MAC version when ordering). This arrangement gives you complete flexibility to customize all loops to any tempo or content you like.

NEW

Dance Megadrums

The most extensive professional material for any dance production: 4500 well-organised samples. 90 complete and different Drum machines as well as ultra rare analogue Rhythm-boxes with several sound variations. Also 1500 latest Dance Drumsounds (BDs, Sds, Hats, Percs, Analogue Drums and Percs). 400 Mb ROM part. All Drum machines ready to play.

NEW

XX-Large Extreme

With its latest production, the XX-Large Team presents the biggest Dance Drumloops collection worldwide! 1750 absolute new Stereo Drumloops. House, Jungle, Rap, Hip-Hop. All of the loops are tuned accurately on beats per minute and arranged in groups from 80 - 180 bpm. In addition, more than 100 current Dance Sounds: House Organs, Jungle Basses..... You can't live without it!!!

NEW

Real Megadrums

The most extensive collection of natural drums, with or without room, varyhat hits, a gigantic number of Kicks, Snares, Toms & Cymbals. The Toms & Snares sound absolutely awesome, each of them recorded by left and by right hand separately, each with four hits, with or without reverb. The CD-ROM part with 440 Mb contains dozens of sets with 5, 8, 16, 32, 96 ready to play.

NEW

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The electronic invasion of machines & computer. Unique starting material for any fan of electronic and Kraftwerk. Fantastic studio production tool. Hundreds of Cybertric Synthesizer & Drumsounds coming from collector's stock; Rhythm-sequences and Drumloops, extensive Vocoder section, hardware computer-rarities. A real treasure trove: 1500 analogue & digital specialities. From the past to the future.

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Our reputation is on the line every time you make a purchase, so we distribute only the highest quality products available, from the world's best developers, and we offer UN-BIASED and helpful advice to mail-order customers. However, if you prefer to listen before you buy, please visit one of the following 18 locations and listen to the entire contents of the world's top 100 audio sampling CDs on one of our Sony 100-CD Sample-CD Jukeboxes.

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• Soho Soundhouse, 114 Charing Cross Rd, **LONDON** W1, Tel: 0171-379 5148; • BEM Music Superstore, 395 Coldharbour Lane, Brixton, **LONDON** SW9, Tel: 0171-733 6821; • Music Lab, 72-76 Eversholt St, **LONDON**, Tel: 0171-388 5392; • Project Music, 433 Gt West Rd, **HOUNSLOW**, Middx, Tel: 0181-570 4444; • C.T.I., Fumbally Court, Fumbally Lane, **DUBLIN** 8, Ireland, Tel: Dublin 45 45 400; • Music Village, 10 High Rd, Chadwell Heath, **ROMFORD**, Essex, Tel: 0181-598 9506; • Sound Control, 61 Jamaica St, **GLASGOW**, Scotland, Tel: 0141-204 0322; • Carlsbro, 22 Humberstone Rd, **LEICESTER**, Tel. 0116-262 4183; • Carlsbro, 11-13 Hockley, **NOTTINGHAM**, Tel: 0115-959 1888; • Dawsons Music, 65 Sankey St, **WARRINGTON**, Cheshire, Tel: 01925-632591; • X Music, 20 Cotham Hill, Cotham, **BRISTOL**, BS6 6LF, Tel: 01179-734734. • Emis, 17 Stockwell Drive, Mangotsfield, **BRISTOL**, Tel: 01179-561855; • Andertons, 58/59 Woodbridge Rd, **GUILDFORD**, Surrey, Tel: 01483-38212; • A1 Music, 88 Oxford St, **MANCHESTER**, Tel: 0161-236 0340; • Sound Control, Unit 5, The Red Rose Centre, Regent Rd, **SALFORD**, M5 3GR, Tel: 0161-877 6262; • Musical Exchanges, 89 Old Snow Hill, **BIRMINGHAM**, Tel: 0121-236 7544; • Sound Control, 10 Moseley St, **NEWCASTLE**, Tel: 0191-232 4175; • Time+Space (by appointment only), **BERKHAMSTED**, Herts, Tel: 01442-870681.

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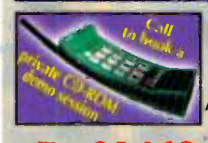

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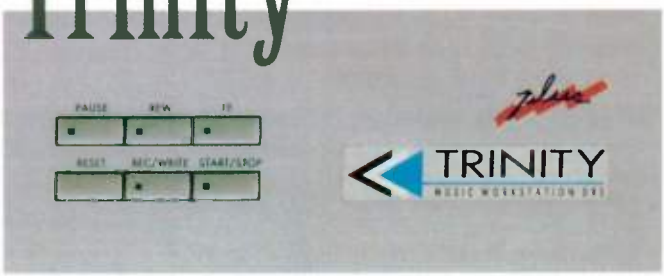


I loved some of the more ethnic sounds — in particular the delightfully pressure-sensitive Koto with its convincing bends and slurs. Less impressive are the factory-programmed pianos and acoustic guitars (see the separate box on piano sounds elsewhere in this article), but I dare say that end-users will improve on the factory offerings.

It's worth noting at this point that the filter, while resonant, doesn't sound at all analogue. If you insert analogue waveforms into quasi-analogue patches, the filter begins to sound more realistic, but the PCM-based ACCESS sound generation system always lacks the bite of the Prophecy's MOSS synthesis.

On the other hand, some of the Combis are amazing. Whatever your tastes — full orchestras, death metal, ambient washes, dance/hip-hop/house, soundtracks, whatever — the factory presets offer oodles of options. And if you're into generating unique sounds, consider the structure of a typical Combi...

First, each Program within the Combi has access to numerous LFO-driven modulation and sample & hold-style effects. Second, you can layer, split, or crossfade up to eight Programs within a Combi (the crossfade zones in both the velocity and key maps allow you to create crossfades between patches, either as you play up and down the keyboard, or as you play lighter or harder. This beats simple velocity splits and key splits hands

THE INSERT EFFECTS

The Trinity's effects sections are monstrous, justifying their own 158-page manual. Unfortunately, reviewing them would require a few pages in every issue of *SOS* for the next year. Similarly, explaining them would require... well, a 158-page manual. So, here's a list of the Insert Effects. Remember (see last month), every Program can have three of these in series, provided that they don't exceed a total 'size' of four (or eight within a Combi or Sequence). Drum programs, just to be arcane, can have four size 1 effects in series.

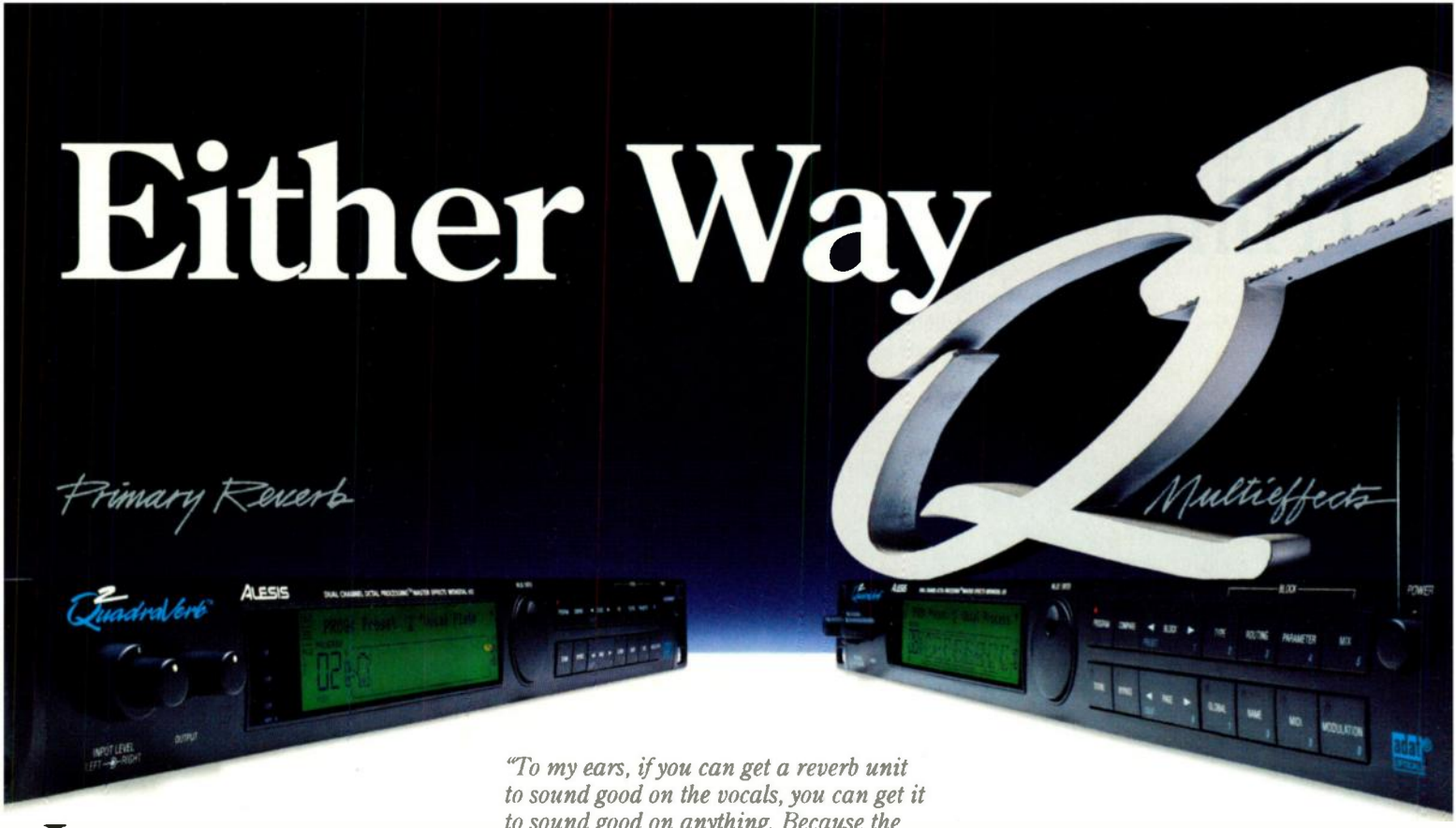
SIZE 1:
- Amplifier simulation
- Compressor
- Limiter
- Gate
- Overdrive / Hi-gain
- Parametric 4-band EQ
- Wah / Auto Wah
- Random Filter
- Dyna Exciter
- Sub Oscillator
- Decimator
- Chorus
- Harmonic Chorus
- Ensemble
- Flanger
- Tempo Flanger
- Envelope Flanger
- Phaser
- Tempo Phaser
- Envelope Phaser
- Vibrato
- Resonator
- Ring Modulator
- Tremolo
- Rotary Speaker
- Delay
- Multi-tap Delay
- Early Reflections

SIZE 2:
- Stereo Amp Simulation
- Stereo Compressor
- Stereo Limiter
- Multi-band Limiter
- Stereo Gate
- Overdrive / Hi-gain Wah
- Stereo Parametric 4-band EQ
- Stereo Graphic 7-band EQ
- Graphic 13-band EQ
- Stereo Random Filter
- Stereo Enhancer
- Talking Modulator
- Stereo Decimator
- Stereo Chorus
- Stereo Harmonic Chorus
- Multi-tap Chorus/Delay
- Ensemble
- Stereo Flanger
- Stereo Random Flanger
- Stereo Tempo Flanger
- Stereo Phaser
- Stereo Random Phaser
- Stereo Tempo Phaser
- Stereo Bi-phase Modulation
- Stereo Vibrato
- 2-voice Resonator
- Doppler
- Stereo Tremolo
- Stereo Auto Pan
- Stereo Envelope Pan
- Stereo Dyna Pan
- Phaser + Tremolo
- Shimmer
- Detune
- Pitch Shifter
- Pitch Shift Modulation
- Rotary Speaker
- Dual Delay
- Stereo Delay
- Stereo Multi-tap Delay
- L/C/R Delay
- Tempo Delay
- Stereo Modulation Delay
- Stereo Dynamic Delay
- Random Panning Delay
- Early Reflections
- Reverb: Hall
- Reverb: Smooth Hall
- Reverb: Room
- Reverb: Bright Room
- Reverb: Wet Plate
- Reverb: Dry Plate

SIZE 4:
- Piano Body + Damper Simulation
- Stereo Multi-band Limiter
- Overdrive / Hyper-gain Wah
- Stereo Graphic 13-band EQ
- Vocoder
- Stereo Harmonic Chorus
- Multi-tap Chorus/Delay
- Stereo Ensemble
- Stereo Tempo Flanger
- Stereo Tempo Phaser
- Stereo Pitch Shifter
- 2-band Pitch Shifter
- Rotary Speaker Overdrive
- Early Reflections
- L/C/R Long Delay
- Stereo Long Delay
- Dual Long Delay
- Stereo Tempo Delay
- Hold Delay

Of the effects, some are inevitably more interesting than others. For example: the Random Filters offer stunning analogue-style 'sample & hold' effects; the 'tempo' effects allow you to assign their modulation speeds to that of the sequencer; the Ring Modulator offers both fixed frequency and scaled frequencies against which to modulate the signal; the Talking Modulator adds a 'human' vowel sound to the signal; the Decimator reduces the sampling frequency for gritty sounds with FM-style aliasing if desired; the Piano Body + Damper simulation does much to rescue the piano PCMs; and the size 4 Rotary Speaker effect is simply superb. Derived in part from Korg's dedicated A-series and G-series units, the Trinity's effects are of equivalent quality and flexibility. Enjoy!

Either Way



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- Francis Buckley, Independent Engineer: Album, Film and Television

"It's nice to see a company interested in the user's input before they release a product. They developed a reverb that really works. It's easy to make these kind of programs run if you've got tons of hardware. How they did it with such a small box at such an affordable cost is really impressive. It was worth the wait."

- Charlie Brewer, Chief Engineer, Village Recorders

"The architecture is the best I've ever seen. You can see exactly what's happening. This is critical if you're going to squeeze the ultimate sound out of a processor. If you need to get at a chorus in a complex patch, you take one look at the display and you're there. Plus, there isn't a classic reverb sound the Q2 can't simulate and improve upon. This unit is a must."

- Jay Graydon, 2 Time Grammy Winner, Engineer, Producer

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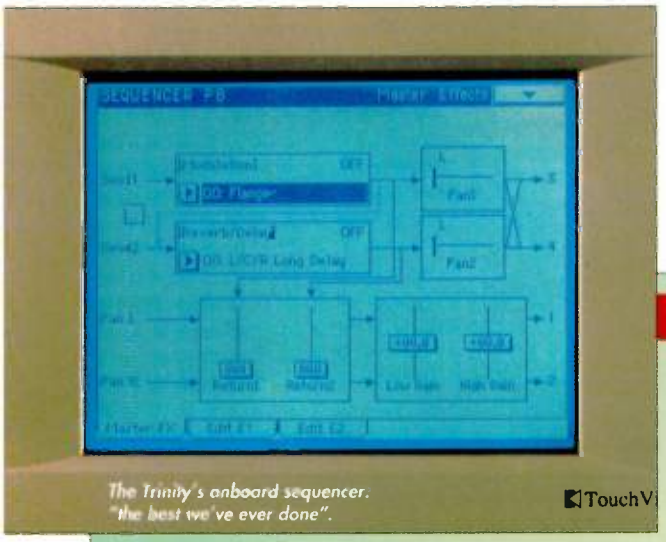

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FINAL WORDS

The Trinity Plus is far from perfect. Some niggles, such as the response time of the user-interface, are reasonably insignificant. Others (see the interview with Phill Macdonald elsewhere in this article) are far from trivial, and mar what would otherwise be an almost perfect keyboard. But, warts and all, the Trinity is a superb piece of kit, and it's going to drag the hi-tech music industry into the future. Indeed, once the hard disk editor upgrade arrives, it's conceivable that you could pre-master a CD including vocals, guitars (or whatever) using just a Trinity (well, actually, the way things are currently

IN THE HOT SEAT: PHILL MACDONALD OF KORG UK

Korg's Technical Support Manager, Phill Macdonald, recently took the trouble to deliver a Trinity Plus to me in Cambridge. I ungraciously reciprocated by putting him on the spot with a few searching questions regarding what I see as the deficiencies in the Trinity's design (see the first part of this review, last month)...

Phill, £2,795 seems expensive for a 33-note workstation with the standard features of an eight-part multitimbral mode and a 16-track sequencer...

"We knew that the Trinity was going to be expensive, because we made a conscious decision to obtain the best possible sound quality from it. Hence the very large ROM, and the fact that we didn't use any old PCMs, no matter how good the original sources were. We didn't sample anything on the cheap, using only Neve- and SSL-equipped studios, sampling through high-quality A/D converters, and then direct to DAT at 48kHz.

"But most of all, we wanted to get round the age-old problem of 'when I'm in the sequencer it doesn't sound the same as it does when I'm in Program mode'. To overcome that, we had to implement a lot more DSP power than we would otherwise. Also, don't overlook the Trinity's 16-part multitimbral capabilities: over MIDI, you can use a sequencer setup as a sort of 'super-Combi' template. And, finally, don't forget the Trinity's expandability."

But what about the person who doesn't *want* to expand? Why pay for expansion potential you might not want or need?

"You don't. We've invested the extra cost in the ROM and the Insert effects because, at the end of the day, we made a decision to get as good a sound as possible. Also, don't overlook the user interface — it takes money to get that to be as nice as it possibly can be."

But Roland's JV90, JV1080, and their XP50 workstation are all 56-note polyphonic. The Yamaha TG500 offers 64 voices. Even your own X5D offers 64 voices for less than £800. Surely 32-note polyphony is a big step backwards?

"I can't comment on other manufacturers' devices, but at the Trinity's sample rate 48kHz — the samples are better than CD quality, and manipulating them uses a lot of processor bandwidth. I guess we could have gone for 64 voices, but they wouldn't have been as powerful and dynamic as the 32 you're getting. Thirty-two voices is a lot — it's only when you need double or quadruple layers within programs that they become a limitation."

You're implying that you don't have enough processing power to generate 64 good voices, so you've traded the flexibility of 64 lower-quality voices for 32 better ones.

"I haven't investigated this down to the nuts and bolts, but the more voices you have, the longer their response times become, and the more slowly their envelopes respond. The Trinity is really quick, not just in terms of the voice response times, but also, for example, in terms of the speed and resolution of the sequencer, which is the best we've ever done."

Accepting that, why did Korg limit their flagship workstation to just four outputs? This imposes a severe limitation on people who want to apply classic effects and other outboard equipment to individual Programs.

"I can understand that you might want several pairs of outputs, but the Trinity is a workstation, and the idea was to get everything into one box. Anyway, if you want to use analogue choruses or tape delays, you're likely to be using them on just one sound, and it's probable that you'll be in a studio while you're doing it. So, you could dedicate those sounds to tape."

But even basic modules such as Roland's U220 had six outputs!

"Yes, I know what you're saying, but consider this: I recently needed to write a track for a record company. I thought, 'I *can* get all my old gear out, but I've only got a 3-band EQ on my desk. If I use the Trinity, I can bang a 13-band graphic across every sound I want'. Then I thought about how many effects I have in my rack. Most people have maybe two or four, but the Trinity gives me up to eleven, and the Trinity Plus offers seventeen. I may not have access to the classic sound of a dearly-loved effects box, but the Trinity's effects are certainly more comprehensive."

Seventeen effects?

"Sure, it's a big number, but it's true! MOSS synthesis offers eight effects, six simultaneously, so the Trinity Plus offers seventeen simultaneous effects in total, even if a third of them act on just one of the 33 voices. But that *still* leaves eleven for the PCM side of things. And don't overlook their quality — they're not poor relations. Take the rotary speaker. I would say that the Trinity's is better than our dedicated G4 rotary speaker module. You can even play external sounds through the effects if you've got the analogue inputs supplied with the hard disk option. Let's face it, if you've got the hard disk option, you can even *sing* into this thing!"

But that's exactly my point: if you take an external sound such as a vocal, pass it through the Insert effects, and spin it out through one pair of stereo outputs, you only have two left for the rest of the mix. Why limit the Trinity in this way?

"Well, I'm not sure at the moment how the editor will operate, but it seems that it should be possible to store the result on the disk. You could then complete the mix later, although it then becomes a non-real-time thing. Ultimately, it all comes down to cost. If you want to keep the quality as high as possible, you have to have things such as independent D/A converters on each output, or you'll get phase problems. The more outputs you have, the more de-multiplexing noise and phase problems you get, and the more the quality suffers."

Finally, looking to the future — the flash ROM seems like a good idea, but why choose 48kHz as the sample rate for the hard disk recorder? While it's irrelevant for many production tasks, 48kHz is surely the wrong rate for the music industry. You can only master a CD at 44.1kHz.

"Holding samples in flash ROM will be great, and the nightmare power-cut scenario simply won't apply. If the power goes off, your samples, Programs and Combis are immediately available once the power comes back again. Regarding pre-mastering, sure, we recognise the difficulty in trying to make a 48kHz CD, and have asked Korg Inc in Japan for further clarification. But we haven't received a reply yet, so we shouldn't jump the gun. Let's wait before judging products that nobody's going to see for a few months."

[Stop press — just as this article was being prepared for publication, news reached us that Korg Japan had responded to Phill's fax. Sadly, all hard disk recording within the Trinity will take place at 48kHz, and there won't be any internal sample rate convertors, so those making a CD with the Trinity will either need to buy a stand-alone sample rate convertor or have their mastering house carry out the conversion to 44.1kHz for them — Ed.]

PIANO SOUNDS

Piano sounds are the lifeblood of many synthesizers, so much so that some players bought the DX7 just for its (now clichéd) FM Electric Grand patch. Indeed, only this year Alesis felt that their improved piano sample was sufficient justification to re-launch the Quadrasynth as the Quadrasynth Plus Piano. So how does the Trinity shape up?

The factory patch, A01: 'Acoustic Piano', is dry, lifeless and (despite being panned across the stereo image) lacking in depth. It compares poorly to Roland's PCM-based JV pianos, and is totally outclassed by dedicated piano modules such as the Roland MKS20 and P330. However, the modified acoustic piano Programs on Steve Kay's sequences prove to be quite usable within a mix, and they demonstrate that tinkering with the Trinity can produce much improved results. Experimentation with the 'Piano Body and Damper' simulation suggests that there is even better to come. Ultimately, however, classical pianists are not going to be satisfied with the Trinity's piano programs.

Electric pianos fare much better, with a fine range of Rhodes, Wurlitzer EP200 and Yamaha CP70 imitations. All are usable, and one or two are first class. Consequently, I suspect that rock, jazz, and blues players will separate into three camps: those who rarely use acoustic piano sounds, and who are more than adequately served by the Trinity; those who (like me) use both acoustic and electric pianos and who have always disliked Korg's acoustic piano programs; and those strange beings who have loved all of Korg's pianos, from the M1 onwards. The bottom line is this: if you liked the M1's and 01/W's pianos, the Trinity will not disappoint you. If you didn't, it will. It all depends upon your point of view.

planned, you'll also need a sample rate convertor, but see Phill's interview for more on this).

The bottom line is... the Trinity incorporates an awful lot of what MIDI musicians have been asking for, plus a whole bunch of stuff that we hadn't even thought of. Capable of replacing a basic MIDI studio of sound sources, sequencers, effects and mixers, it's probably the first affordable instrument that truly earns the tag 'music production workstation'.

COMING SOON...

We're going to have to wait until February before we can lay our hands on the Trinity's S/PDIF and ADAT I/O boards, and until April before we see the Trinity ProX, and the hard disk editing and flash ROM options. Until then, adieu!

SOS

FURTHER INFORMATION

£ Trinity (standard model) £2395; Trinity Plus £2795; Trinity Pro £3195; Trinity ProX £4795; Alesis I/O board £TBA; Solo (Prophecy) board £TBA; Sample Flash ROM expansion option £TBA; Hard disk recorder option £TBA. Prices include VAT.

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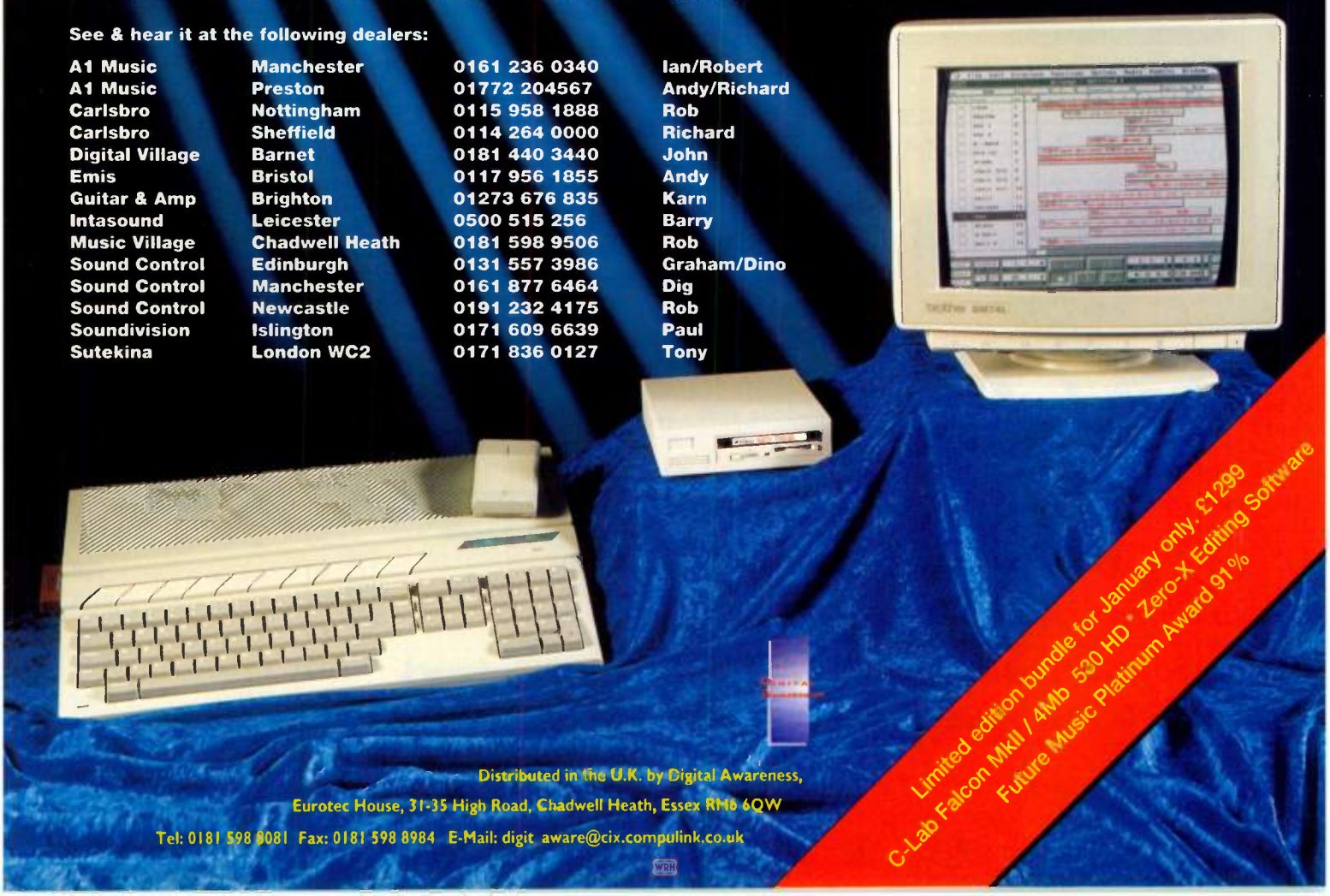

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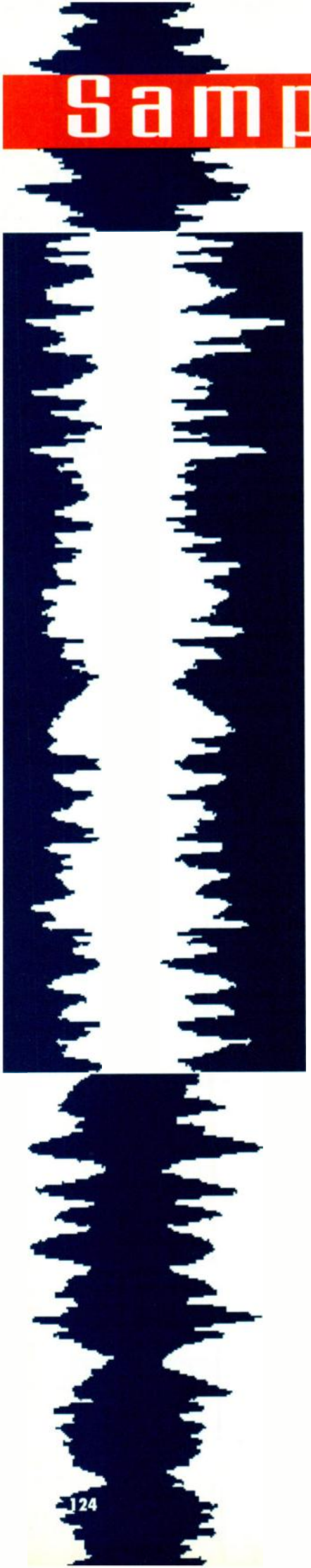

Sampling PART 1 BASICS

Having come a long way from its humble beginnings in the early n-n-n-n-nineteen eighties, sampling is now an integral part of music making. PAUL WHITE explains what samplers do and how they can be used.

Just about every musician has heard of sampling, but unless you have a sampler and use it, you may not be clear about exactly what they can and can't do. A sampler is essentially a tapeless, digital recording device. At its most basic level, you need know no more about how sampling works; this series will leave an explanation of the principles behind digital recording to a future article.

Once a sound has been digitally recorded (into RAM — Read Only Memory) by your sampler, the sound can be played back at varying pitches under the control of a MIDI keyboard or sequencer. To play a sample back at a higher pitch than it was first recorded, the sampler has to speed up the sound, with the result that the sample also plays back faster. Exactly the same thing happens with tape — if you double the tape speed, everything happens twice as quickly, and the pitch goes up by one octave. Conversely, if you drop the pitch by slowing down the sample, the sound will go on for longer. Because RAM memory only works when power is supplied, most samplers forget everything when you switch them off, which means that some form of permanent sound storage is required. Most samplers use floppy disks, with the more serious models also offering the option of hard disk storage. Before we go on, it will be helpful to look at the two main ways people use samplers.

SAMPLERS: WHAT ARE THEY GOOD FOR?

If you sample single musical notes, such as strings or organ sounds, you can use the sampler very much like any other synthesizer — though you're not restricted to the manufacturer's own internal sounds, as with many synths. And absolutely any sound can be sampled and used as a musical instrument — even everyday household objects. Indeed, most people, when they get their first sampler, go around the house hitting and scraping things to see what sounds good (for more on this curious side-effect of buying your first sampler, see the article on Off The Wall Sampling back in *SOS* June '94).

The other popular way of using samplers is to record not just individual notes but whole musical or rhythmic phrases, and this way of working forms the cornerstone of modern dance music construction. Typically, you might sample a four-bar drum rhythm, for example, and then trigger this on the first beat of every bar to provide a continuous rhythmic backing.

RAM-IFICATIONS

Soon after buying a sampler, you'll discover that you can *always* use more sample memory. Because sampled sounds are held in RAM, the maximum sampling time is always limited by the amount of memory you have, and on a basic sampler you may get a maximum of only 10 seconds or so of sampling time. This may seem like quite a lot, but if you're using your sampler multitimbrally, the available sample memory is divided up between the various sounds loaded into the sampler at any one time. A fully expanded, top-of-the-range sampler could hold several minutes of samples, but you may find the cost of filling the sampler with RAM is greater than the initial cost of the machine itself.

Because RAM memory is such an expensive commodity, various strategies are routinely adopted to make the most of it:

- **Mono sampling:** At a full audio bandwidth of 20kHz, using a 44.1kHz sampling rate, one minute of stereo sound takes up around 10Mb of RAM. If you can make do with mono samples, this immediately doubles the amount of sampling time available.
- **Lower sample rate:** If you can tolerate a lower audio bandwidth, setting a lower sampling rate can extend your sampling time by a factor of two or more.
- **Looping:** The other time-saving strategy used when sampling sustained musical sounds such as strings or flutes is to 'loop' the sample (not to be confused with sampling the loop, which I'll come onto later). Most sustained sounds have a distinctive attack portion, but as they start to decay, the sound becomes more consistent. Listen to something like a flute or a string section playing a sustained note and you'll notice that very little about the sound changes after the initial attack. This being the case, there's no reason to sample the whole sound being played — you simply sample the first few seconds, then use the sampler's editing facilities to create a loop so that the middle part of the sample repeats itself

continually until you release the key. Obviously, there's little point in trying to loop short or percussive sounds — they probably wouldn't sound right anyway — but you can loop long percussive sounds, such as the decay of a cymbal.

MORE ON LOOPING

There's another good reason for looping sounds, and that's to get around the fact that the length of a sample changes as you play higher or lower on the keyboard — and anyway, the length of this original sound will probably be too short if you want to hold a string pad down for the next 24 bars. Once a sound is looped, its level never has to decay to zero because the same section of sound is being continuously looped around, as shown in Figure 1.

To recreate the effect of the sound's own natural decay, some samplers have envelope shapers, just like those found in synths, to allow you to modify the envelope of your sampled sounds. In most cases, the attack of the original sound can be left as it was, but a new decay has to be created to prevent the sound stopping abruptly when you release the key. If you've sampled an organ sound, of course, an abrupt stop is OK, but most instruments have a slower decay time which can easily be duplicated by using the Release phase of the envelope shaper. At its simplest, this will mean that the sound will remain constant in level while you're holding down a key, and then fade out at your chosen release rate when the key is released. Of course you can use the envelope generator more creatively to set up any envelope you like, just as you can in a conventional synth (some samplers even offer complex, multi-section envelope generators, and may be able to generate two or more different loops within the same sample).

Consider a sound that plays through from start to finish without looping: you'll find that samplers offer different ways of triggering that sound. For example, if you hit the same key twice, and you want the original sample to carry on to its natural conclusion while the newly triggered one plays over the top, you need to select the so-called 'one-shot' trigger mode. On the other hand, if you want the original sound to stop and then trigger again from the beginning, for that cliched 'n-n-n-n nineteen' effect, you need 'retrigger' mode. Most samplers support these basic triggering modes, though there may be slight differences in the terminology used.

FINDING LOOP POINTS

The basic idea behind looping is pretty straightforward, but finding the best-sounding loop points can be tricky for a whole variety of reasons. Firstly, unless the waveform shapes at the beginning and end of the loop match up in level, shape and phase, you're quite likely to end up with a click at the sample loop point. Clicks can be minimised by looping at 'zero-crossing' points (the point where the electrical signal crosses over from being positive to negative or vice versa), but if the waveform levels and shapes don't match pretty closely, you may still hear a glitch.

If you take too long a section of sample to form your loop, you may find that the sound's own natural decay results in a different level between the loop start and loop end, which will be audible as an unnatural modulation. This might lead you to believe that the shorter the loop, the smoother the result will be. The reality of the situation is that even apparently steady sounds are constantly evolving in their harmonic texture, and if you take too short a section to a loop, you end up with something that sounds more like an electronic tone than a real instrument. Part of the skill in getting good loops is choosing the optimum loop length, and that's something that really needs practice and experience.

Some sounds *refuse* to loop without a glitch, and in these cases 'crossfade' looping is an option. This technique involves fading out the end of the loop and overlapping it with a fade-in of the start of the loop, and it's a facility provided by virtually all samplers. This avoids the possibility of a sharp glitch — but you're still not off the hook, because ▶

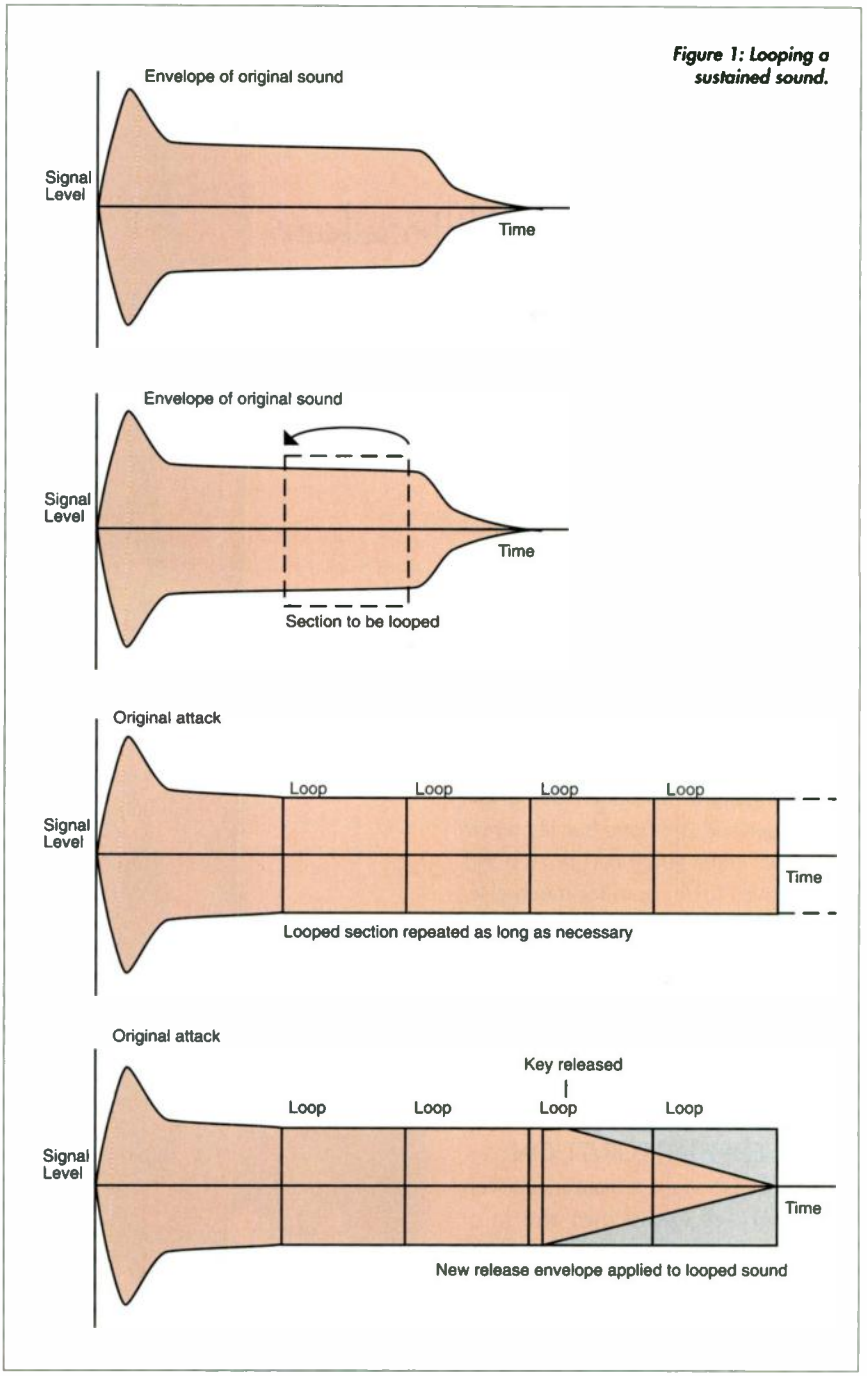

Figure 1: Looping a sustained sound.

VETO VIBRATO: THE NAKED SAMPLE

Sounds should always be sampled without vibrato or any other form of modulation, because the modulation rate will change depending on what note you play — and it's harder to loop a sample with vibrato, because not only do you have to match up the basic waveforms, you also have to ensure that you've looped a whole number of complete modulation cycles, otherwise you end up with a repeating 'hiccup' in the vibrato.

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DIGITAL QUALITY

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

8 TRACKS

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

EASY INTEGRATION

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

FOSTEX BRAND

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

THE BOTTOM LINE

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

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

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

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

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

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

8 INPUTS: 4 INSTRUMENT / MIC, 4 INSTRUMENT
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CHANNEL EQUALISATION
Two parametric EQ's. High Mid (1kHz - 16kHz ±15dB) and Low Mid (60Hz - 1kHz ±15dB).

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

INSTANT SEARCH WITH 6 MEMORY LOCATIONS
The DMT-8 has instantaneous search to zero or any cue point. This feature alone speeds up the recording process and offers little interruption to your inspiration and ideas flow.

DIGITAL - DIGITAL MASTERING TO DAT
By connecting a DAT recorder to the optical S/PDIF output you can digitally master your recordings ensuring the highest possible quality.

8 Track

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22 INPUTS IN REMIX

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

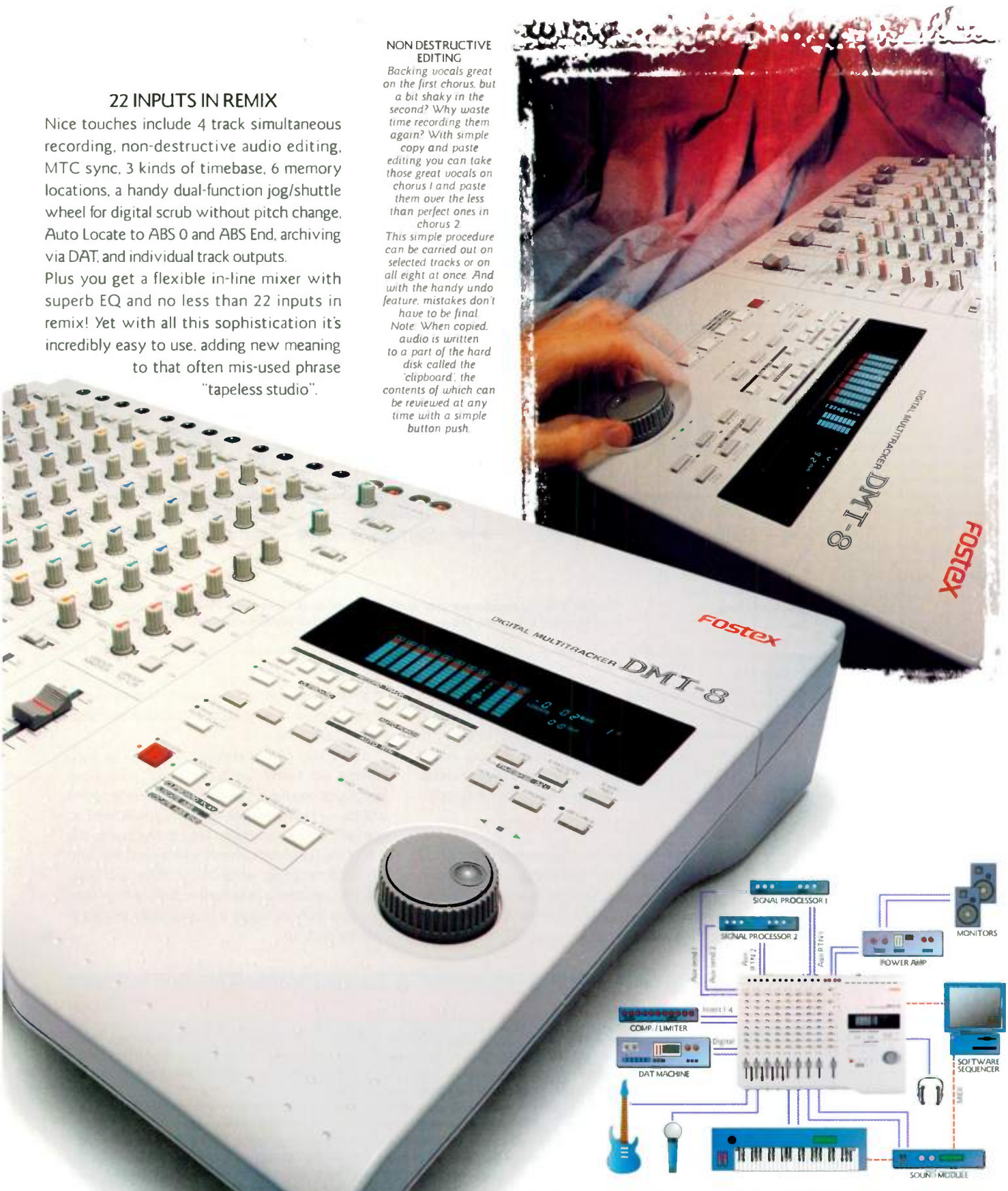
Plus you get a flexible in-line mixer with superb EQ and no less than 22 inputs in remix! Yet with all this sophistication it's incredibly easy to use, adding new meaning to that often mis-used phrase "tapeless studio".

NON DESTRUCTIVE EDITING

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

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

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



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

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

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

Digital Recording

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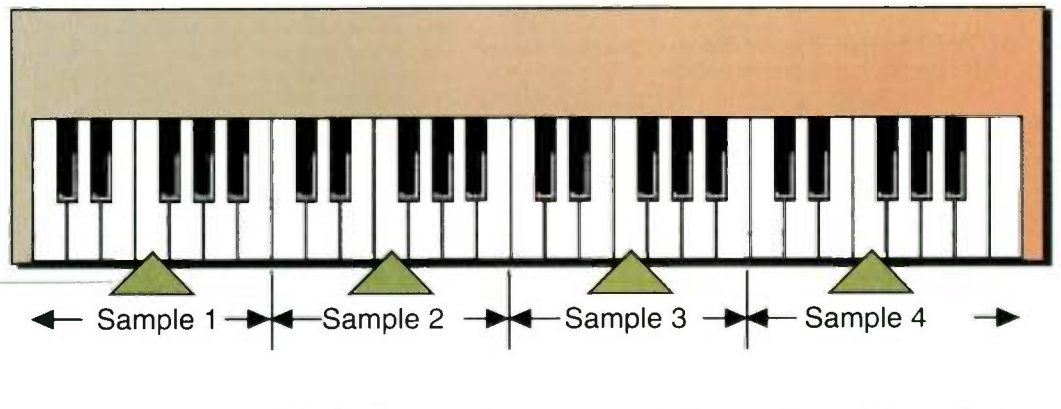
WRH

if the start and end of the loop are badly matched, you'll hear a change in timbre at the crossfade point, and if the loop is short, this will take on an irritating, cyclic quality. Slowly decaying sounds can sometimes be looped more successfully if they are compressed before being sampled, as this will maintain a more consistent level.

Finally, stereo sounds can be very difficult to loop because a good waveform match on one channel may not correspond to a good match on the other channel. Where stereo looping is essential, crossfade looping may be necessary to hide the join, so wherever possible you should keep looped samples in mono and reserve stereo for longer musical sections such as drum loops.

Figure 2: Creating a keygroup.



Here four different samples are used to cover the keyboard. However, in the case of a piano or other critical instrument, you may need four or five times this many samples.

MULTISAMPLING

So far, I've covered the rudimentary idea behind sampling, but I haven't touched upon the fact that sounds become very unnatural when transposed far from their original pitch. Sometimes you can use this unnatural quality creatively, but when you're trying to capture a real instrument such as a piano, you only have to move a few semitones to either side of the note's original position and the sample starts to sound quite strange. This is where the concept of 'multisampling' makes an entrance.

If a sampled piano sounds natural for, say, only a couple of semitones either side of its original pitch, the only way to maintain a natural sound is to take several samples of the original instrument at different pitches and use each sample over a limited part of the keyboard. This is what we mean by multisampling.

The zones of the keyboard covered by each sample are known as 'keygroups'. The more keygroups you have, the more accurate the sound will be — but the more memory you'll need to hold all the samples. Pianos tend to be close to the top of the list of instruments which need this kind of critical sampling, while strings, flutes and brass can be stretched a little further before they start to sound artificial. Figure 2 shows how a keygroup may be built up.

SLIGHTLY TECHIE CORNER: NYQUIST, SAMPLE RATES AND RESOLUTION

Sampling is just like any other digital recording system, in that the higher the sampling rate, the higher the bandwidth of the sampled signal. The rule of thumb when sampling is that the bandwidth of the sampled signal is around half the sampling rate, so if you sample something at 16kHz, you end up with an 8kHz audio bandwidth. This is simply due to the maths of sampling, first worked out by a guy called Nyquist, which states that you need to sample at least two points on a cycle of your highest frequency waveform to recreate it accurately. If you drop below two samples per cycle of waveform, dissonant frequencies not actually present in the original signal are recreated, an effect known as 'aliasing'.

Most modern samplers work at 16-bit resolution, which gives a signal-to-noise ratio of around 90dB, though Akai's older S900s and S950s (for example) work with just 12 bits, yielding a lower S/N ratio. Note that the number of bits doesn't affect the frequency response, only the noise and distortion performance. Akai's 12-bit machines actually sound very good, and the S950 in particular is subjectively as clean as some 16-bit machines, due to its filtering capabilities.

To extend your sample memory, you can opt to use a lower sampling rate, but it isn't always easy to decide what can be successfully sampled at a lower bandwidth, because of the differing harmonic structure of various sounds. For example, you may be interested to note that the harmonics in an acoustic bass drum sound extend right to the top of the audio spectrum, and any attempt to drastically reduce the bandwidth will result in a sound with less attack and definition. On the other hand, a bright, searing lead guitar can usually be sampled with a bandwidth of 8kHz, or even less, because a typical guitar speaker produces very little above 5kHz or so. The key is to try it and see. Don't worry about the technicalities — if it sounds good in a musical context, it's OK.

Another point to note is that because sampling is a digital process, you need to sample signals at the highest possible level to get the best signal quality and the lowest noise. However, if you go too far and 'clip' the signal, the chances are that it will sound pretty dreadful — digital recording has no margin of safety, unlike an analogue recorder, when it comes to distortion. If the sound you're trying to sample isn't repeatable, it may be better to record it to tape first and then sample it, so that you have the chance to try again if it doesn't work out first time. It may also be worth using a compressor/limiter to increase the average level of your signal prior to sampling.

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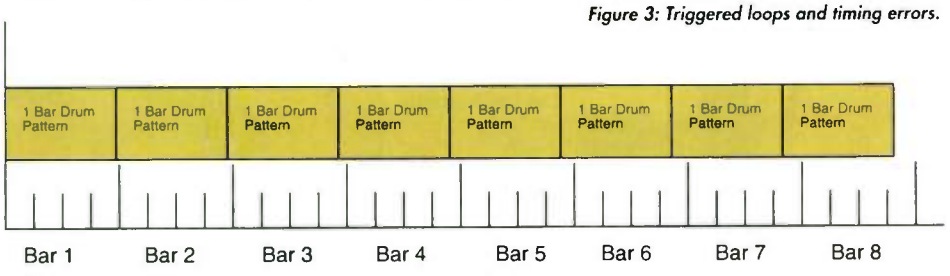
Related to keygroups is the idea of 'velocity switching' or 'velocity crossfading', which involves taking two samples (a loud one and a quiet one), and using key velocity to control which one plays. Velocity switching is the most efficient option, as it doesn't affect your overall polyphony. Crossfading to a louder sample as you play harder sounds more convincing, as you get a more gentle transition, but it also halves your polyphony, because two samples are playing at the same time.

SAMPLERS AS RECORDERS

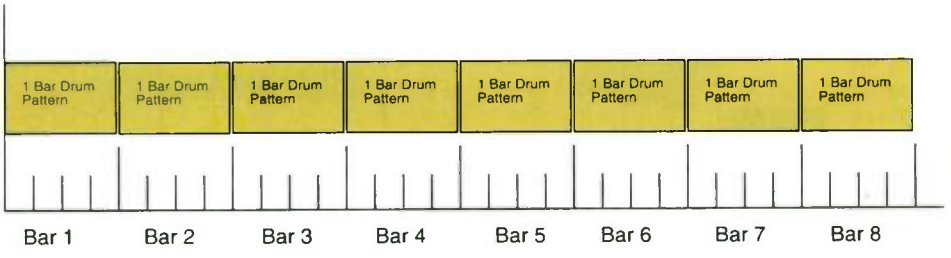
When samplers first came onto the scene, the main aim was to sample individual notes or sounds so that they could be played in much the same way as any other keyboard instrument. Now that longer sampling times are available, it has become popular to sample whole musical phrases, which can be played back from a single key. Probably the first application of this idea was the sampling of whole sections of vocals, allowing the engineer to copy a good chorus, for example, from one part of a song and then 'fire' it into the mix at the appropriate point when the next chorus came around. However, it was quickly realised that there was enormous creative potential in working in this way — if you sampled several complete drum rhythms at the same tempo, for example, then assigned each one to a different key on the keyboard, you could effectively play your whole drum part just by holding down the appropriate keys.

Samplers usually allow you to loop your drum parts so that they play continuously, but when you're working with a sequenced backing, there's a strong likelihood that the drum loop's timing will drift away from the tempo of the sequencer over a period of time. A far better option is not to loop your drum rhythm at all, but simply to retrigger it every bar (or every two, three, or four, depending on how long the pattern is) by using a note from the sequencer, quantised to the first beat of the bar. You can match up the sequencer tempo to the drum beat tempo pretty easily, and if there is a tiny discrepancy, it doesn't really matter because every time the drum rhythm is retriggered, it's brought back into perfect sync. The same is true of other rhythmic elements such as guitar riffs, and even with long vocal sections, it can be better to break them down into shorter phrases, then trigger each phrase independently. Figure 3 shows how timing errors can occur if you don't trigger your rhythmic sample loops from the sequencer.

Figure 3: Triggered loops and timing errors.



Looping Drum Pattern triggered by a single MIDI note. Unless the loop length is a perfect match for the tempo, the timing will eventually drift out.



The same drum pattern, but this time it's triggered afresh every bar. Even though the drum pattern is slightly shorter than one sequenced bar, it never gets the chance to drift out by very much as it is brought back into step every time it is retriggered.

FINAL WORDS

Because this is a basic series, I've covered only the essentials of sampling, without becoming entangled with the technicalities of how it works. And of course, once you get into it, you'll discover a lot more for yourself. One fact you'll soon discover is that life is too short to make your own grand piano samples, so standard orchestral and instrumental sounds are best obtained from a sound library. If you have a sampler that can read CD-ROMs, this makes life much easier. There are also hundreds of excellent sample CDs on the market to provide you with drum loops, instrument and drum sounds, sound effects, ethnic and world sounds — in fact, just about any kind of sound you can imagine. Don't feel that it's cheating to use these — everyone else does it — but don't go sampling material from other people's *records* without permission, or you'll be in trouble if you try to put out a commercial release.

Great though sample libraries are, you shouldn't neglect sampling your own sounds entirely: even the most innocent everyday objects can yield interesting results when played back at different speeds. Once you've got past the obvious blown bottles and pinged kitchenware, you start to find that steel garage doors make great snare drums, bouncing balls can be tuned down into monster kick drums, and innocent wooden banister rails can sometimes blossom into very organic marimbas. As I said when analysing the *SOS* 1995 Reader Survey results, there's still a lot of you out there with no sampler. Think about what you could do with one, and you might find a sampler getting closer to the top of your 'must-buy-next' list.

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SAMPLE SHOP

Our regular look at the hottest new sample CDs and CD-ROMs.

STEVE GADD DRUMSCORES
(DOUBLE AUDIO CD)

Steve Gadd is perhaps best known for his drumming work with the likes of Paul Simon and Al Jarreau, and this double audio CD from Q-Up Arts provides a neat showcase for his obvious talents. Each of the CDs times out at over 73 minutes, and is packed full of acoustic drum loops in a number of different styles and forms.

Each separate drumming style is recorded as a 'DrumScore', usually about two or three minutes in length. The DrumScore begins with a simplified version of the drum loop (generally bass drum, snare and hi-hats) lasting between four and eight bars. The loop is then added to with ride cymbals, toms, crashes, and occasionally other percussion such as cowbells. These naturally enhance the complexity and feel of the loop, until it is at its fullest, which is when a small selection of fills are usually included.

One of the main strengths of this format is that it provides you with a number of different options for creating an expressive-sounding drum track, ie. a simplified loop for verse sections of a song, and a more complex version of the same loop for choruses.

There is a good deal of variety and colour to the loops, which are all immaculately performed and recorded. The overall sound of the 'Yamaha Custom Kit' is clear and well-defined, and gives you plenty of room for experimental effects and equalisation. The emphasis of this CD is mainly on middle-of-the-road, expressive, almost jazz-like drumming. There are, however, a number of obvious influences in the forms of Afro-Latin, Samba and Reggae styles, which all work very well. The Ballad, Jazz and Brush-Shuffle loops are all both extremely musical and a totally convincing backdrop for constructing any kind of track.

The end of each CD is filled with a good collection of individual drum recordings, as well as a few odd fills and percussion licks, providing ample opportunity to build your own realistic loops and grooves.

There certainly is a good amount of variety to these CDs, but one slight cop-out appears to be that having provided the complete DrumScores on one track, we then get exactly the same loops chopped into their separate sections and assigned to the following CD track number. Some people may find this useful, but if the producers hadn't repeated every loop in this way there would have been room for nearly double the amount of original material.

Conclusion: Despite this rather fundamental flaw in the way that the CD is laid out, it could never detract from the quality of the original recordings, which in both musical content and usable style rate very highly indeed. With a little more thought towards the end user, and less on needlessly filling two CDs worth of repeated samples, this CD could be an absolute goldmine. In its watered-down state, however, *DrumScores* is still well worth a listen. *Paul Farrer*

£ 2-disc set £99.99; volumes 1 & 2 separately £59.99 each. CD-ROM versions should be available soon.
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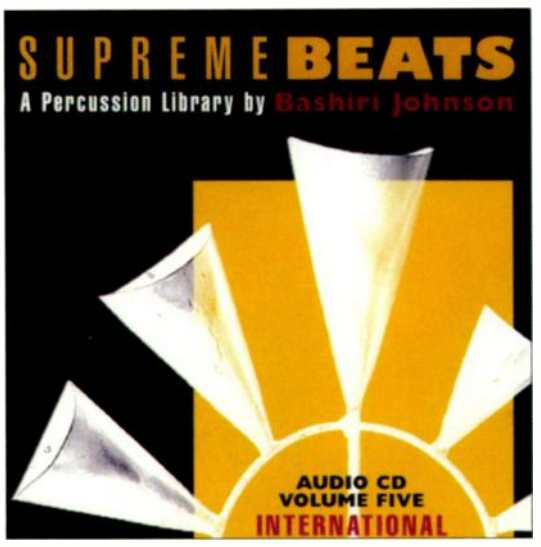
SUPREME BEATS VOLS 1-4 & 5
(AUDIO CD SET/CD-ROM SET)

There's an involved story behind the genesis of the *Supreme Beats* set of CDs. Originally, there was just a series of four percussion sample CDs, available as a boxed set. Recently, the set appeared on two CD-ROMs, which took advantage of the extra room available in that format and added some new material not present in the audio set. In fairness to those not owning a CD-ROM drive, the extra CD-ROM-only material has now been released as a fifth audio CD, available separately from the audio boxed set (see picture). Confused? Fortunately, you won't be, because the whole set contains impressive stuff.

The four discs in the original audio boxed set cover the categories world, african, contemporary, and dance/ hip-hop, and the material comes from the Bashiri Johnson percussion library. The overall recording quality is excellent, though I found the world and african examples particularly atmospheric, with the african disk very effectively combining rhythmic playing and chanting.

Interestingly, the contemporary and dance/hip-hop disks also feature ethnic instruments, with not a TR909 or gated snare in sight. The contemporary disk seems to be based mainly on Latin and South American rhythms while the dance/hip-hop disc presents ethnic instruments playing more Western-sounding patterns over a range of tempi that make them suitable for incorporation into dance material. Tablas and similar 'talking' drums feature quite heavily, giving the rhythms a very organic feel. Having said that, there are also some almost cartoon-like record scratches, funky 'sung' rhythm parts, Jew's harps, matchbox maracas and various other 'streety' sounds. Absolutely every sound is created by live musicians, and



many of these are introduced in the sleeve notes, along with some very practical advice on using the samples and a list of bpms for the loops.

The first few dozen tracks on each disc comprise loops which are 15 seconds or so long, followed by samples of the individual instruments and sounds. All the loops are in stereo, and show every sign of being recorded very carefully.

Volume 5 in the series proves to be anything but last-minute filler, being another extremely well-recorded CD of 81 tracks. The style of this CD is mainly World, African and Latin with a few glimpses of native American, but with a few more contemporary styles thrown in.

Once again, there's plenty of variation here, ranging from mystical eastern rhythms to hot latin dance sequences. The latter feature several sections with Quicas which, to my ears, sound rather like a donkey trying to retrieve its lunch for further inspection!

Tracks 1 to 59 are loops, while tracks 60 to 81 contain a huge selection of percussion instruments, both real and improvised (track 70 features metal coils, springs and radiators, but there are also tablas, African drums, Brazilian percussion, Aborigine sticks, timbales and some monstrous taiko and daiko Japanese drums). The only exception to the percussion-only regime is the digeridoo, which, although it can be used to hit people, is not strictly speaking a percussion instrument.

Conclusion: These CDs come from the same stable as the excellent *Heart of Asia* and should appeal to those who want to create powerful rhythmic music but with a World feel. If I have a criticism, it is that there could have been more slow, atmospheric stuff in there — but then that's the kind of hippy I am! All in all, this is a stunning and varied collection of beautifully-recorded material that will appeal to anyone making music based around ethnic percussion sounds. I don't think anyone will be disappointed with these CDs. Treat yourself. *Paul White*

£ 4-CD audio box set £199; Vol.5 59.95; CD-ROMs £149 each. Prices include VAT and UK p&p.
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MODERN SYNTHS AND DANCE

(ROLAND FORMAT DOUBLE CD-ROM)

Disk A opens with 2x16Mb of Atmospheres. The first of these has a Filmscore kit Patch with a basket of dry, wet, small and large drum hits and effects strewn across 5 octaves, followed by some modest multisampled sounds straight from the Korg book of clichés. In fact, the sleeve notes tell us that there are a total of 60 such (usually just under 16Mb) 'workstation' Volumes, all geared to a particular style, and all mapped to the same standard (based on General MIDI), whether in respect of Key/Voice mapping or MIDI channel assignment.

Four Volumes of Dance/Pop follow. A lively dance kit opens the first, followed by tighter, Proteus-type Patches, Moog bass, synth brass, plucked electric guitar, and so on. The new jack swing kit that props up the fourth Volume in this section is particularly fine, though I was disappointed to see (not for the first time on a CD-ROM) that mono sounds have sometimes been carelessly sampled in stereo, leading to polyphony wastage.

I loaded in one of two Filmscore Volumes. The kit had been plundered from a previous Volume, and the eight fluffy instrument Patches on offer were once again Korg-esque. The second of two hip-hop Volumes sported a keyboard full of Roland-esque sounds of several vintages (though not TR909), plus a few synth hits. The other eight instrument patches were again pretty common factory sounds, mellow piano, round and slap basses, pick guitar, synth brass and clav.

The first of two house Volumes opens with a TR909 kick and snare supporting a cast of drums and percussion, again largely from the Roland school. The keyboards are bang on this time, including the industry-standard M1 piano, a decent Juno bass, TB303 with velocity resonance, a nice Hammond, and so on.

The drums on one of two industrial Volumes I looked at had a distinctly metallic bias. Some voices, notably a big forward-then-reversed cymbal, get a shout in pretty much every dance drum set! The keyboard sounds are harder, but not hard enough.

The second of two New Age workstations is devoid of drums (shame — I was intrigued by what 'New Age Drums' might sound like). Instead, you get a selection of pads and chimes — all straight from the music shop floor!

The second Pop/Rock Volume's drum map is not exactly Bob Clearmountain stuff, but it does sport some pretty useful live toms, velocity-mapped to attack for added realism. Electric guitars, bass, organ, and synth pads and plucks follow.

Techno Volume 2 sports Simmons, synth and drum machine voices among others. The analogue synth keyboard voices are well sampled, and feature velocity switching (even on instruments that were never velocity-sensitive in the first place — achieved by taking samples with the filter progressively turned down) and random panning, augmented by the usual smattering of factory bells and pads. of course.

And so to the first of four Trance workstation Volumes. Based on techno drums again, this time the keyboards are a shade glassier, though I see 'Cellulite' gets another shout — originally a muckle great fat 4-partial analogue rasp in the Techno set, this time it appears with around half the oscillator density. Beyond 'Trance' comes the library proper. Sounds already featured in the 60x16Mb workstations (and some that are not) are presented in Volumes tidily set out according to individual instrument type/style.

Disc 2 contains drum kits for every season, plus a rake of synth and electric basses. So, how does all that manage to fill a CD-ROM? Answer: it doesn't. I counted 1202 seconds unused, which is quite a few meg. I also encountered a couple of unannounced 16Mb Volumes entitled Synth Preview. Some sounds I'd heard before, but 'Jam Bell' was particularly jolly. Three versions of 'Arcangel' showed what can be done with the onboard Roland sampler filters.

Conclusion: Living up to its name, there are plenty of modern synths on this CD-ROM. Trouble is, they're often either straight factory presets or very obvious and commonly used edits. Then again, these didn't become industry standards for nothing — their usefulness is proven beyond doubt. There are plenty of vintage analogue patches, too. File organisation is good, with the same samples being presented either as complete workstations, or as generic types (strings, modern synths, vintage synths, and so on). Disk 2 contains a multitude of General MIDI compatible 5-octave drum maps. I had some fun with these — they definitely beat most off-the-shelf dance sets I've heard. All in all, a decent basic library on which to stamp your individualism. *Wilf Smarties*

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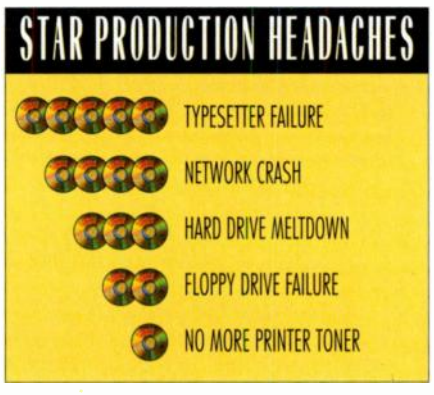

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TAPE NOISE REDUCTION EXPLAINED

Noise reduction comes in various guises, with Dolby alone offering five different systems. PAUL WHITE explains the difference between Dolby, dbx, and a bag on your head...

In the context of analogue tape recording, noise reduction is desirable because, without it, tape simply doesn't have an adequate dynamic range unless very high tape speeds and wide track formats are used. In practical terms, this means that the level of background tape hiss (which is a nominally constant level), is likely to become obtrusive during quieter passages where the level of the recording isn't high enough to mask the hiss. Noise reduction systems provide an effective means of increasing the usable dynamic range by reducing the subjective level of tape hiss during quiet passages.

The forerunner to modern noise reduction was a system known as pre-emphasis/de-emphasis, which works by applying a high frequency (HF) boost to signals during recording, then applying an equal degree of HF cut during playback. In theory, this restores the programme material to its original state while applying top cut to any tape hiss that may be present. Due to the response of the human ear, and because successive octaves of sound each double in frequency range (and hence the energy level of white noise also doubles every octave), random noise is most noticeable at high frequencies, which means that pre-emphasis can bring about a worthwhile reduction in noise. The other reason that pre-emphasis works as well as it does is that in most naturally occurring sounds, the high frequency signal components are much lower in level than the low frequency components, so a significant amount of high frequency boost can be applied to a 'typical' signal before the high frequency level comes up to that of the low frequencies. If this were not the case, pre-emphasis would offer no advantages as any significant degree of HF boost would simply cause the signal to overload.

One thing that simple pre-emphasis illustrates very well is that noise reduction comes in two stages: (i) the encoding stage, which is applied during recording; (ii) the decoding stage, where the opposite treatment is applied during playback. This is very important, because if the noise reduction system isn't used both during recording and playback, the tonal balance of the programme material will be drastically affected.

Having dispensed with introductions, let's look at the commonly used systems and see how they differ.

DBX

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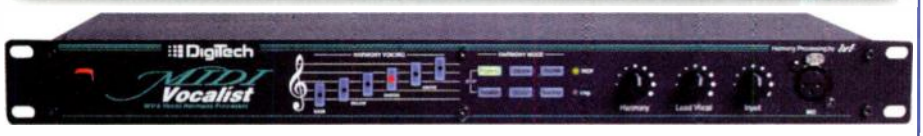
MIDI VOCALIST



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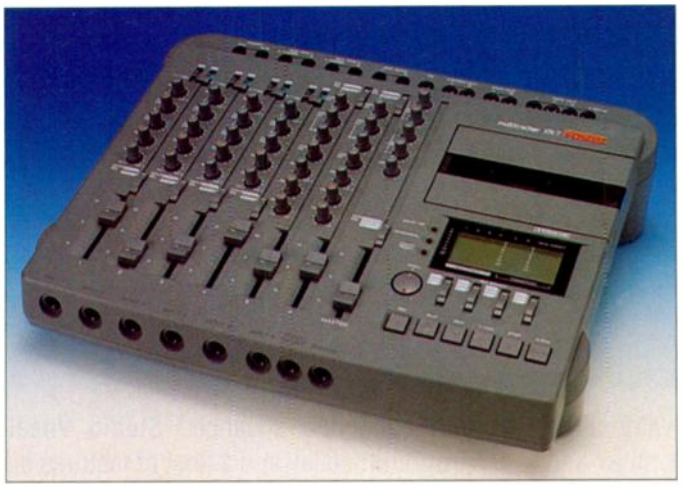

▶ achieves very high levels of noise reduction by combining HF pre-emphasis with 2:1 compression across the full audio spectrum; on replay, a 1:2 expansion is engaged along with de-emphasis. Theoretically, dbx can achieve an impressive 30dB of noise reduction which means that even a cassette-based multitracker can rival a 16-bit digital recorder in terms of dynamic range. However, such a high degree of compression means that the replay signal must match the recorded signal very accurately, both in terms of level and frequency response, if decoding errors are to be avoided. Because of this restriction, two types of dbx system have evolved: Type 1 for professional use; Type 2 for domestic use, where some HF noise reduction is traded off against a greater tolerance of machine and tape accuracy. Type 2 is obviously the most suitable system for cassette machines, while Type 1 is better suited to open-reel recorders.

Because dbx applies full-band compression/ expansion, it is sometimes possible to hear hiss in the presence of low frequency sounds, where there is no high frequency content present to mask the hiss. For example, a mellow bass guitar played solo may be accompanied by a halo of noise which increases in level as the notes are played and decays as the notes decay. There is little that can be done about this other than to optimise your recording levels.

To get the best out of dbx, recordings should be made on the recommended tape types specified by the manufacturer, and the recording level should not be driven into the red but should instead peak at around 0VU. Overdriving the tape will simply increase the magnitude of any tracking errors, whereas with Dolby systems, pushing record levels into the red is almost routine.

DOLBY B

The most commonly encountered noise reduction system is Dolby B, which is used extensively in domestic hi-fi cassette machines. Dolby B has a lot in common with pre-emphasis, but pre-emphasis isn't applied equally to all signals — it only steps in when the programme level falls below a specific threshold. What's more, the frequency above which the boost is applied also varies depending on the spectral content of the programme material, though it never falls below 400Hz. Consequently, high level signals that are loud enough to mask the tape noise aren't treated at all, but vulnerable low level signals are subjected to HF boost. The maximum boost that Dolby B applies is 10dB, so it follows that the very best improvement that Dolby B can yield is a drop of 10dB in the level of hiss.

Dolby B is a level-dependent system, so it is essential that the recorder is lined up to give the correct playback level, otherwise the decoding part of the system will be fooled into working incorrectly with the result that the reproduced sound will be tonally affected. Poor machine alignment is probably the main reason that Dolby B seems to dull the sound on some budget consumer machines, and it's almost certainly the reason that tapes made on one machine sometimes don't sound quite the same when played back on another, even though both may have Dolby B fitted. However, it's not only the machine alignment that can cause trouble — tape machines come set up for a specific brand and type of tape, and if you change types, it's likely that the replay level will be either higher or lower then the record level, which leads to similar problems. If you want to use a type of tape not recommended for your machine, you may need to have the machine specifically aligned for your choice of tape. This is true regardless of the type of noise reduction system you are using.

DOLBY C

Dolby C is probably more relevant to home recording than Dolby B. Indeed, Fostex adopted Dolby C as their preferred noise reduction type for the majority of their cassette multitrackers and open-reel machines.

The system works in a similar way to Dolby B but is effective right down to frequencies of 100Hz, and incorporates anti-saturation circuitry to prevent HF overload when top boost is being applied to signals that already have a high level of HF content. If this was not done, the tape could easily saturate. This would not only add distortion but also compress the signal level, leading to inaccurate decoding.

Dolby C does most of its work between 1kHz and 10kHz — the human ear is relatively insensitive to frequencies in excess of 10kHz, and by limiting the frequency range over which the system operates, mechanical alignment errors in the tape machine have less of a detrimental effect. In addition to being a generally more tolerant system than Dolby B, Dolby C provides up to 20dB of noise reduction. Since more noise reduction is available, however, the system is more likely to be compromised by the poor electrical setting up of tape machines or by the use of unsuitable types of tape. Note that with all types of ▶

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Tape Noise Reduction

noise reduction, the same type of noise reduction must be used for both recording and playback. Replaying a Dolby B encoded tape on a Dolby C system will sound tonally incorrect.

DOLBY A

Dolby A has been around for the best part of 30 years and is only ever used in professional recording systems, never in consumer machines. Again the system works on selective pre-emphasis, but this time the audio signal is split into four separate frequency bands (three shelving and one bandpass), each of which is processed independently and then added back to the original untreated signal. The main benefit of using multiple frequency bands is that high level sounds occupying only a narrow band within the audio spectrum don't compromise the amount of noise reduction being applied to the remaining bands. The maximum amount of available noise reduction is actually less than that offered by Dolby C, being about 15dB (only 10dB below 5kHz), but the multi-band approach introduces fewer noticeable side-effects than the simpler domestic systems.

Once again, decoding is the exact opposite of encoding, where the signals added to the original signal during recording are subtracted, leaving the original signal intact.

DOLBY SR

SR is Dolby's flagship noise reduction system and was introduced a few years ago, around the time digital recording really took off, in an attempt to give the analogue recorder a longer lease of life. Up to 25dB of noise reduction is possible with minimal side-effects, but Dolby SR is technically quite complicated and hence costly. Unlike previous Dolby systems which operated on the 'if it ain't broke, don't fix it' principle by treating only low level sounds, Dolby SR really goes for broke by trying to ensure that the maximum possible energy is recorded in all frequency bands all of the time. To do this, SR employs 10 filters, some with fixed frequency bands and others that slide to cover different parts of the spectrum according to the varying characteristics of the programme material. This means the system has to perform pretty complex analysis of the input signal in real time, and the decoding process is equally complex. Anti-saturation measures are employed to prevent HF tape overload.

Dolby SR is heralded by many as enabling analogue recordings to sound cleaner and more transparent than the best digital recordings. As an additional benefit, it is reasonably tolerant of level errors or tape speed changes, which means that a degree of varispeed may be used without ruining the sound. Due to its high cost, Dolby SR is generally only found in professional systems, usually in the form of an add-on rack system or as plug-in cards.

DOLBY S

Dolby S should really come directly after Dolby C, because it's a semi-pro system, and like Dolby C it has found its way into consumer hi-fi machines as well as some home recording multitrack recorders. It is related to Dolby SR, which is why SR was discussed first, but it would be wrong to consider Dolby S as being a low cost version of SR — in reality, it more closely resembles Dolby C, but with some of the filter technology from SR thrown in. Subjectively, Dolby S sounds more natural than either Dolby B or C and its noise performance means that even narrow format multitrack machines compare well with budget digital multitracks in terms of noise and sonic transparency. Though Dolby S is considerably cheaper than SR, it still costs more than Dolby B and C systems.

SUMMARY

In the audio world you never get something for nothing, and all noise reduction systems have side-effects that compromise the audio quality to some extent. At one end of the scale we have the costly Dolby SR system, which does a beautiful job of preserving audio integrity, while at the other end of the scale artifacts such as noise pumping, timbral changes or a perceived loss of 'life' are likely to occur to a greater or lesser extent with most consumer noise reduction systems, depending on the type of system used and how well the hardware is set up.

It must be understood that all the noise reduction systems discussed act only on *tape noise* — they have no effect on hiss that's already present in the material you are recording, and the same noise reduction system must be engaged both during recording and playback. It should also be understood that noise reduction systems only act to reduce the level of noise when the audio signal itself is at a low level. When the recorded signal is at or near its maximum level, the background hiss will not be reduced in level — we rely on the music to drown out or mask the hiss. Multi-band systems such as Dolby A and Dolby SR are most effective, because they allow different parts of the audio spectrum to be processed independently; with simpler single band systems, narrow band audio in one part of the spectrum may fail to mask noise occurring in other parts of the spectrum.

Finally, noise reduction can only work effectively when the tape machine is properly aligned and when the correct type of tape is being used. This necessitates cleaning your tape heads before every recording session and having your machine serviced at sensible intervals. Used with care, even the simplest noise reduction system can bring about a worthwhile improvement in subjective recorded sound quality, so if the price you have to pay is a slight change in sound quality, think about the alternative — eternal hiss!

"Dolby S sounds more natural than either Dolby B or C and its noise performance means that even narrow format multitrack machines compare well with budget digital multitracks."

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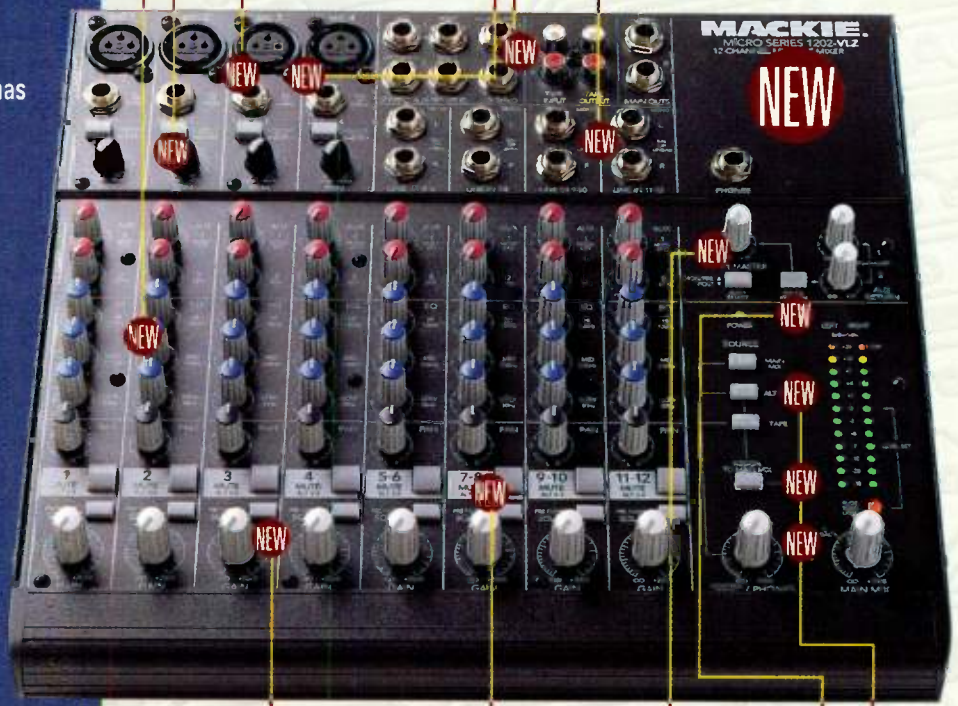

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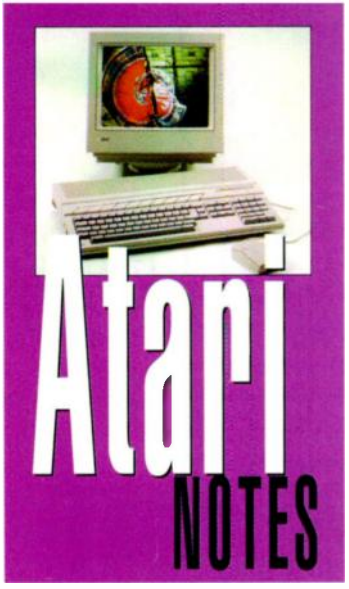
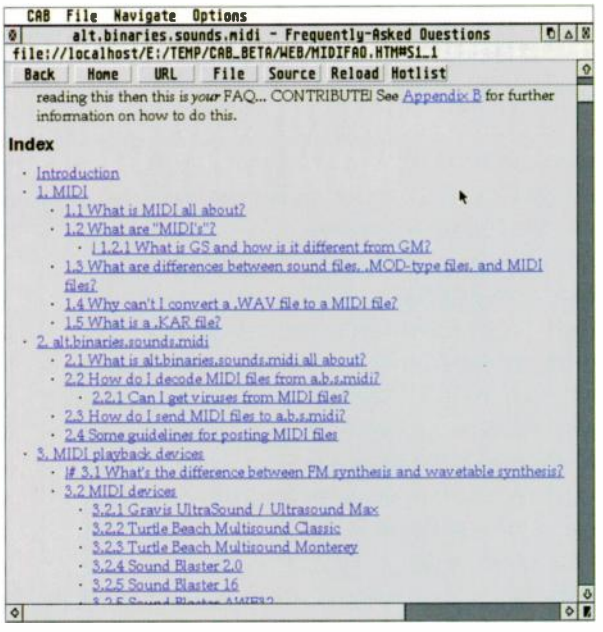


The Information Superhighway, the Net, you name it, the hype just goes on and on... OFIR GAL finds out how music-making Atari users can join the fast lane.

There is no doubt that the Internet is an excellent research tool, enabling files and information from almost anywhere in the world to be accessed as if they were stored on your own hard disk. I am sure many of you would like to 'surf the Net', or 'browse the Web', especially as the infectious enthusiasm for the Internet grows, but are maybe unsure of where to begin and what equipment is needed. This month, I shall take a look at the Net and what it has to offer the Atari user.



FAQs stand for Frequently Asked Questions. The Internet has FAQs containing both questions and answers which cover almost any topic you could wish for. The MIDI FAQ is a place worth visiting if there's anything you want to know about MIDI.

A GLOBAL NETWORK

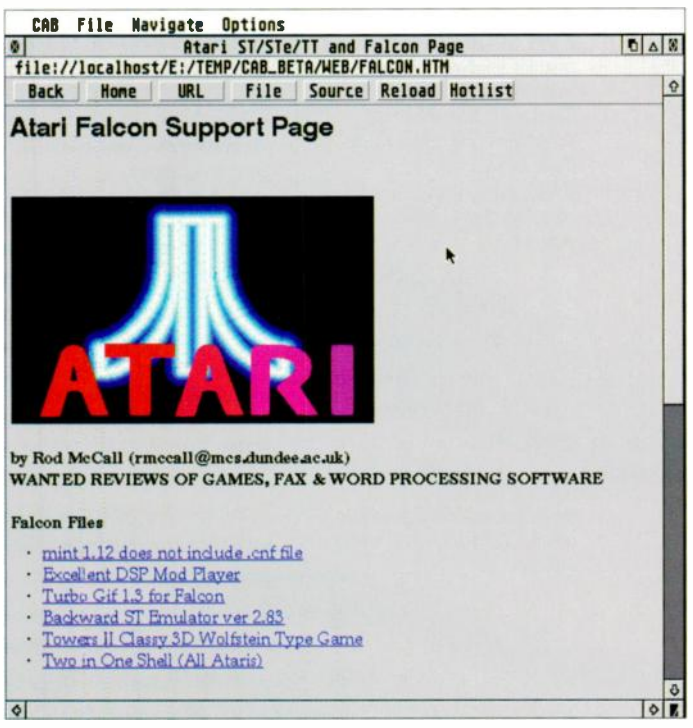
The Internet began as a group of computers situated around the globe, which were all connected to one another. These computers were mainly located in universities, large companies, military installations and similar sites, and were typically fast and powerful machines with a great deal of storage space. In their generosity, the organisations concerned made some of the files available to the public, so if you happened to work at a university for example, you could access files found at another university via the computer.

Things started to get more interesting when smaller companies, such as Demon and CIX began to offer an Internet connection to private users. This involves the connection of your own home computer to a larger one owned by the Internet service provider via a modem. While you are connected, you become part of the Internet and can access files on a worldwide basis.

WHAT IT CAN DO

Two of the most commonly used features of the Internet are Email and FTP. Email is simply a method of sending text messages in a cheap and efficient way. Your Email messages can be prepared in advance, which means you only have to wait the few seconds it takes to transmit them once you are connected to the Internet. Email messages may also contain files, so you could, for example, send someone a MIDI file or a synth SysEx dump. Indeed, many people collaborate on projects, musical or otherwise, without ever meeting each other.

FTP (file transfer protocol) is a system that enables an Internet user to view lists of files and then transfer the files over from the remote computer down to his or her hard disk. Many universities hold massive archives of public domain and shareware programs that can be obtained freely via FTP. Software publishers, such as Steinberg, make bug fixes available to users via FTP. A credit card security system is currently being finalised, so you will also be able to purchase software via FTP by selecting the program you want, entering your credit card number, and ▶



The Atari Falcon pages are maintained by Rod McCall. You can find files, articles and product reviews as well as links to other Atari-related pages.

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CAB and *STiK* are freeware, but the authors still ask for contributions to enable them to continue with the products' development. The full package costs £15, includes on-line support, and can be obtained from:
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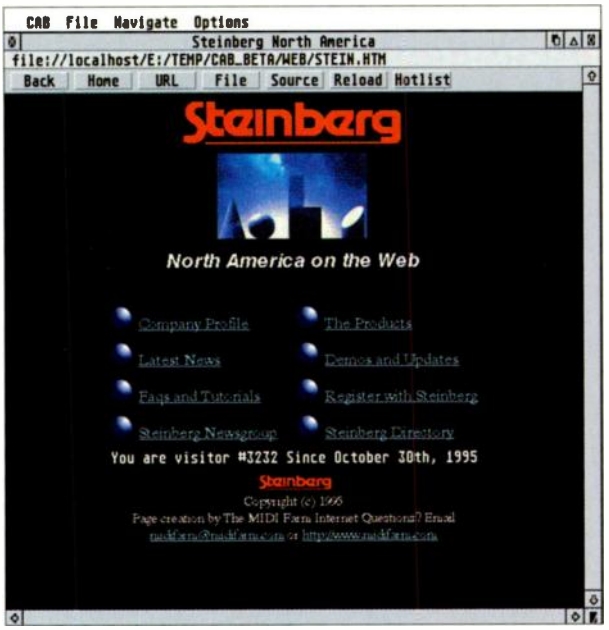

Manufacturers of music software and hardware can also be found on the Web. You can normally Email them with comments and requests, but whether they're a listening is a different matter altogether.

NET SPEAK

- **THE WORLD WIDE WEB:** A graphical interface to the Internet using windows, buttons and hypertext links. Also called the Web or WWW.
- **WEB BROWSER:** A program that can display Web pages and navigate through the Web.
- **FTP:** A method for transferring files across the Internet.
- **SLIP and PPP:** Two of several systems of connecting a computer to the Internet using a modem.
- **TCP/IP:** The networking protocol used on the Internet, implemented on the ST by *STiK*.
- **HYPERTEXT:** A system of displaying text, where some text items are highlighted. On the Web, these items indicate a link to another page and are used to navigate your way through the Web by clicking the highlighted text.

▶ minutes later you could be using the product.

Newsgroups form another important part of the Internet. They work very much like Email, but instead of sending a message to a single person, you can send it to a large number of people with the same interest. Further responses appear in public so that others can learn from the answers. Instead of just asking a few friends about the problem you are having with your synth, you could post a message that hundreds or even thousands may read, and therefore increase the possibility of someone being able to help. There are thousands of newsgroups dedicated to almost every topic under the sun, from music to astronomy, Frank Zappa to politics.

THE WORLD WIDE WEB

The Web is by far the most popular part of the Internet. Instead of having to deal with UNIX commands that only computer programmers and their friends understand, you find yourself in a colourful point and click world. The Web uses coloured backdrops, flashy icons, 3D buttons and images instead of boring old text. Essentially, the Web provides the same facilities the Internet always did, but it is a whole lot friendlier and easier to use. Web pages are the 'in' thing to have, so almost any major player in the music software business has a page or two on the Web. Besides info about their latest products, many software publishers allow you to point and click a button to get hold of the latest versions of programs (although this feature is not yet implemented on the Atari Web browser). You can also use these pages to voice your complaints or praise about the products.

THE ATARI ANGLE

Until recently, Atari users were restricted to the text-only services of the Net. With the launch of *CAB* this is no longer true. *CAB* is a Web browser, much like *Netscape* or *Mosaic* on the PC and Mac. It relies on a desk accessory called *STiK* in order to access the Internet. Like most Internet related programs, *STiK* is difficult to set up, but fortunately UK support is available, as are several configuration files for popular service providers such as CIX and Demon.

CAB does not yet cover the full WWW specification — it is unable to support Email and FTP, but development in these areas looks promising, and *Oasis* can be used as an alternative in the meantime. *CAB* supports the display of colour images and dithers the images to monochrome when not running in colour, so although it doesn't offer the richness of features you will find in *Netscape* for example, it is more than adequate to get you started.

A typical Net-surfing session starts by using one of the search facilities of the Internet to locate links for a topic. If you wanted to search for Web pages related to Akai samplers for example, you would enter the words 'Akai' and 'sampler' and press the search button. After a moment or two, a list of possible pages would appear. *CAB* provides several navigation tools, including the ability to open several windows, go back to previous pages, and save any pages of interest for later browsing.

Surprisingly, the Atari is well catered for on the Net. There are several Atari-related Web pages available to browse, MIDI, sound, sampling and sound synthesis are all popular topics, and many Atari FTP sites exist around the world.

FINALLY

It is difficult to understand the Internet without actually using it, but I hope that reading this clears up some of the haze that seems to obscure the facts. The Web is useful for gaining access to information, while Email is a quick and cost-effective way of communicating. I believe that we will all be using the Net sooner or later, so we may as well get an early start!

SURFING KIT

- **HARD DISK:** A hard disk is not essential but highly recommended. The Internet allows you access to a great deal of data, so you will need a fast and efficient way to store it.
- **MODEM:** A fast modem is essential. The choice is basically between the 14,400 and 28,800 baud models, the latter being twice as fast. The slower variety is now available for around £100, but expect to pay up to £200 for the faster models. Any external PC modem is suitable, but make sure you get the right cable for your ST or Falcon. Faster modems help control your phone bills, so don't try to save by getting a second-hand 2,400 baud unit.
- **SOFTWARE:** The WWW kit consists of *CAB*, the Web browser, and *STiK* which is a desk accessory used to establish the connection. For newsgroups and Email you can use *Oasis*, which is available separately.
- **SERVICE PROVIDER:** There are many service providers in the UK. Always look for a provider with a local phone number to keep costs down. Demon is one of the most popular providers (0181 371 1234) with local call access across the country. Subscriptions start at around £10 a month.
- **GRAPHICS:** *CAB* runs perfectly well in monochrome, but in order to get the best out of it, a Falcon running in 256 colours or an ST equipped with a graphics card is recommended.
- **OTHER:** GDOS or NVDI (any version) is required for displaying fonts in *CAB*. HSModem (freeware) can improve speed of modem transfers. MagiC 3 or later improves reliability by supporting long file names.

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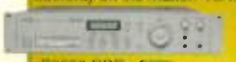

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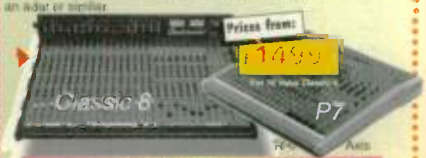

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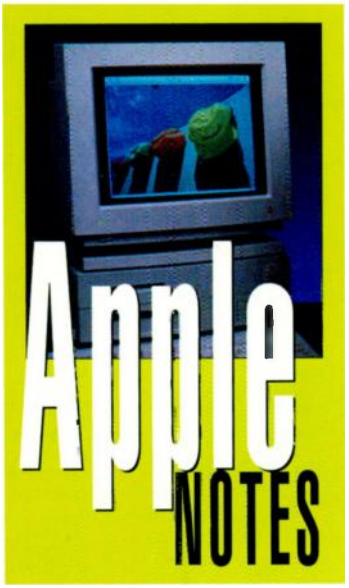
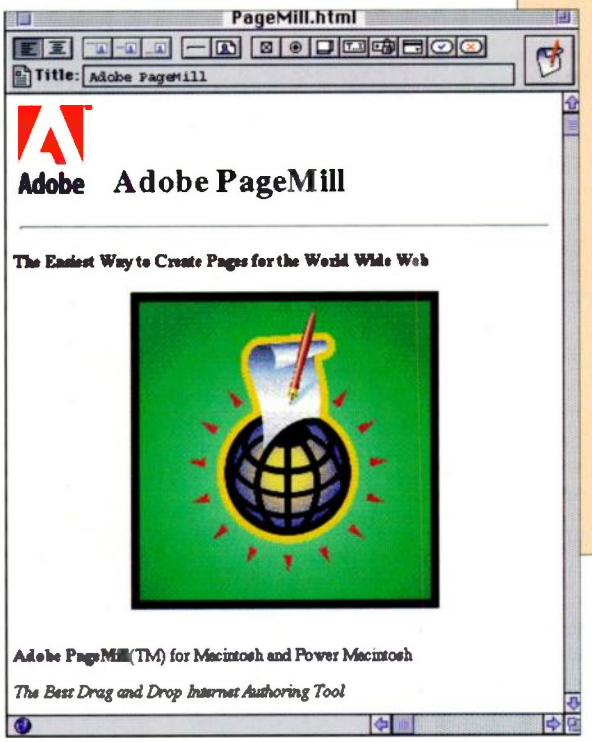


MARTIN RUSS continues his look at computer busses and reports back from the recent Apple Expo show.

After last month's special feature where Nick Rothwell talked about his use of Macs and *Max* in live performance, Apple Notes returns to the subject of interface busses.

• PDS

Processor Direct Slots (PDS) connect directly onto the Address and Data busses of the main 680n0 processor in the Mac. PDS slots can be found in the lower cost 680n0-based machines (the Mac II, Quadra, Centris, Performa ranges), but they vary depending on the type of Mac — particularly for the different instruction sets of different processors. 68000, 68020, 68030 and 68040 variants all exist. Connecting anything directly to the Address and Data busses has inherent risks — particularly since anything that goes wrong on the PDS card can stop the main processor from functioning. Adaptor cards are available which can convert some PDS slots into NuBus slots.



• SCSI

The Small Computer Systems Interface is intended for use both inside and outside a computer. When inside the case, Macs use it for the internal communications between processor and hard drives (some PowerMacs use SCSI-II, a dedicated faster version which optimises the access to the hard disk). Outside the computer, it is used for connecting additional hard drives (both opticals and removables), as well as scanners, CD-ROM drives and other peripherals. It provides addressing for up to seven peripheral devices, with the Mac processor taking the eighth address. Data rates of up to 5Mb per second are supported by the basic SCSI specification, but this depends on the hardware, software and cable lengths. There are many variants of SCSI, including SCSI-II, Wide SCSI, and Fast & Wide SCSI.

• NuBus

The NuBus is a high speed bus with a 20Mb per second maximum transfer rate. NuBus slots are found on the more expensive Macs, and provide buffered ▶

APPLE EXPO

This year's Hot Topic at the Apple Expo show seemed to be much the same as last year's — at least, there seemed to be even more large format (A0 and bigger) colour printers working away on stands than there were last year.

Only slightly less popular was the Internet, with some mature publishing programs now reflecting the fact that this was the Hot Topic of a couple of years ago. Rather than spend all your time surfing the Net, it now seems popular to publish your own WWW page, and there was quite a lot of software on display that supported this sort of activity. The remarkably low-cost Adobe PageMill caught my attention — it brings 'drag and drop' DTP-like functionality to WWW page creation.

For the converging worlds of music, media, computers and telecommunications, there were the usual stands from TSC/MCMXCIX and AVID/Digidesign, but much more significant were the large number of ISDN and LAN-based videoconferencing systems on display. Now that QuickTime Conferencing includes the international H.320 standard, adding videocommunications to your Mac has never been easier. More practically, the price of RAM SIMMs seems to be falling at last, with 4Mb SIMMs now well below £100 each. As expected, hard drives continue to fall in price, with some internal 1Gb SCSI drives at under £200 (including VAT).

Bus Name	Meaning	Host Computer	Clock Speed MHz	Bus Width bits	I/O Throughput Mb/second	Real-world Mb/second
XT	Extended?	IBM PC	4	8	2.5	1
SCSI	Small Computer Systems Interface	Anything	5	8	5	2
AT/ISA	Industry Standard Architecture	IBM PC	8	16	5	3
IDE	Integrated Drive Electronics	Hard Drives Only	8	16	5	3
SCSI-II	Small Computer Systems Interface	Anything	10	16	10	7
EISA	Extended ISA	IBM PC	8.33	32	33.3	16
MCA	Microchannel Architecture	IBM PS/2	10	32	40	20
NuBus	NuBus	Anything	10	32	40	20
PCI	Peripheral Component Interconnect	Anything	33 (66 soon)	32 or 64	132	90

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Apple NOTES

access to the processor address and data bus. There are two types of NuBus slots — electrically identical, but with different physical lengths: short and long. The short NuBus card is approximately the same size as the short VGA/Printer/Mouse cards which are typically found in an IBM PC-compatible computer. The NuBus connector is a 96-way, DIN C096M connector. NuBus cards can be up to 4 inches in height, and between 12.875 and 7 inches long.

The NuBus is optimised for 32-bit Address and Data transactions, but it can also be used for 8- and 16-bit nonjustified transfers. It uses a synchronous bus, where all the transactions (Reads and Writes) are determined by a master system clock, but it has many of the features of an asynchronous bus, and transactions may be a variable number of clock periods long. The master clock runs at 10MHz in most Macintosh models, and is supplied by the Macintosh. I/O and Interrupts are memory mapped, and there is a single, large address space used for accessing all the NuBus slots in a computer.

No DIP switches or jumpers are needed to set up NuBus cards — geographical addressing and distributed parallel arbitration eliminates slot problems. You can put the card in any slot and the system will find it! This is Mac 'plug and play', and it was first introduced about nine years ago! Firmware on the card identifies it to the Macintosh's operating system, and the software driver for the NuBus card can also be stored as part of the ROM firmware. The data transfers require 75ns setup and propogation times. NuBus cards can also be used as Video cards for the Mac, in which case the Mac's internal video RAM is replaced by that on-board the NuBus card. SOS

ON THE NET

Two places to surf to this month. For all things Mac and Music (apart from *SOS*, of course) you could try:

http://www.leeds.ac.uk/music/Info/MacMIDI/Contents.html

Whilst for Adobe PageMill information, it's well worth visiting:

http://www.adobe.com/Apps/PageMill/

APPLE NEWS IN BRIEF

CONNECTIONS 1

• IBM, Philips, Oracle, Canon, Matsushita and Motorola. What's the connection? They have all been involved in rumours of takeover bids for Apple. Low share price, difficulties in keeping up with demand for their computers, and some boardroom battles have all left Apple looking ripe for a takeover.

CONNECTIONS 2

• Radius, Power Computing, Bandai and Pioneer. So who's the odd one out this time? They are all companies that have licensed Mac technology — three for clones, whilst Bandai are making the Pippin multimedia games console.

CONNECTIONS 3

• The same PowerPC chips that you find in PowerMacs are now also found in some IBM PC-compatibles and workstations, the much-hyped BeBox workstation, some Motorola PCs, and quite a few other places as well.

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This collection is best referred to as DrumScores™ because the musicality of Steve's performances goes beyond what one would assume from drum loops. Loops as well as complete performances are offered. The library includes Steve's coveted drums and cymbals, including detailed articulations of the infamous "Black Recording Custom" kit, the "Wood Grain Signature" kit, as well as a host of unique snares, kicks and cymbals from Steve's recording arsenal.

Even more compelling is the collection of performances played with masterful phrasing and technical execution. The styles and tempos range across the spectrum. Some examples include "Triplet Hop," "Complex Jazz," "Perfectly Laid-Back Beat," "Blazing Brush Samba," "Touching Ballad " and "In The Pocket".

Each DrumScore represents a fully developed musical idea. This title is presented in its entirety and then in smaller phrases of 8, 4, 2, and 1 bar loops followed by fills. Phrases are precisely truncated to the correct sample to facilitate fast and easy looping. The CD-ROM version offers meticulous programming to provide loops that are "synchronisation friendly", pre-conformed to each other, and to hardware- resolved tempo BPM. In other words, lock one loop and you've locked them all.

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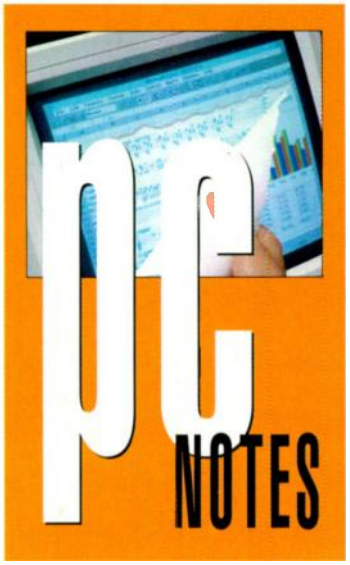
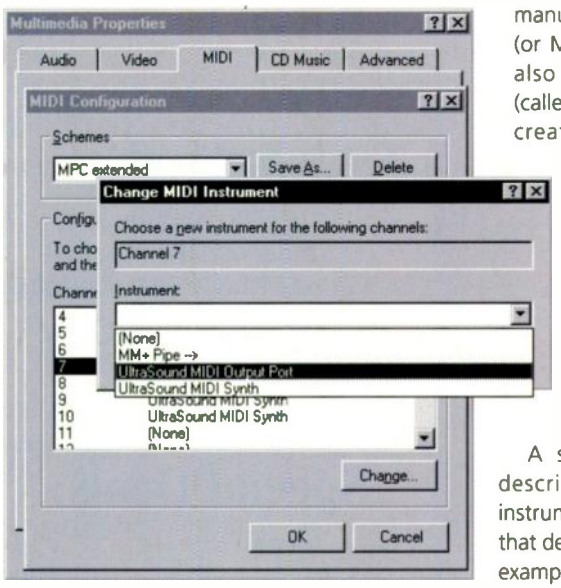


Following the demise of the Windows MIDI Mapper under Windows95, BRIAN HEYWOOD considers ways of setting up alternative MIDI patch maps on your PC, and looks back on his personal favourite products of 1995...

One of the more useful features of the MIDI support on Windows 3.1 was the MIDI Mapper, which allowed you to customise your PC's MIDI set-up to match your equipment. You may not have needed to use it often, but when you did it was very handy. Under Windows95, the MIDI functions have been simplified somewhat, and there is no 'built-in' facility to edit the patch maps and drum maps. This simplification is no doubt due to the greater prevalence of GM-compatible soundcards and external MIDI modules than when Windows 3.1 was first introduced. It is now far less likely that the average user will need to cobble together such a system from individual components.

The default MIDI setup is controlled from the MIDI sheet of the Multimedia Properties dialogue, which is accessed from the Windows95 Control Panel. There are two basic modes; either you can direct the MIDI to a single instrument — say a soundcard or a sound module attached to a MIDI port — or you can use the Custom configuration to direct each MIDI channel to (potentially) a different sound module, or just switch it off. Unlike the MIDI Mapper in Windows 3.1, there is no direct way of editing the mapping of the MPC General MIDI sound set so that it will select different sounds on the external sound module. However, you can do the same thing by creating an IDF (Instrument Definition File) and then associating it to a MIDI port using the 'Advanced' sheet of the Multimedia Properties dialogue.



The Custom Setup screen allows you to associate a module with a particular MIDI channel.

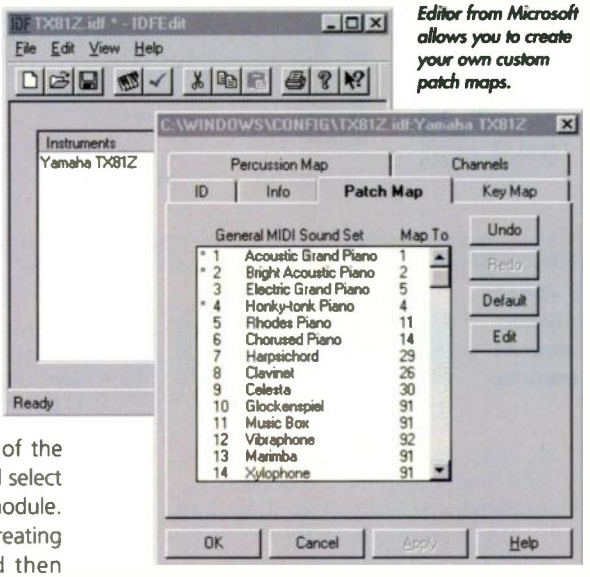
Microsoft intended that IDF files should be supplied by the manufacturer of the sound module (or MIDI keyboard), but they have also made an editor available (called *IDFEDIT*) which allows you to create your own instrument definitions. The editor allows you to customise the MIDI mappings or create new ones for instruments that are not supported by Microsoft, thus (finally) giving you a facility that was already available with Windows 3.1 — but there's progress for you...

A single IDF file can contain descriptions for more than one instrument, so you can create one file that describes all your instruments; for example, a wavetable synthesizer with several memory configurations, an external MIDI keyboard with built-in sound, and so on. One interesting application would be to use the IDF mechanism to allow two PC-based musicians to make their MIDI set-ups compatible — say for collaborating on a song. The *IDFEDIT* application should be available from most music or Windows-based bulletin boards (eg. the Windows95 forum on Compuserve), or you could try your local Microsoft support organisation.

To customise an IDF, you can either start with a new file, or modify an existing file, if you are just 'tweaking' your current set-up. You will have to define the program mapping first.

You will need the following:

- a list of the GM patch set with the program numbers;
- a list of the patches/program numbers for your external MIDI gear;



The 'freeware' IDF Editor from Microsoft allows you to create your own custom patch maps.

- a list of the MIDI channels that your synthesizer can receive on (often described, confusingly, as the multitimbrality).

To edit an instrument, double-click on it (or select it and click on the 'Properties' button). After checking that the 'ID' and 'Info' sheets are accurate, select the 'Patch Map' sheet by clicking on its tab. Now select each row in turn and edit the 'Map To' column to match the patch mapping for your MIDI module/keyboard (take a look at your module's documentation). This is quite a tedious task, but at least you only have to do it once, since you can copy the configuration between different maps using the copy/paste functions — accessible by clicking on the selected instruments using the right-hand mouse button. To re-map the pitches, you use the key map rather than the patch map. For instance, if you want your sounds to play back an octave higher than the default values, then you need to add twelve to each of the current values in the 'Map To' column. Incidentally, in both of these maps, any values that remain unchanged from the MPC GM standard are marked with an asterisk.

If you need to set-up a drum module, then first use the 'Channels' sheet to select which MIDI channel the module receives percussion on, and then use the 'Percussion Map' sheet to map each individual drum to its GM equivalent. Any channels that are not used should be muted.

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PC NOTES

You will need:
- a list of the GM drum mapping (ie. drum type and MIDI note value).
- a list of the drum mapping for your MIDI synthesizer.

You can create a 'template' IDF file for each instrument in your MIDI setup and then use the copy/paste mechanism to create IDF files with multiple instruments. Simply start up a new IDF editor page for each of the templates, and then 'copy' each instrument into your 'working' IDF file. When you've completed the edit, you need to utilise the 'Add New Instrument' button before you can use the new template. Use the 'Remove' button on the 'Properties' sheet of the Multimedia Properties dialogue (accessed via the 'Advanced' sheet) to remove an instrument (ie. IDF) from a particular port . To use the instrument, select it on the 'MIDI' sheet, either by selecting it from the 'Single Instrument' list or as part of a 'Custom' set-up.

GET YOUR CIX ON ROUTE 66

If you want to look at the screen shots for the items in this column, or link to the Web sites listed in this (and previous column), point your web browser at the PC Notes area on Route66 at:
http://www.compulink.co.uk/~route66/sos/
If you want to find out how to get access to the Internet, call CIX on 0181 296 9666 or email sales@cix.compulink.co.uk.

PC NOTES AWARDS FOR 1995

• FAVOURITE MUSIC SOFTWARE
This goes to *Band-in-a-Box v6*, which lets me practise new songs, generate quick realisations of original material, and generally faff about with chord sequences without technology getting in the way. It can even print out a chart of the piece you're working on. Available from Arbiter (0181 202 1199).

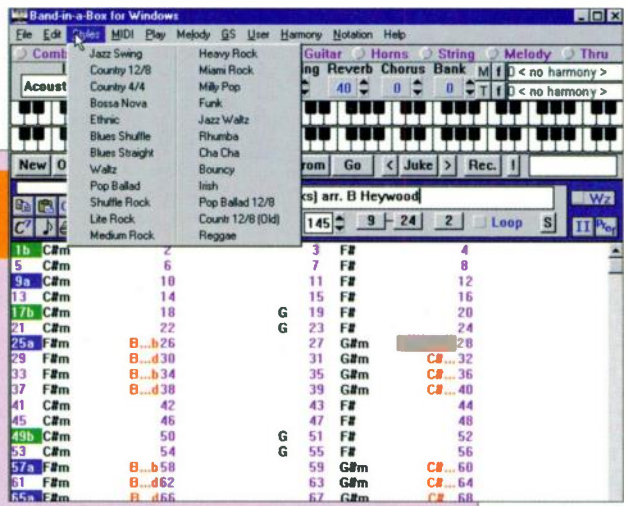
• FAVOURITE PIECE OF HARDWARE
The Roland GI-10 Guitar MIDI Interface, which lets me use my instrument of choice and dispense almost entirely with that awkward beast, the MIDI keyboard. It doesn't get in the way too much, either! Contact Roland on 01792 702701 for more details.

• MOST ANNOYING PIECE OF HARDWARE
My Alesis ADAT, which during the first six weeks of ownership went back to the distributor three times with major problems. It seems to be working properly now (touch as much wood as I can get my hands on) but the experience has left me unable to completely trust it for those really important sessions. Needless to say I'm now saving up for a Tascam DA88...

• MOST USEFUL PIECE OF 'GLUE' HARDWARE
J L Cooper DataSync2; they say that every cloud has a silver lining and this device is the ADAT's. This little box is so useful that no ADAT-equipped studio owner with a sequencer should be without one. Not only does it produce MTC (MIDI TimeCode), LTC (Longitudinal TimeCode) and SPP (Song Position Pointer), but it understands MMC (MIDI Machine Control) allowing your sequencer to control the ADAT. For more information, contact Sound Technology on 01462 480000.

• MOST USEFUL NON-COMPUTER PRODUCT
The White Book International Production Directory. Apart from the main tome, which offers an invaluable list of music business information in one place, you get a nifty slim companion volume when you buy the directory, the originally-titled *Little White Book*, with all the entries in alphabetical order, which is incredibly handy. A new edition of the directory will be available in April next year. To find out how to get your copy, call Staines-based publisher Birdhurst Ltd on 01784 464441.

• MOST QUOTABLE QUOTE
The following came at the end of a list of things to do to get technical support from Microsoft, in the Readme.txt file on the *JumpStart 2.0a* CD-ROM.
"...or you can stick your head out the window and yell really loud."



Band-in-a-Box, PC musicians' version of 'mother's little helper'.

DIGITAL AUDIO NEWS

Arbiter are now distributing Sonic Foundry's *Sound Forge 3.0* software in the UK. This software is a comprehensive Windows-based digital audio editor which — amongst other things — offers transparent audio compression and sampler support via MIDI and SCSI as well as MTC synchronisation to a sequencer application. One interesting feature is *Sound Forge*'s 'plug-in' architecture, allowing third-party developers to produce additional features — currently spectrum analysis and noise reduction modules are available. The full software is fairly pricey at £499.95, but there is a cut-down version, *Sound Forge XP*, available for £149.95, which can give you a good feel for the product. For more details, contact Arbiter on 0181 202 1199.

SOUNDCARD GOSSIP

I've been hearing some murmurings about Yamaha's successor to their current daughterboard, and I must say it looks very interesting. By all accounts, it's effectively a fully-specified VL1 physical modelling synthesizer on a board, and will cost around £200 — about one-tenth the cost of the stand-alone 'black box' equivalent. This card will undoubtedly fit on to the standard 'WaveBlaster' daughter board connection, so you could get a fairly serious PC-based music workstation by combining it with an AWE32, or Turtle Beach Tahiti. Alternatively, you could just add it onto a Roland MPU401AT MIDI I/F card — if for example your current soundcard is already 'fully loaded'. So if you want to get into physical modelling to produce your music, it may be worth waiting to see what Yamaha can come up with.

ARBITER SWEEPS PRESS AWARDS

Passport release new *Rhapsody* for Encore lovers

For over a thousand years, music has been represented as notes on a musical score. It is perhaps because this form of notation is so old that there are so many complex rules and conventions used. Based on the £449.95 **Encore** software, new **Rhapsody** is programmed with all these rules. All you have to do is to play your MIDI equipped instrument and **Rhapsody** will produce the notation for you. Use it for composition, transcription or publishing and **Encore** will make your music look as good as it sounds. Complex repeats, tuplets, four-part harmonies, lyrics, **Rhap-sody** takes all these in its stride. What about all those things that take you hours to do by hand? Transposition, part extraction, orchestration and arrangement? **Rhapsody** handles these tasks with consummate ease and in seconds. Using the specially commissioned

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If your notation requirements are entry-level, why not check out **Music-Time**, a real bargain at only £129.95 inc

Software	:	Rhapsody
Author	:	Passport Designs
Computer	:	PC Windows
R.R.P.	:	£249.95 inc VAT

Pro-6 makes "Best Buy"

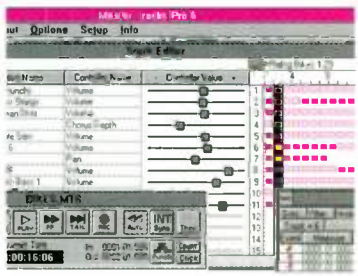
Future Music June 1995 saw a PC sequencer head-to-head with the contendors being Steinberg Cubasis, Twelve Tone's Cake-walk Home Studio and Passport's Mastertracks Pro 6. Pro6 is not a cut-down version of a pro sequencer, it is a pro sequencer.

BEST BUY status was awarded to Mastertracks, which scored 89%, compared with Cakewalk's 80% and Cubasis' 83%.

"Mastertracks has the lot, with full SMPTE/MTC support"

"The piano roll of Mastertracks is the most impressive and easiest to work with"

"So far as documentation is concerned, Pro-6 excels"



"The new price, under £150, makes it the best value 'feature for your money' sequencer going"

Software	:	Mastertracks Pro 6
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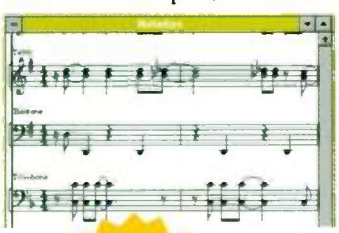

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Author	:	Musicator
Computer	:	PC Windows
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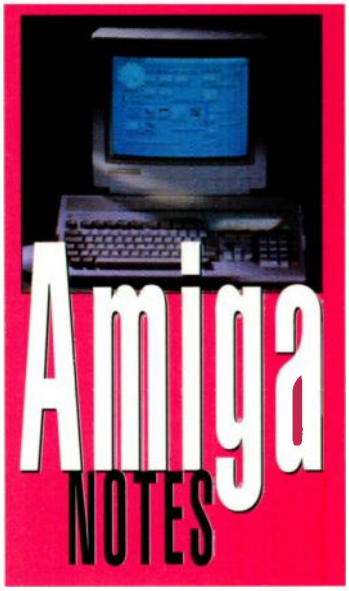

PAUL OVERAA goes behind the scenes at Tangent Music and discovers a rather unusual Amiga connection...

New albums come and go in the music business as a matter of daily routine, but the chances are that one particular new release, an album entitled *Everybody's Girlfriend*, is going to become a bit of a show-stopper in the Amiga music world. The album is being produced and promoted by Tangent Music Design whose three partners are none other than Edward Fermor, Richard Knox and David Pleasance. Now that last name should ring a bell — David Pleasance was, of course, Managing Director of Commodore Business

David Pleasance, now combining music with management.

Machines (UK) Ltd until Escom GMBH purchased the worldwide assets of the Commodore group and the UK operation had to close. What you probably will not know is that David is also a musician — a guitarist in fact, with a particular passion for Flamenco. He once owned a Flamenco dance company, has studied guitar in Spain, and has appeared in concert, cabaret and on television, supporting people such as John Farnham and Gallagher and Lyle.

A TRIP TO TANGENT

A telephone call to Tangent revealed that the new album is not only Amiga-inspired, but has been put together using Amiga sequencers and Amiga-based direct-to-disk sampling. Intrigued by the Amiga music connection, I went down to their recording studios in Middlesex to see what was happening first hand. Tangent have recently kitted out a 32-channel, 24-track digital recording studio in Hayes, and when I arrived there was more that a fair smattering of hi-tech equipment scattered around, including a Soundcraft DC2000 fully automated desk and two Tascam DA88 recorders which link to a direct-to-hard-disk sampling system. Everything gets mastered to a Tascam DA30 MKII DAT, which can then be recorded to a Marantz DD82 DCC, a Sony TCK611S, and to Phillips recordable CD. On top of this, there was the usual assortment of outboard effects, sound modules and samplers, including a Roland JV1080, Roland S760, and a Korg Wavestation SR. With Genelec monitors in the control room, Spirit Absolute 2's in the studio, and so on, it was hardly surprising that things sounded good. During the tour around Tangent Music I was able to talk to David Pleasance about both Amiga matters in general and the new album...

"David, I know you are playing on this new album, but presumably you have other interests at Tangent Music as well?"

"Yes, my main priorities of course are in the business side of things. I'm responsible for the day-to-day running of the company, the sales and marketing of our products, and above all, ensuring that we make good music at a profit!"

"Whose idea was it to create an Amiga-inspired album in the first place?"

"Mine actually. The initial planning of the project began about a year ago, although we didn't start recording until September of last year."

"How much of the work was done using Amigas?"

"Lots of it — all the sequencing has been carried out using Amigas running the Blue Ribbon Soundworks *Bars & Pipes* sequencer, and we have the *Studio 16* package (Sunrize's 8-track, 16-bit digital recording system), running on an Amiga as well. Even our Philips recordable CD unit is linked to an Amiga 3000T."

"Do you find hard disk capacity a problem with your sampling applications?"

"No, but we are lucky here — our main A4000/040 studio Amiga has an internal 1.2 Gigabyte hard drive and a 740Mb SCSI unit."

"Was all the sequencing and recording done in your main studio?"

"No, we also have a small satellite studio, which includes an 200Mb hard drive Amiga 4000/030 ▶

Simon Green laying down the vocals on 'Prisoner of Passion'.

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running *Bars & Pipes*. Richard Knox uses this quite a bit, and many of the ideas for the new album actually started life here. This in itself should be of interest, because this latter type of set-up is typical of that which can be found in the home studios of many Amiga-based musicians."

"Being a Dr T's *KCS* sequencer fan myself, I suppose I'm a bit disappointed to see that your sequencing is totally *Bars & Pipes*-orientated. Are there any special reasons for this?"

"We originally chose *Bars & Pipes Professional* because it offered more features than alternative Amiga sequencers. Of course, once someone starts working with a particular sequencer package they tend to stick with it, so having made that initial decision, I suppose it's not really surprising that we followed an exclusive *Bars & Pipes* sequencing pathway."

Ed Fermor (left) and Richard Knox.

ABOUT THE ALBUM

"Is there any special significance to the title of the album?"

"Most definitely. Amiga is actually Spanish for girlfriend, and so we all thought that *Everybody's Girlfriend* was particularly appropriate for an Amiga-inspired recording. After all, the album is essentially a celebration in music of ten years of the Amiga, with the 14 tracks being recorded using Amigas, and written and produced by people who both use and know about the Amiga."

"And the album tracks — any personal favourites?"

"Well, there's a pop song called 'Don't Let Me Fall' that is a firm favourite, along with a love song called 'Roses'. Also, being a solo guitar player I like music which tells a story, and the track 'Infinity' really does it for me!"

"Talking about the tracks themselves, I notice that the music and lyrics of all except four are attributed to a band called Passion."

"Yes, Passion are actually Richard Knox and Ed Fermor, my partners at Tangent, and both are established musicians. Richard, a singer/songwriter/keyboard player, has played and recorded both in the UK and the States, and, as well as various TV appearances, has a number of film credits to his name. Ed also has lots of TV, video and tour work under his belt, and in 1993 he accompanied the renowned deaf percussionist Evelyn Glennie on a world tour. In November of that year Ed played live on the Commodore stand at the FES show (incorporating World of Amiga), and that's actually where we first met."

THE FUTURE

"Changing the subject a bit, what do you see as the future of the Amiga now that machines are at last coming back into the shops?"

"The Amiga is going through a tough period at the moment as a direct result of the activity undertaken by PC manufacturers. (It's the only industry I know which eats its young!) However, if Escom invest in up-spec'ing the A1200, include a CD-ROM drive as a standard feature, and are more realistic with their pricing of the A4000 and so on, then they can still have a good business. I do not believe that the games machine market is going to be anywhere near as big as some industry pundits predict, and as such, Amiga Technologies should concentrate on giving their current user-base reason to stay with the format."

"As far as sampling/music applications are concerned, what two things do you think Amiga Technologies could realistically do to promote the use of the Amiga amongst professional musicians?"

"Firstly, form strategic joint R&D projects with technology leaders in recording equipment, samplers and effects — for example, Tascam, Roland, Korg, Yamaha, Soundcraft and so on. Secondly, invest in having some industry-standard software (such as *Notator Logic*) ported to the Amiga. Finally, while I do not believe it makes commercial sense to incur the additional cost of having MIDI on all Amigas, I think it would be well received if MIDI was a low-cost optional extra, perhaps in module form."

A COLLECTORS' ITEM

I was fortunate enough to leave Tangent with an advance copy of the new album, and while I found it to be rather a mixed bag in terms of content, I couldn't fault the recording quality. Richard Knox is the lead vocalist on half the tracks, the others being covered by Angie Brown, Mo Black, Simon Green and P J Philips. The album features a number of instrumentals, and I particularly liked a Flamenco track entitled 'Para Mi Amiga (Homage to Jay Miner)', which is both written and played by David Pleasance.

One thing is certain, *Everybody's Girlfriend* clearly shows exactly what can be done musically with a typical Amiga sequencer, and it provides a chance to hear something of the very real musical talents of David Pleasance. I should think the fact that the ex-MD of Commodore is both executive producer on the *Everybody's Girlfriend* album *and* one of the musicians is going to be enough to make this offering a collectors' item amongst Amiga owners. SOS

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"If you're unfamiliar with the format, these CDs contain DJ loops lasting up to two minutes each, rhythmically centred on trance, house and jungle. The main advantage of the format is that loops are assigned to individual tracks, so cueing becomes easier (for DJs), and so does traveling through the samples in search of the perfect beat. The very nature of rhythm is that it repeats itself; by listening to extended grooves you can determine their likely success on the dancefloor. This is a thing that is absent from conventional sample collections, where you're given a single pass of each loop and a brief opportunity to make up your mind. Here you can listen to a rhythm as it should be heard: over time. Play along with it if you wish, or maybe use it as a guide for a track you're working on. With relatively few loops included in the collection (as compared to a standard sample CD), it's more important than ever that the right beats are selected.

Clearly, this is what has made D-Zone's Loopism's series so successful. Make no mistake, these guys know what they're doing, and a little of that cannot help but rub off on you when using this as a source for house, trance and rap grooves"

(from 'The Mix' magazine, June 1995).

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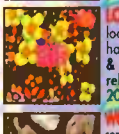

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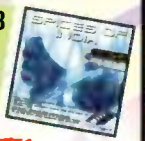

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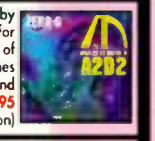

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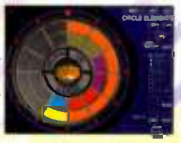

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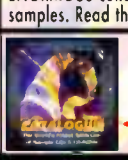

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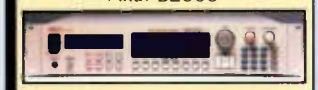

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Style Trial

YAMAHA QS300 WORKSTATION SYNTHESIZER

Some synth manufacturers seem to be hedging their bets lately, building home keyboard auto-accompaniment features into seemingly serious synths, to appeal to both types of keyboard buyer. Will the strategy pay off for Yamaha's QS300? DEREK JOHNSON finds out in style...

YAMAHA QS300 £1199

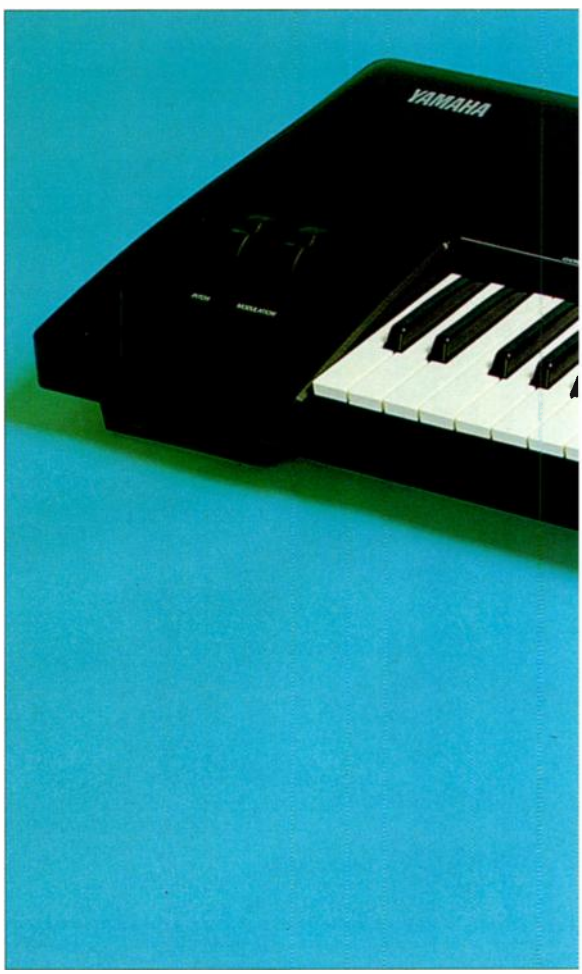
PROS
- Loads of sounds.
- Nice graphical approach to editing.
- Flexible auto-accompaniment, if that's your thing!
- Three internal effects processors.

CONS
- Only one user drum kit.
- Only one effects processor offers more variety than reverb and chorus.

SUMMARY
An attractive workstation at a good price, and still worth a look even if auto-accompaniment isn't what you are after — the sequencer is powerful, and those Phrases and Patterns can be put to serious use.

The marriage of synthesizers and sequencers that brought us the workstation has generally been welcomed as a 'good idea'. Current models, with their built-in effects and disk drives for external storage, are deservedly popular as all-in-one creative musical tools. Home keyboards, on the other hand, with their preset styles and auto-accompaniments, have long been the domain of 'home' (ie. non-aspirational) keyboardists. Such instruments do find their way into the hands of financially-challenged musicians, but most in this situation would upgrade to a 'proper' synth as soon as cash allows. What, then, are we to make of a fairly recent trend, whereby seemingly serious keyboard workstations are equipped with traditional home keyboard features?

Yamaha are not alone in pursuing this trend — check out certain instruments from the likes of Korg, Roland and Technics — but it's Yamaha's latest release, the QS300, that falls under the *SOS* spotlight this month. The QS300 offers top-flight synth technology, based on Yamaha's second generation Advanced Wave Memory (AWM2) 'Sample + Synthesis' system (as found on the W5/W7, MU80, and SY85/TG500), plus a sophisticated sequencer, as well as the auto-accompaniment section — the latter both inherited from the QY300 16-track sequencer/sound module. Add three stereo effects processors, a 3.5-inch disk drive, General MIDI, Yamaha's XG (extended General MIDI), Standard MIDI File compatibility, and a good 61-note velocity and aftertouch sensitive keyboard, and you have the makings of a pretty attractive package.



HARDWARE

The QS300 is a good-looking piece of hardware, in a similar package to Yamaha's W5/W7 workstations — and what about that sparkly metallic finish? Further examination reveals that the front panel layout appears to be user-friendly too: buttons labelled Voice, Song, Phrase, Pattern and Disk lead to the relevant areas of the operating system, and Utility, Edit and Job are self-explanatory (once you've glanced at the manual).

Dominating the front panel is a 240 x 64 dot, backlit LCD, which provides a graphic representation of virtually every aspect of the instrument: when editing a sound, you see the envelopes, and when arranging sounds in a sequence, you work with a virtual mixing desk. The display does occasionally seem a little cramped — since it's trying to do so

much! — but compared to the 2-line display on other instruments, it's positively spacious.

Directly below the LCD are the Function keys, which perform different tasks depending on where in the operating system you are. Their associated parameters appear along the bottom of the LCD. Under the Function keys are the sequencer transport controls, labelled to mimic a tape transport. The numeric keypad to the right of the LCD doubles up as a collection of quick edit tools when working with Songs or Patterns, and all that's left is the data entry dial. The keyboard is also labelled with various chord symbols, which become relevant when harmonising Patterns.

ARCHITECTURE

As implied earlier, the QS300 operating system is divided into four sections — Synth, Phrase, Pattern and Song — plus global utilities and disk management. Let's start at the top:

• VOICE MODE

The sample ROM at the heart of the QS300's synth contains 204 waveforms. As with the W5/W7, up to four waveforms can be used in a finished patch — called a Voice by Yamaha. Each waveform (Element in Yamaha-speak) in a Voice can be treated much as if it were an independent synth patch — in fact, a Voice actually approximates an SY85/TG500 Performance. The synthesis parameters are pretty normal, and editing is made easier by the graphic nature of the editing pages. Envelope generators in particular benefit from this approach — and if you're ever stuck on the EG front, a comprehensive collection of templates help get you started. The Amplitude section features a four-stage envelope generator — nothing complicated here — and a velocity limit for each Element; the Filter section includes an EG, resonance, cutoff frequency plus level and rate velocity sensitivity. This is simpler than the SY85/TG500's filter, but in many ways easier to use; the Pitch EG is next, and is equally easy to use due to the graphic element.

The tuning parameters are not without their surprises. Although the QS300 lacks alternate tuning, the tuning page does have one unusual trick: Pitch Scaling Depth, which allows access to fractional intervals. There are just six percentage values for this parameter: 0%, 5%, 10%, 20%, 50% and 100%. A setting of 100% offers normal, semitone-based scaling, while 0% results in every note playing the same pitch, which you can define. In between, you have access to quarter-tone tuning, an octave spread between top and bottom C keys, and one where a minor third is spread across the whole keyboard!

The LFO is a simple device, yet has some useful features. For example, the sawtooth option used with amplitude modulation results in an old-fashioned repeated note effect, great for instant '80s effects, and not possible on my SY85. Pity it can't be sync'd to MIDI, although the manual lists the LFO's parameter value against its real rate, in Hertz; given a track's tempo, you could probably fake it. Each Voice also features a collection of common parameters, including portamento, ▶

Yamaha QS300

PRESET STYLES

As well as the more staid and traditional styles of auto-accompaniment, such as Foxtrot, Bluegrass, Country Ballad, Dixieland, Slow Bossa, Rhumba, Polka, *et al*, the QS300 makes a fairly good stab at some more current styles, such as Rave, Techno, House and Eurobeat.

Most of the preset styles are pretty authentic and certainly competent, though the so-called 'Acid 2' is a bit of a blot, and 'Ambient Pop' sounds suspiciously middle-of-the-road to me. However, if auto-accompaniment is your cup of tea, you're bound to find lots to please you amongst the QS300's 100 presets.

▶ mono/poly mode, and control of the three effects processors.

Sound editing has good and bad points. On the one hand, the large graphic display means that you can always see what you're doing — there are virtual knobs, sliders and envelopes everywhere. However, accessing these virtual goodies is a little awkward with the QS300's buttons. They take a little getting used to, and something as simple as muting Elements (to allow precise editing of other Elements) can be quite clumsy.

There seems to be some confusion about how many Voices the QS300 has. 'A lot' is the general impression, but Yamaha's literature doesn't agree on the exact number — the manual says 954, one brochure agrees, and another says 1106. However, you definitely have 128 Voice locations (plus one drum kit) for storing your own edits. The manual refers to numerous banks of sounds (47), made up of Preset, User and XG banks. XG, in common with Roland's GS (with which XG shares certain compatibilities), allows for a number of variation patches allied to each of the 128 main voices; these variations are arranged in Banks and are accessed externally by MIDI Bank Select commands. Not every GM Voice has a variation, and some have as many as 16, so although there may appear to be many banks, not all of them are actually full of Voices. Lastly, there is a bank of TG300-compatible Voices, but this is more of an alternative operating mode, and Bank Select, Voice editing, Patterns and Phrases are unavailable in this mode.

Just a quick word about QS300 drum kits: they respond to pitch-bend, unlike kits on previous Yamaha equipment. Hooray! A negative point ▶

SOUND STUFF

The quality of the QS300's sounds is uniformly high, with an emphasis on usable rather than simply impressive sounds — although lush new age-type ambiences are available. The General MIDI sound set is especially good, and is definitely a rival to Roland's Sound Canvas set. Some raw samples do have obvious loops and crossover points between multisamples, but these are only obvious when playing solo.

I particularly liked the analogue synth simulations (of which there are many) — User 25, 'Ambient AT', adds a brilliant two-octave swoop with aftertouch, and User 10, 'Seq+Sin-MW', is a great synth bass, with real-time control from the mod wheel. Realistic sounds are also well represented: pianos are generally good, solo wind instruments work well (especially the GM bassoon and oboe), and there's a healthy selection of ensemble strings. Drum kits are adequate, with only the GM Classic kit presenting a problem: the bottom C, where you would usually find a rich, boomy bass drum, is equipped with a 'blat', and there are no chromatic timpani. A much better bass drum appears at the B just below the bottom C (you need to shift the keyboard up an octave in Utility mode to get at it) and instead of timps, Yamaha have provided tuned jazz toms and hi-hats. A more useful orchestral kit appears in TG300 mode which, sadly, is inaccessible in any other mode.

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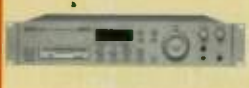
AKAI S2000



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> *"...the QS300 has more than enough features even without the styles, and at £1199 is actually cheap for a workstation."*

here is that the sole User Kit can only be an edit of one of the factory kits — you can't assign your own sounds to keys, which is quite disappointing.

• PHRASE & PATTERN MODES

On our journey up to Song mode — the sequencer — let's stop at Phrase mode. There are 3093 preset Phrases, identical to those found on the QY300, plus room for 100 of your own. Phrases consist of up to eight bars of drum patterns, percussion lines, bass lines, riffs and so on. You can record and edit each user Phrase as if it was a little 1-track sequence, complete with quantisation, velocity rescaling, transposition and so forth. The factory database of preset Phrases is huge and varied, but I couldn't help wishing that there were a few more User Phrases.

The next step is a Pattern, which is also up to eight bars in length but uses up to eight tracks. There are 100 preset Patterns on board (covering a wide range of musical styles), each of which has eight variations (Intro, Main A and B, Fill AA, AB, BA, BB and Ending), and there is room for 100 User Patterns (again, each with eight variations). Patterns are constructed by combining Phrases on a grid, and full accompaniments are assembled, along with chords, in Song mode.

• SONG MODE

Top of the heap performance-wise is Song Mode, where you'll find 10 sequences, each with its own 16-part multitimbral setup. Song Mode can be treated as a straightahead 16-track, linear, real- or step-time sequencer. You've got a limit of about 86,000 notes, standard 96ppqn resolution, and a host of editing facilities. The event edit list is fairly standard: scroll through the events, changing, adding or deleting as you go. The main innovation here is the graphic representation of controller events (pitch-bend, mod wheel, aftertouch, etc) and the ability to insert and edit System Exclusive data — the dividing line between software and hardware sequencing grows ever thinner.

And the surprises don't end there. Amongst the sequence editing 'Jobs' is an Undo facility. What a revelation — why don't workstations feature this more often? In addition, there's a variety of Song-specific Voice and Playback parameters. Again, similar to software sequencers, these parameters have no effect on the raw sequence data or the Voices as stored elsewhere in the instrument. They let you modify (per track) quantise, swing, transpose, clock shift, gate time and velocity; Voices can have their own Song-specific tuning and filter settings, amplitude EG, plus vibrato and velocity sensitivity. If a Voice isn't quite right, it's often enough to tweak it here rather than go for a full re-edit. Patterns also have their own Playback effects.

So far, so good. But what about those pesky Patterns? Well, in addition to the 16 sequencer tracks, there are separate Pattern, Chord and Tempo tracks. Not surprisingly, Patterns are chained on the Pattern track, allowing you to create an instant musical backing. It doesn't take Einstein to realise that if a Pattern can contain up to eight parts, adding them to a 16-track sequence means that 24 separate parts can be playing in any given sequence.

The Chord track allows you to record the chords that will be used to harmonise the Pattern track — 28 chord types are available, and you can even define a separate bass note for each chord. The Chord Entry page actually looks a little like a grid from PG Music's *Band In A Box* software. You can also input chords directly; in this so-called 'Fingered' mode, you use a specified stretch of keyboard to play any three- to five-note chords, which then harmonise the current Pattern.

So you've chained your Patterns, sorted out the chords, and you'd like to edit the results in a more sequencer-like fashion or save the Song as a Standard MIDI File. Trouble is, eight of your parts are tied up in the Pattern track. No problem: the Pattern and Chord tracks can be expanded to fill eight sequencer tracks (they spread out onto tracks 9-16, so make sure they're empty!). Note that they will now take up a lot more memory.

• EFFECTS

As mentioned earlier, the QS300 has three effects processors. One specialises in reverb, one in chorus effects, and the third (the so-called Variation effect) offers 42 different effects, including delays, echos, rotary speakers, phasers, guitar amp simulation, distortion and more. The Variation effect can simply behave as a third effect, though in Sequence mode it can also be used as an 'Insert' effect (*a la* W5/W7), selectable for just one Voice. Using this option means that any Voice which depends upon one effect — overdriven guitar, say — could be replicated within a Song's multitimbral setup. All the other parts would still have full access to reverb and chorus. So, you may not get the W5/W7's three floating Insert effects, but neither are you restricted to two global effects, as on so many other synths and workstations.

• DISK OPERATIONS

The QS300's 3.5-inch disk drive uses high-density or double-density disks, formatted to MS-DOS standard. Disk operations are easy to follow, with options to load and save all data, all user Voices, individual Phrases, Patterns or Songs, and MIDI Files. Interestingly, Voices can be loaded individually from disk. SY85 owners, and I'm one, are gnashing their teeth! It's also possible to load a new Song while playing the keyboard — in practice, you get the occasional glitch, but it keeps boredom from setting in between Songs.

SPECIFICATION

61-note keyboard, aftertouch and velocity sensitive.
240 x 64 dot backlit LCD.
3.5-inch DD/HD disk drive.
Stereo output jacks.
Headphone socket.
MIDI In, Out, Thru.
Foot control, foot volume, sustain pedal sockets.
SYNTH:
AWM2 synthesis.
32-note polyphony.
24-part multitimbral (16 Sequencer tracks + 8 Pattern tracks).
954 patches.
SEQUENCER:
10 sequences.
86,000 note capacity.
96ppqn resolution.
Standard MIDI File compatible.
PHRASES & PATTERNS:
3093 Preset, 100 User Phrases.
100 Preset, 100 User Patterns (8 variations each).

FURTHER READING

I've made reference to many other Yamaha products in the course of this review, as the QS300 has much in common with several past Yamaha instruments. If you'd like to fill in the gaps in your knowledge, the reviews for these instruments appeared in *SOS* as follows:

- Yamaha MU80: April '95.
- Yamaha QY300: August '94.
- Yamaha SY85: October '92.
- Yamaha TG300: March '94.
- Yamaha TG500: November '92.
- Yamaha W7: January '95.

Call Sally Thompson on 01480 461244 for back issue availability and pricing.

There remain a couple of anomalies: for example, when saving a Song as a MIDI File, you have to rename the data file — the QS300 doesn't just simply add a '.MID' file extender to your Song name. The drive itself is located underneath the left-hand side of the instrument, and the eject button works rather too well: you may find disks launching themselves at the floor if you're not careful. Note also that while the User Voices remain intact on power down, the same is not true of Songs, User Phrases and User Patterns — they *must* be saved to disk.

CONCLUSION

So that's the QS300. It's a comprehensively specified instrument, and even I (given to being hard on anything that whiffs of 'home keyboard') found more than enough to keep me occupied. And in spite of myself, I found the auto chord functions addictive. On a more serious note, the Phrase and Pattern modes could be used to produce custom sequence building blocks: programme your own drum parts, bass lines, arpeggios, riffs and so on, then harmonise them in Song mode. Expand the resulting Pattern and Chord tracks onto eight sequence tracks, and who'd know the difference? It's a fast, fun, and different way to work.

In general, the QS300 is easy to navigate around. Some may find the display a little busy, and moving around using the little buttons can be tiresome, especially since the Function keys under the LCD don't even line up with their screened numbers, let alone their virtual counterparts in the display. However, it's quite easy to get used to if you persevere. Quite what a newcomer would make of the QS, I'm not sure: if you're just moving up from a *real* home keyboard, be prepared for a degree of culture shock. Also be prepared for an eccentrically arranged manual, with more than its fair share of typos.

Whether you buy the QS300 shouldn't depend entirely on how you feel about auto-accompaniment. Certainly, a particular species of gigging solo musician will welcome the combination of styles and GM-compatible Standard MIDI File playback, allied to a truly good collection of sounds. But anyone in the market for a workstation wouldn't go far wrong either, since the QS300 has more than enough features even without the styles, and at £1199 is actually cheap for a workstation. Only Yamaha's SY85 currently costs less. The sounds and effects are great, editing is easier than on a lot of instruments, and the sequencer is very well-specified — you can't ask for much more from a workstation. SOS

FURTHER INFORMATION

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ELECTRIC ECLECTIC

MARK PRENDERGAST catches up with ace remixer/musician William Orbit to learn of his newfound passion for classical music.

WILLIAM ORBIT

My very first formal encounter with musicians in England occurred way back in 1984, when I met Will Orbit and his group Torch Song in a plush studio in Little Venice, London. Orbit had made some money working on oil rigs and had jumped into the music business with gusto. I had just moved to London from Ireland and a friend had advised me that Orbit had a way with sound which was unique. The rhythmic flair and mix of acoustic and electric sounds on 'Wish Thing' (Torch Song's debut) was enough for me to approach the *NME* with a story. But there was little interest in electronic music back then, in the year that U2 struck gold with 'Unforgettable Fire'.

Ever since, I've kept a dutiful eye on Orbit's progress. His wonderful *Strange Cargo* series of instrumental albums, which began in 1987, is now on its fourth instalment: *Hinterland*. Everybody knows he's got an incredible talent with low frequencies and timbre. Having embraced the dance scene with two amusing Bass-O-Matic albums and been the remixer of choice for the likes of Prince, Peter Gabriel, Madonna and the ever reclusive Kraftwerk, Orbit's newfound fascination is with the classics. Earlier this year he conceived an album of reconstructions of various pieces by Satie, Ravel, Part, Gorecki and Barber. The album *The Electric Chamber: Pieces In A Modern Style* (N-Gram) is a tour-de-force; a virtual blend of electronica with the compositional force inherent in those great 20th Century composers. Just before it was due to come out, the publishers of Arvo Part and Henryk Gorecki blocked its release. Even a special Royal Festival Hall concert had to be rearranged at the eleventh hour due to legal problems. With the album still to come out, an exhausted William Orbit spoke to me in his North London home before taking a well-earned break in California.

PROFOUND MELODIES

With his track record in electronic-based music, my first enquiry related to why Orbit had taken an interest in classical acoustic music at all? ▶

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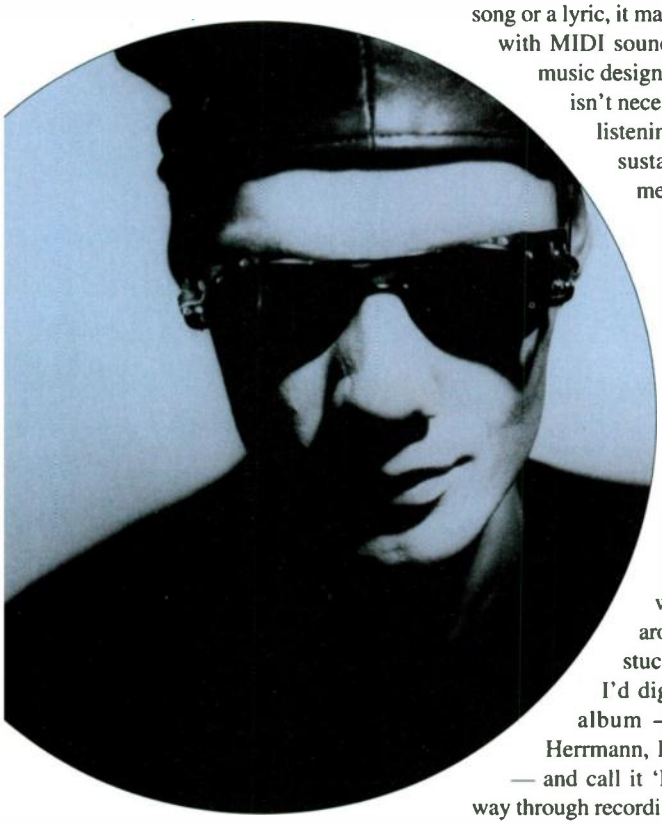


"It's not so opposite. If you think about not being constrained by a vocal or the need to have a song or a lyric, it makes sense. I can only go so far with MIDI soundscapes and the thing about music designed for instant impact is that it isn't necessarily sustained after several listenings. I believe the only way to sustain depth is to use profound melodies."

Orbit admits to having been introduced to the new simplicity of Arvo Part by the chairman of Warner Brothers, Rob Dickens. "Yes, he's helping me with N-Gram recordings [a subsidiary label for Orbit's creations]. You see on *Strange Cargo 3* (Virgin) I did a version of 'Harry Flowers' (from the Mick Jagger film *Performance*) which is spoof muzak. I played around with it for three days and stuck it on the album. I thought I'd dig up more stuff for my next album — by Nino Rota, Bernard Herrmann, Lalo Shifrin, Henry Mancini — and call it 'Elevator Music'. I was halfway through recording it, in a little beach house in LA, when I realised it was too schlocky. I came back to England a little bit down and Rob Dickens sent me a tape of 'Cantus', by Arvo Part, and some of Gorecki's music. It just blew me away."

Two years ago Orbit used to spend some of his limited spare time playing records on the West Coast KCRW radio station. One track he loved to play was Samuel Barber's 'Adagio', which has nearly been turned into a cliche by association with Oliver Stone's film *Platoon*. In the context of the experimental dance music he was playing on the radio, Orbit thought he'd cause an outrage. "Every time I played it, I got phone call after phone call. I thought I'd get howls of protest for re-contextualising a national institution, but that simply wasn't the case. Listeners were actually moved by it."

Pieces In A Modern Style is incredibly faithful to the original music yet the textures are electronically generated with hints of house music, Tangerine Dream and Pete Namlook popping up along the way.

"A guy called Damian le Gassick helped me with all the notation. He can read music but I cannot. Some things are more tinkered with than others. The Barber piece is very untinkered with, apart from a little bit of textural change — an octave down with the low cellos, stuff like that. Every single piece of notation was redone; Damian just entered all the notes in the computer. You know, there's a terrible precedent for this kind of music. I was warned I was treading on heavily polluted ground. People mentioned Deep Purple's 'Concerto For Group & Orchestra', so I had to be careful."

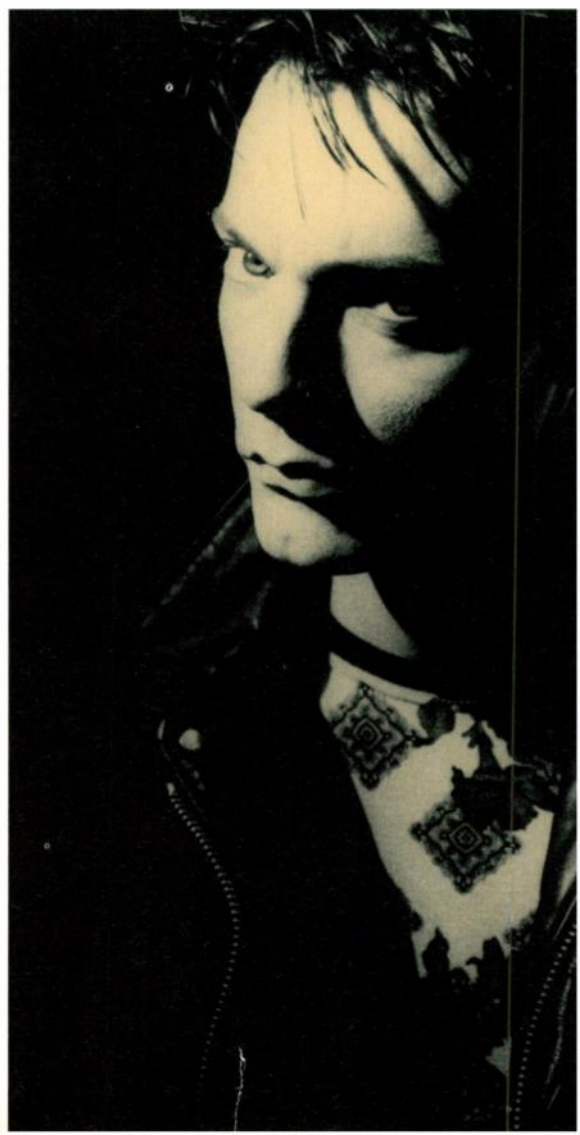
> *"Remixing is just re-telling the story with different characters."*

IN CONCERT?

Orbit admits to being fed up with records and remixes. He now wants to go the live route. Recently he debuted *Pieces In A Modern Style* at the South Bank, London. "It was my big moment. Bass-O-Matic being in the charts, working with Ralf Hutter didn't mean as much to me as this. The concert was sold out 12 days before the actual performance. Yet on the night we couldn't perform the Part and Gorecki pieces, because their publishers objected.

"So we had to put together a makeshift repertoire at the last minute. Philip Glass allowed me to do something of his instead.

"It was divided into chained segments. I could have gone on stage and chained up my sequencers,



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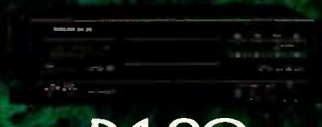

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▶ loaded up my samples, and done the whole thing with keyboards, but that's just a cop-out. I had two excellent drummers, a string sextet, a wind section, and lots of unusual sound sources like garden implements — a strimmer and plastic tubes sawn up, great big bass drums on stands, some keyboards and five vocalists. There were about 21 musicians on stage. Also a film was running overhead, all sync'd up using SMPTE. I also had this live rack built for the stage; this huge great thing which took up a lot of space. It consisted of a series of flight-cased suspension mounted steel housings all linked by military spec connectors. All very ambitious."

REMIXING

Orbit is famous for spending a lot of time on timbre, whether it be his or other people's. "Remixing is a terrible road to go down," he admits. "You're mixing your bollocks off and running out of ideas all the time. The last thing I did was by this French guy called Hector Zazou, a track called 'Adventures In The Scandinavian Skin Trade'. Remixing is just re-telling the story with different characters.

"I usually draw the sounds off the multitrack tape into my system. Every remixer has their own system and you can incorporate whatever you want into that. Most people have data collated on some sort of computer system, whether it be *Cubase*, C-Lab, or some sort of Mac-based system. I still use *Cubase* on an Atari Mega 2, though I've now also got a couple of Macs. Everybody's got their preferred sound sampling and sound creating equipment. I've got an Akai S3200, and these days I load everything into that and run the whole mix through the stereo outputs and into a couple of valve compressors. I compress it heavily and use everything onboard the S3200. It runs very well and maintains the phase coherence, improving the impact of the sound. I still use my old Trident 80B desk. I love it!"

CARRYING A TORCH?

Torch Song — Toward The Unknown Region and *Strange Cargo — Hinterland* are just two of Orbit's N-Gram recordings released this year. *Torch Song* glides along in an ambient house sort of way with Laurie Mayer's vocals providing the icing atop a multi-layered cake. *Strange Cargo* is more compact and instrumental, with a greater emphasis on rhythm and dub with plenty of Orbit's trademark acoustic guitar chords.

I put it to William that over the last decade he appears to have been trying to perfect the same album. "Yes, maybe. *Torch Song* was done over 10 years ago. They were all songs to start with and then I wittled them down. And we just kept taking things away all the time, until there was just a hint of the original song left. Laurie is really good at that. She comes in and says 'take that away', 'take this away'. It's a process of reduction, really.

"*Strange Cargo* is my little indulgence really. It's just me going on my little journeys. Still I've got some criticisms of that album. There are points I'd do differently or do again if I was going into the studio tomorrow."

MILITARY SPEC

Orbit is really enthusiastic about his new portable studio. He says he's "had it" with being stuck in a room and may well record on the move in future.

"My customised rack houses all my Macs and is stuck in storage at the moment. What's really new are the military spec connectors on there.

"I use my own little techniques with common-or-garden equipment which you can buy off the shelf. Anyone could do it..."

ORBIT KIT

William Orbit maintains that most of his gear hasn't changed much since he was interviewed by Paul Tingen in *SOS* Oct 1991, and that includes his Klark Teknik graphic equaliser, Roland Dimension D, and his much-loved Trident 80B desk.

"I haven't the faintest idea how to work many of the things I see in your magazine. Things like the Wavestation and the Yamaha ProMix — I just haven't the time to get into them.

"I like the Novation BassStation, though. I bought one for about £200 — it's excellent. I use a lot of valve equipment these days — amps, limiters, compressors. The Drawmer 1960 is really revolutionary to my sound. I've got three now, and if I could really afford it I'd have a whole rack of them! They're deep and they make everything sound like an old record. You read about these Pultecs and Fairchilds, but they're around £3000 a pop. The 1960 is only £800 or so and you can stick it across the output of the Akai and the sound is just amazing.

"As far as keyboards are concerned, I still love the Roland JD800 and Juno 106. In my time I've had Jupiter 8s, Prophet 5s and SH101s. Some have gone by the wayside, but I still think the Yamaha DX7 is an excellent synth. It's been rehabilitated now. When it first came out, it was striking in its difference and cut through everything. It then became unpopular, simply because its sound was overdone. Now it's a great synth once again. If you can find a DX7 with a full MIDI spec, then grab it.

"People shouldn't really get too hung up on any particular item. It really is to do with the way you see sound and the way you position sound — the dynamics. It's a real light and shade thing. It's the silences, the spaces. That's where the real melodies are. The instruments themselves are irrelevant, they could be anything."

They cost me enough money. It's the same spec as the guys use in the Navy for soldering up radar connections to ships. And military spec costs three times as much as the same component sold in standard spec. Now I can go down to Glastonbury and a guy with a huge multicore can say 'plug it in there, mate' and immediately you are coming up on his desk. There's no farting around with stage boxes. It means I can have a dialogue with these hardened stage guys, because they know you are serious."

NEW DIRECTIONS

Orbit is a bit disgruntled by his lack of fame. When *Strange Cargo 3* came out in 1993, he was shocked that it got little push from his then record company, Virgin. Yet it sold 100,000 copies worldwide. Orbit sees no difference between a large record company and a small one. His passion is still for the music, not the hype. New live presentations and "unexpected happenings" are predicted for the future.

"I admire Part and Gorecki for going back to the old traditions and also for so successfully spurning Serialism and the traditional harmonic structure. That's the key to their success and why Gorecki has sold over 250,000 copies of his 5th Symphony. I love the geometric design of Part's music and even though I may not be allowed to release it, it was an experience just to do it."

"Really, I've been working towards leaving aside the technicalities for a number of years. Getting more and more simple. Creating mixes with less and less inputs on the desk. The next thing I want to do is to write something which builds up line melodies, like Philip Glass did with *Glassworks*, using triplets. I don't want to sound like Philip Glass but want to experiment with melodic structures rather than sound structures. Sounds are easy. I've got warehouses full of sounds. I use my own little techniques with common-or-garden equipment which you can buy off the shelf. Anyone could do it, but I'm not going to divulge how I get most of my sounds. It's my little secret."

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demo DOCTOR

If you'd like our resident specialist JOHN HARRIS to review your demo tape, just send it on cassette or DAT, with recording details and a photograph, to: Demo Doctor, Sound On Sound, PO Box 30, St Ives, Cambridgeshire PE17 4XQ.

MICHAEL J CRAIG

Recording Venue: Shade Studio, Berlin.
Recording Equipment: Tascam MM1 mixer, Atari 1040ST computer running C Lab *Creator* software, Yamaha NS10M monitors, Yamaha P2040 amp, Tascam DA30 DAT, Alesis Midiverb II effects.

'The Spirit' is the title of this CD by Michael Craig, who is currently based in Berlin. Michael says in his letter that he is trying to create an orchestral wash — a kind of 'synthesizer orchestra' with a leaning towards atmospheric ambience.

The title track certainly brings out the textured feel, with an emphasis on strings in the foreground and ambient noises to the back of the mix. The latter are given their depth with reverb. More brassy sounds lend weight to a mix which builds nicely. In order to fuse the sound more, delay could have been used with the strings. With a low effects return mix, no obvious repeats will be heard, and the sounds will blend in a more mellow way than can be achieved using reverb. Reverb, unless it is really good quality, needs heavy editing to compensate for the harsh mids and fizzy HF it adds to the tonality of the mix.

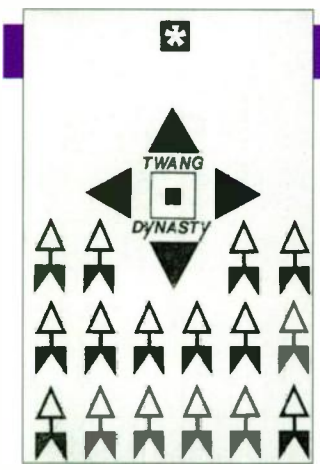
The mixes are clear — as they should be for triggered sources recorded direct to DAT. A bonus is the fullness of sound in the bass end through texturing of string and brass. Dynamics are also well in evidence on this album. Take the first appearance of piano on 'Dreams Of Light', which punches through the mellow swirl of synthesized strings to make its point and then disappears.

My favourite track was 'The Stars', and that's not just because it had a rhythm track. The carefully arpeggiated synthesizers are placed cleverly in the stereo to catch attention and draw the listener into the mix. I was curious about the lack of synthesized wind instruments on this album, but the preponderance of strings does lend a certain continuity. ❑

top tape

Readers submitting demo tapes should note that SOS regards the inclusion of photos or artwork with demos as permission for the magazine to reproduce this material free of charge, as illustration, with any review of the accompanying tape.

TWANG DYNASTY



Recording Venue: Unknown.
Recording Equipment: Fostex R8 8-track recorder, Atari STE computer running *Cubase* version 2 software, Soundcraft Spirit 16:8:2, Alesis 3630 compressor and Quadraverbs, Aphex big bottom aural exciter, Denon DTR80P DAT, Yamaha NS10 monitors, Kenton Pro 2 MIDI to CV converter, AKG C1000S and Shure SM57 mics.

Twang Dynasty's demo opens effectively with a looped sample of a very girlish voice singing softly in almost operatic style. The track gradually builds instrumentally from the almost obligatory rave-style twanging filter chords to the full compliment of sine wave arpeggio and melody. A low growling synth assists this build. The drums are very well programmed and the balance good. The kick drum (when it arrives) is a standard rave four with a fat, dullish sound, and the snare fills on the offbeat between two and three. This is pretty standard fare really, but very well done, although it's a shame that the cassette level is far too hot on this track, pushing the sound into distortion.

The second track begins with a suspended chord and the sound of running water and birds singing — possibly taken from a jungle noise CD (as in the Congo, not a jungle mix CD). I thought the synth (or sample) mimicking the bird song was a nice touch — pretty subtle, therefore tasteful. Once again, the operatic singing theme is picked up, this time heard atmospherically in the background with plenty of reverb. Heavily reverbed piano takes over when the vocal drops out. This track also includes some whispering — echoed, panned and sometimes pitch changed. A slight tension to this otherwise ambient composition is provided by the sixteenth note synth with gradually opening filter. This track sounded great on the headphones and would make excellent late-night mellow listening. ❑

As an incentive to send in your best demos, 3M are kindly providing prizes for the best tape submitted each month. The lucky winner has a choice of: 20 Scotch XSII-S high-bias C60 cassettes, 10 3M DAT 90 digital cassettes, five reels of 3M 996 quarter-inch tape, three reels of 3M 996 half-inch tape or two reels of 3M 996 one-inch tape. Designed to accept very high recording levels without distortion, 3M 996 tape is packed on precision NAB reels and comes in tough, attractive library cases.

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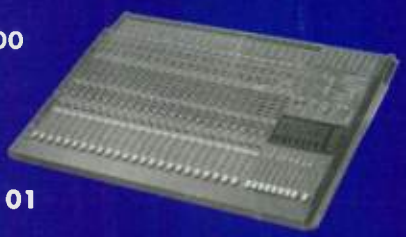

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demo DOCTOR

The Demo Doctor receives a huge number of tapes and CDs every week here at SOS, and certainly does his best to review them as soon after they arrive as possible. There is inevitably some delay, but not usually as long as two and a half years — a big 'sorry' to Ian Livingstone for the wait!

Caught In A Time Warp

Dear Demo Doctor,

Many thanks for giving me a 'quickie' (demo review) in *SOS* Nov '95.

The problem is that I sent you my demo two and a half years ago (!!) while on the second year of a degree course in Music Technology and Composition.

The opening comment for this review ('Ian is hoping to break into TV and film composition') has been rather embarrassing for me. Since sending you the tape, I now run a production company (MTS) writing music for multimedia and AV. (Recent clients include American multimedia software house Electronic Arts, Labyrinth MIDI-Music, various local advertising companies, and so on.)

Amongst other embarrassments, the equipment list published with my review is rather out of date — I now use a very expensive PC hard disk recording system and state-of-the-art MIDI suite — not the Atari with U110 and Sound Canvas mentioned in the review!

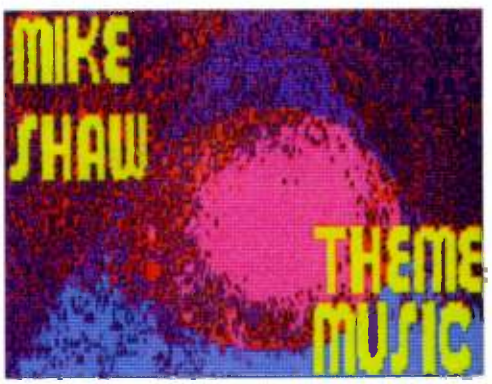
I know a number of my clients have expressed concern, so I would like to reassure them that this was just an unfortunate mishap — business continues as normal!

Ian Livingstone
Music Technology Services

MIKE SHAW

Recording Venue: Home.
Recording Equipment: Atari 1040 STFM computer running *Cubase* version 3.1 software, Fostex 280 multitracker, JL Cooper PPSI synchroniser, Boss BX60 mixer and SE50 processor, Tandy PZM microphone, ART Multiverb and Alpha 2 processors, Ibanez DD1000 digital delay, Sony TCD D3 DAT, Sharp RT 10 cassette deck, A&R Cambridge A60 amp and Heybrook HB2 speakers, Sennheiser HD480 headphones.

Aiming at the theme music market, Mike's opening piece leans towards the jazzy, rock-style music of the popular television series, Bergerac — its stylish chords and a fine lead guitar



sound, courtesy of the Award Sessionmaster pre amp, conspire to give this impression. The guitar is treated by the Boss SE50 with what sounds like delay and possibly some light pitch change.

With the exception of the overdrive guitar, the sounds are quite small, and I suspect the mix is to blame for this. For example, on the second track, the bass synth is rather raspy with little in the way of warmth and low bass end. This is a problem exacerbated by the use of an exciter on the mix, which emphasises the upper mid harmonics. Generally, the balance is good, and although the sounds are not particularly full, they are clear.

The decision to compress the whole mix surprises me as most of the sound sources are artificial, which usually means that they are not a problem to control dynamically. The drums already sound compressed to me and don't lack punch either. The synth dynamics could be altered using velocity or compression-style functions on *Cubase*. The overdriven guitar is already compressed in the pre amp, leaving the clean guitar which could be compressed to tape. Perhaps Mike felt that the mixes should be heard by potential clients as they are likely to be heard over the TV or radio — that is, pretty compressed! However, if you check your meters on mixdown and they are averaging changes of only 3 or 4dB you certainly don't need to compress the mix.

Hopefully this tape will have some success as, although I have a few reservations, it is well played, arranged and programmed. ❑

THE FRUIT MACHINE

Recording Venue: Home.
Recording Equipment: Fostex R8 8-track recorder, Atari 1040 computer running *Cubeat/Pro 24* software, Studiomaster pro line gold 16:8:16:2 mixer, Monitor Audio R252 speakers, C-Audio RA 1000 power amp, Alesis Quadraverb effects, Lexicon Vortex morphing effects, Behringer Ultrafex enhancer and Composer compressor/limiter, Aiwa XDS 260 DAT, AKG D112 d1200E, Shure SM58 and TOA condenser microphones.

Prize for the best CD logo must go to the Fruit Machine for their bold blue design, which wraps itself endearingly around the central hole of the CD. Like many bands in the 'absence of any serious interest', they are doing everything themselves — and they have good reason to capitalise on their heavy gigging schedule.

'Eleanor' is the title of the opening track, which seems a strange choice to me. Although the chorus is strong, this track is by no means the best performed or recorded. The bass end is so heavy that I thought it was going to be a reggae track until the raucous chorus came in! The drums are up front and with a bit of presence that snare could be the sound of the moment — open and metallic. Good lively playing from the lads and a gutsy vocal performance set the mood for the rest of the CD.

A much better drum sound drives the second track along. This track must have been recorded at a different time because the clarity missing from the first is now present. A lovely crisp snare suggests that the overheads are also mixed louder. Not only are the drums improved, but the keyboards sounds are given more attention in the mix as well. The mellow organ is pushed up in level for the chorus and suits the overdriven guitar chords here as well as it does the chiming guitar of the verse. Again, the

bass end is a bit overcooked, but the dry vocal is an excellent production move.

Of the remaining tracks, the retro 'Shine' is the best and curiously, the heavy bass end suits this track, giving it the feel of some Portishead mixes. ❑

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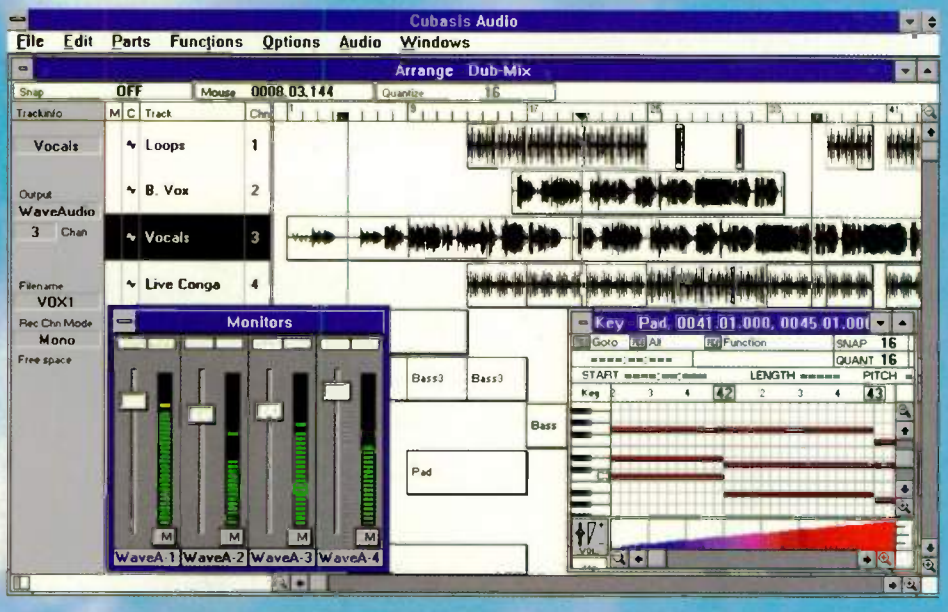

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demo DOCTOR

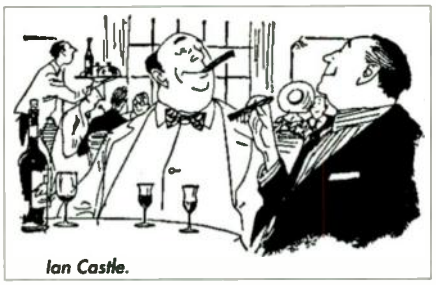
quickies

DAVID JAMESON. Believe it or not, this is the first tape I've reviewed which has contained a song about the National Lottery! Fortunately, David isn't pursuing any performer status, so it's not going to be inflicted upon the public, unlike the lottery itself! Entitled 'It Could Be You' (what else?), the song trips along merrily enough, but is a bit too much like a lot of other songs I've heard on the clubby side of MOR. Considering David hasn't had much recording experience, the quality of the mix is quite good, with a well-balanced rhythm section and an up-front vocal. The electric guitar could be louder and the drum programming more adventurous, but otherwise David has made a very good effort.

PHILTER: Despite the rather naff name, synth duo Mark Rodway and Sim Tucker have produced a decent demo. Their strength lies in the songwriting and arrangement, shown by some nice key changes and little twists. The first song, for example, moves effortlessly from a verse in E flat minor to a chorus in B minor. The middle eight, in D, is an obvious but effective move, but it is the change back to E flat minor that provides the crowning moment of this moody piece. Unfortunately, there are some dodgy notes in the pitching department from both Mark and backing vocalist Lisa Tomlinson. The overall recording quality is okay, but the mix sounds a little thin and bass-light. More weight in the bass synth could be achieved if an analogue sound was used, but if Mark wants to keep the cutting edge of the digital bass, then it could be layered with another, fatter bass patch.

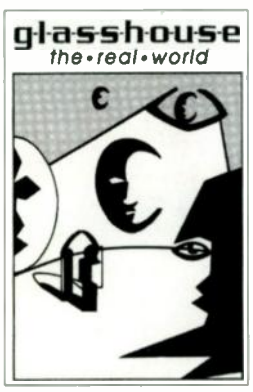
MIKE HAMILTON: All Mike's compositions are written using a Roland U20 and an Amiga A500 which sequences and plays back samples. Mike masters to a cassette machine and then worries about the quality of the master. This demo was recorded onto TDK chrome tape and mastered without Dolby. The recording was clear and of good quality, and because Mike has mixed the hi-hat quite loudly, it effectively smothers any noise present on his non-Dolby cassette — so, don't throw your cassette machine away yet, Mike! Musically, the third track is by far the best as it takes sampled sounds well away from their original pitch and uses them in both melodic and percussive ways. With a bit of effort in the drum programming department, a harder club mix could result.

IAN CASTLE: Using a minimal set up, Ian has recorded some instrumental music that he admits is "intentionally simple and repetitious". Despite this limitation, the ideas do have some merit. The first composition rejects the usual drum backing in favour of a programmed conga groove, against which an


Ian Castle.

echoed organ pattern and wah guitar work particularly well — they just need some developing. The second track has some really nice heavily chorused guitar, and a sparse pentatonic keyboard line which sounds very Japanese. The echo treatment gives both instruments a dreamy feel, and the lack of bass synth emphasises the lightness of the production. Some more weight in the kick drum (achieved by using an Alesis rap kick, for example) could produce an alternative heavier mix if desired.

GLASSHOUSE: Heavily influenced by Gary Numan, Glasshouse have in fact toured with the po-faced one twice. Despite this and a very classy demo, they still haven't been able to secure a deal in this country. My advice would be to look to mainland Europe where the attitude to music is somewhat healthier and more open minded. Geoff Pinckney's strong voice comes across well, and although the material is impressive, the production is pretty dated. Given what's happening now in the dance rock scene, I think Glasshouse should look again at their writing and recording style.



PSYCHOACOUSTIC SOUNDCLASH: Describe themselves as "combining military surplus electronics, dub beats and ambient grooves....playing nice cop/nasty cop inside your head". They also have some connection to SLBC who I recently reviewed, or perhaps they are SLBC — it's hard to tell from the letter. I thought the music might be a giveaway, but no. The opening track, 'Resistance Of The Sell Out' moves effortlessly into the second, entitled 'Rotordub'. Of the two, the latter has the most to recommend it, with its interesting tribal-style beat, a heavy and hypnotic emphasis falling at the beginning of every bar. The synth sound alternates between ethnic flute and radio tuning impressions. Messing with the filter and EG intensity can produce such sounds while the resonance is high, and the added echo helps. The drum groove is dub mixed with some occasional low bandwidth reverb splashes and a nifty reverse reverb as the bass line picks up towards the end of the track. Subtle groove and sound changes keep the mix flowing.

MELISSA DIABEL: The five songs on this CD were professionally recorded in a studio in Australia where Melissa is based. All the tracks feature her singing and playing piano, and she's joined by her band for all but one of them. I'm not quite sure which market this is aimed at, but I'd say Melissa's theatrical work has had a big influence on her style — the heavy vibrato and trained voice rather give this away. In places, Melissa sounds alarmingly like Kate Bush — a comparison that is to her disadvantage if she wants to get on in Britain. Instrumentally, the band play well — the line up of drums, bass, piano and acoustic guitar producing a theatrical rather than pop sound. With electric guitar, things would have been different, giving an edge to the production that her strong vocals can certainly match. ❑

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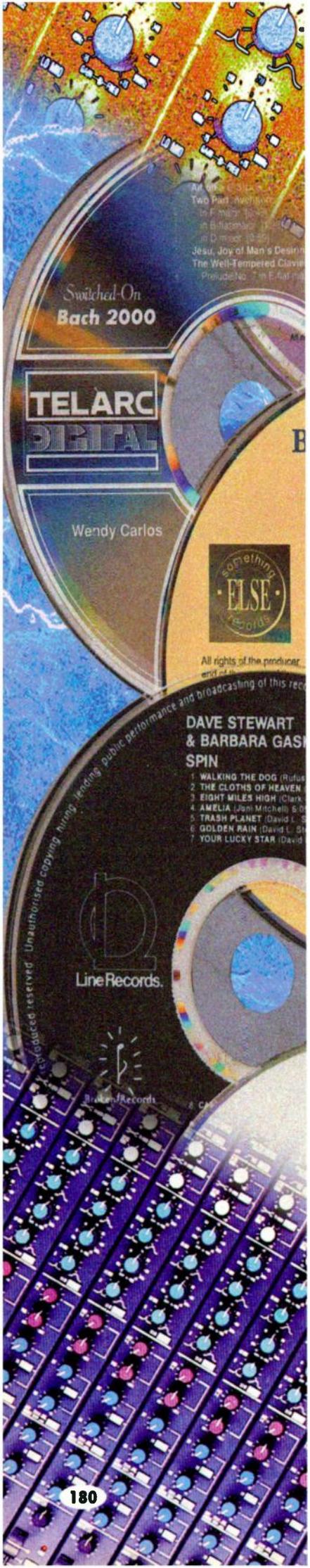


How to become a Record Prod

A record producer's career is seen as glamorous and exciting, but what does the job actually entail? Over the next few months, DAVID MELLOR will be talking to top producers about the whole process, from initial concept to final pay cheque. This month he looks at the different types of record producer in the music business.

PART 1 — WHAT IS A RECORD PRODUCER?

In the course of my work I meet literally hundreds of young people who want to get involved with music and sound engineering in one way or another. When asked what their ultimate ambition might be, "To become a record producer" is probably the most common reply. But out of every hundred people who want to become record producers, perhaps only one has the raw talent. Out of a hundred people with the raw talent, only one will have the determination. And out of a hundred people with the raw talent and determination, only one will ever get the opportunity! Only a small proportion of people who ever get a production credit go on to make a serious and lasting career as a record producer, so why is it such an attractive option? I have to say that the vast majority of people I meet who want to become producers don't seem to have much idea of what the job entails. They are attracted by the glamour of the record industry, by the possibility of socialising with the stars, and by the prospect of a fat pay cheque at the end of each successful project — the three myths of record production, one might say. To take care of each of these myths in turn: the glamour in the music industry is created by a massive publicity machine for the benefit of the public at large. For the people working in the industry it is just an everyday job — an immensely satisfying and enjoyable job perhaps, but certainly not glamorous. The idea of mixing with the stars may be initially attractive, but once you have met a few, you begin to realise that they are mostly pretty ordinary people. They may happen to have an extraordinary talent in one way or another, but they are still normal human beings in every other sense. As for the final point, there are certainly a number of people who make a lot of money out of music, but the vast majority probably don't make as much as they could in an 'ordinary' job. For instance, if you were among the top 10% of songwriters and composers, you might still not earn enough money to call it your living.

I think the best way to discover exactly how a record producer earns a living is to look back in history to a stage where a recording was seen as a live performance captured on vinyl, rather than the studio constructions that are now the norm. (I should note at this point that while the jobs of record producers and music producers are very similar, I will be thinking about the record, or more likely nowadays the CD or cassette, as the end product, rather than the music produced for film or broadcasting for example.) In those days it was pretty much taken for granted that an act that was worth recording could perform, and nothing more

than the performance was needed for the record. All that was necessary was a studio, and perhaps a little musical help in the form of an arranger, musical director and session musicians. The project was overseen by the A&R (Artists and Repertoire, or Artists and Recording) department of the record company to make sure that everything was progressing as it should. Effectively, the A&R manager was the producer, and to a certain extent modern A&R departments still have a significant influence on how a record is produced. Gradually, the process of recording became more of an act of creation in its own right, rather than the

ucer

replication of a live performance, and producers began to split from record companies to become freelance workers, or set up their own production companies. George Martin was the first producer to follow this route, leaving EMI Records in the mid-sixties to set up Associated Independent Recordings (AIR), and leasing his services back to the record company he had just left.

KNOW YOUR PRODUCER

I have discovered a number of distinct types of record producer and think it is worth covering each of these in turn.

• ENGINEER PRODUCER

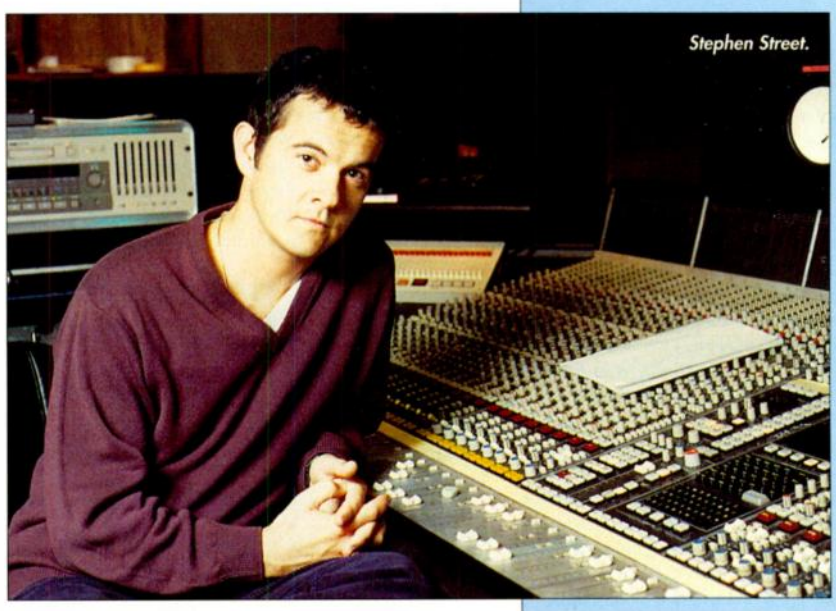
One of the great myths about record production is that you need to be a genius with studio equipment. This is absolutely not true, because the equipment is only a means to an end. If you can achieve your musical goal with a little bit of technical knowledge, then why should you have to know every last detail about every piece of equipment in the studio? Remember that equipment is designed by electronic and software engineers, not music recording engineers, and although most manufacturers do their utmost to ensure that their products are exactly what recording engineers need, inevitably most modern pieces of equipment offer a range of functions far in excess of real life practicality. The key to engineering is not technical knowledge, it is knowing when something sounds right, and what's more, knowing what to do to make something that sounds almost right, exactly right in its musical context. So, if you know how to route signals around a mixing console and can operate the basic outboard equipment, the rest of it is really down to listening. Your ears will tell you which microphones to use and where to place them, they will also tell you when to use EQ and compression, and which settings to use. As you develop your experience, you will instinctively know when a musical idea is working and when it isn't. I don't believe that you need to be a musician to develop from an engineer into a producer along this route. Any engineer will start by learning the basic equipment operation and how to spot technical faults in a recording, such as excessive noise, clicks or distortion. The engineer producer who lacks conventional musical skills will probably work with a band that can supply all the necessary musical knowledge, and translate their work from a brilliant stage performance into an equally effective studio recording.

• MUSICIAN PRODUCER

As long as you can communicate effectively and have a basic awareness of what the studio equipment can do, you don't actually need any technical knowledge at all to produce a record. This point is more easily understood if you think of the director of a TV commercial. He will be very visually aware, and will know what can be achieved with telecine and digital video effects. He cannot be expected to be a technical expert, but as long as he can communicate clearly with the telecine operator and digital artists, the result can be visually amazing. So, the musician producer needs to know what can be achieved in the studio, but someone else will be pushing the faders. A musician is obviously in a much better position than an engineer to know how to put together a piece of music for a recording from scratch, but the one thing that successful producers from either field have in common is that they have a clear image in their mind of the importance of the final product.

• EXECUTIVE PRODUCER

As well as the engineer producer and musician producer there is a third type, which I shall call the executive producer. The executive producer doesn't know anything about engineering or about music, but knows the right people with the ▶



Stephen Street.

PRODUCER'S VIEW — STEPHEN STREET

Stephen Street is a producer with both a musical and an engineering background. Bands he has produced include The Smiths, Blur, and The Cranberries.

• MUSICAL VERSUS ENGINEERING SKILLS

"I would say that to be a producer you have to be 80 to 90 percent a musician. There are people who are especially good at knowing how to balance sound and I suppose their career really should be more in mixing rather than production."

• THE SSL MIXING CONSOLE

"I reckon I only use about 60 to 70 percent of what it's capable of, but that's enough for me to know what I what it to do. Ergonomically, I think the SSL is a very well laid out piece of equipment and I think the computer is very easy to use. I have learned it well enough to know how to do what I want to do."

• GETTING WORK

"Normally acts come to me, but the one exception was Blur. I heard their first single and said to their manager, 'I love that band and I would like to work with them if they are looking for anyone'. They were going to carry on using the same guy they had used for their first single, but in their next session it didn't quite work out, so I got a call asking if would like to have a go. I went in with them and it was a success straight away, and I have been with them for four albums now."

How to become a Record Producer

necessary technical and musical skills to handle all the elements of production, and most importantly, knows when something sounds right. Executive producers don't need to be present all the time in the studio, they just need to hear work in progress occasionally. Their instinct will tell them whether the product is marketable or not. DJ's often find their way into production along this route as they are in an ideal position to know what will, or will not please an audience. The difference between something that sells and something that ends up on a cut price market stall may be incredibly small, but the DJ will usually be able to tell.

• FREELANCE PRODUCER

Any type of producer may work as a freelance producer. In this situation, a record company might have signed a band or act and be scouting round for someone to co-ordinate them in the studio. Obviously, all the producers know the record company A&R people, and the A&R people know who the key producers are. Matching an act with a producer is an important A&R skill. Sometimes the decision will be made on a 'flavour of the month' basis. If a producer has had a series of successful records, then he may be seen as being on a roll and the next production will be a big seller too. The act and the producer must also be compatible in some way, though. Perhaps they will share the same musical vision and have a deep understanding of the style of music in which they work. They may get along well together because they are musically in tune, or the band could be wilful and potentially difficult to work with. The producer must be capable of exercising a degree of control to shape the band into something that will work on CD as well as it does on stage. Maybe an older and more experienced producer will have more respect in the band's eyes, or maybe they need someone who is able to share their vision and will simply smooth over the rough edges. The freelance producer will be paid by the record company (who will get that money back from the band's share of the eventual

PRODUCER'S VIEW — MIKE PICKERING AND PAUL HEARD OF M PEOPLE

M People don't use a producer. Co-writers Mike Pickering (the band's founder) and Paul Heard produce themselves, starting in their home studio working out ideas and laying down basic tracks, and moving to Studio One at top London studio The Strongroom for recording.

• INVOLVEMENT IN PRODUCTION

Paul Heard: "I was the bass player in Orange Juice (with Edwyn Collins) for about two years and I was working more and more in the studio with Edwyn. Because I was comfortable in the studio and had some good ideas, I started becoming more involved in production."

Mike Pickering: "I got involved when I was with Factory Records — I was in a band and we couldn't afford producers. The first real production I did myself was for Happy Mondays. It's a process of finding out and learning in the studio."

• M PEOPLE

Mike Pickering: "M People was my project initially. I was doing so many productions and remixes, I wanted to be more on the creative side. I wanted to do an album of songs with people I liked. Heather (Heather Small, M People's vocalist) was one of the people I wanted to work with and it just clicked."

Paul Heard: "M People is completely self contained — we write and produce everything ourselves. We have never worked with a different producer. The last 10 years have been a learning process. The more you are in the studio, the more you learn."

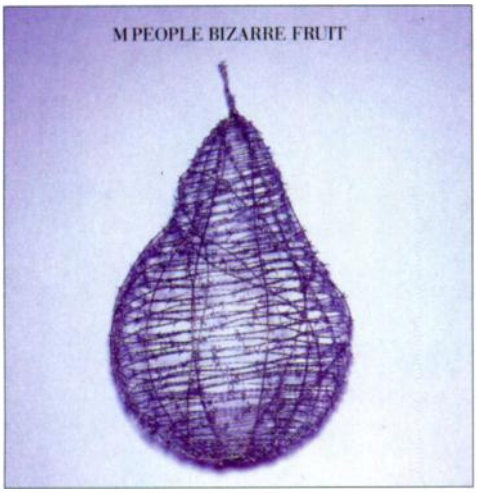
• RECORDING TECHNOLOGY

Paul Heard: "We have been recording for a number of years and have built up a team where everyone is comfortable with their roles. We have an engineer and a programmer who we often use. They know our sound exactly — what kind of equalisation and what kind of compression. They work towards the sound they know we want to hear. It's important to know what the technology can do, but I'm not that interested in being 'hands on'."

Mike Pickering: "I understand what the equipment can achieve, but it doesn't really suit me and I don't really bother with it. I prefer to work with Paul, standing by the piano with a dictaphone or small tape recorder on top. He'll play chords and I'll sing what I think. If you are using computers you tend to start with the track, but we like to concentrate on the melody. We use a programmer for sounds. We ask him for a certain sound and then leave him to it for half an hour. If you spend all your time looking at a screen, it dulls your creativity."

M People.

Photo: Kate Garner



profits), and he is then free to go on to work for another record company.

• ENTREPRENEUR PRODUCER

'Entrepreneur producer' is a title I have invented to cover the type of producer who initiates a project and then sells it to a record company in the form of an act with writing, recording and management already in place, or as a partly developed idea working towards the same end. Either way, the producer will be at the top of the food chain and will receive the lion's share of the rewards. The project could be a band in which the producer takes the roles of songwriter and musician, with a front man or woman to handle the vocals and provide a focus for the marketing machine to work on. Alternatively, the producer might be an engineer or musician who takes on the role of A&R scout and looks for a band or singer to work with. There will probably be a certain amount of investment involved, since the band will need studio time and promotional material. The entrepreneur producer will need to be able to promise the band or singer the earth, and give the impression that he is capable of delivering it. A track record of success will of course help! One of the advantages of working in this way is in the payoff. Not only is the entrepreneur producer entitled to a larger slice of the financial cake, he is also in control of an ongoing project, rather than staggering from one to another.

By now I'm sure I have put off anyone who is attracted to record production for the wrong reasons, but for those of you who are still interested, I hope that by the end of the series you will have a better understanding of the steps you should take in order to follow a career as a producer. In Part 2, I will be discussing the selection and development of material, pre-production, and rehearsal. SOS

ABOUT THE AUTHOR

By day, David Mellor is a composer of production music, technical writer, lecturer and sound engineer. By night he attempts a synthesis of classical, gothic, avant garde and jazz musical styles, recording as The Days Of The Moon and, collaboratively, as Evil Twin. He has never been very good at sticking to a 9-5 job!

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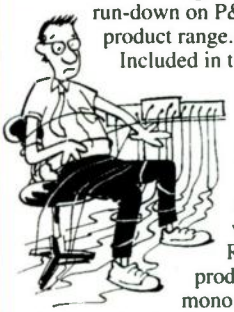

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All change at Charing Cross...

TURNKEY MUSIC TECHNOLOGY SUPERSTORE

All manner of rackmount modules can be assessed at these 'workstations'.

The *SOS* team were recently invited to the reopening of Turnkey's music technology sales facility in London's Charing Cross Road, where we were treated to a tour of their newly installed demonstration and evaluation facilities by shop manager and director Rupert Pfaff. The store is owned by John Arbiter, who literally grew up with music retailing. Day-to-day management of the store is handled mainly by Rupert, who recently also had to deal with the upheaval of integrating the company's guitar retailing side into the Charing Cross premises, which necessitated the leasing of an extra floor of the building. Bringing guitars and hi-tech music equipment under one roof was obviously a good move, since the guitar business has increased significantly due to the cross-fertilisation between the hi-tech and guitar areas, and guitarists are now coming in to check out recording gear.

Cassette multitrackers anyone?

PIONEERING TRADITION

This latest incarnation of the store was in part inspired by the way top hi-fi dealers and computer stores do business. Rupert explains:

"Turnkey has a pioneering tradition and we felt a need to take the presentation of the technology to the next level. The company's founders were instrumental in the development of low-cost recording products for musicians and, indeed, the basic concept of the personal studio. Tascam's 144 (the first ever Portastudio), Seck consoles, Accessit effects and many of the Fostex products from the early 1980s were largely Turnkey concepts.

"The pro audio trend is to demonstrate products by appointment, but we've opted for a more flexible approach where all the major products are permanently wired up so that the prospective purchaser can make direct comparisons. If you do need to spend a whole afternoon checking out Pro Tools or some other sophisticated system, then our basement studio is available. But computers in particular have meant that a much broader spectrum of users, from CD-ROM authors ▶

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Turnkey's quiet, air-conditioned, Studio 1 facility is located in the basement.

Nick Thomas (left) and Rupert Pfaff, with the Waldorf Wave synthesizer.

One side of the studio room where rack equipment, monitors and mixing desks (including the new Yamaha 02R) can all be directly compared.

▶ to secondary school music teachers, are becoming involved in music production, and getting a product demonstration shouldn't be an uphill struggle. From my viewpoint, I hope the 'ivory tower' music store is finally on the way out. You don't have to take the whole day off work or be a platinum-selling artiste to get through our door."

So, how does the theory relate to practice? As soon as you walk off Charing Cross Road and into the store, you encounter a row of computer workstations (Macs, PCs, Amiga and Archimedes), running the major sequencing, hard disk recording and score-printing programs. If you catch the salesmen on a busy day, there's also a self-running demo which gives you a guided tour of each of the products. Naturally, the appropriate security software is installed to prevent the users from accidentally trashing the software, but the obvious advantage is that a prospective purchaser can get hands-on experience of a real system at their own pace.

Directly opposite the computer section is the main sales counter where the Time & Space sample CD jukebox is installed. Sample CDs are becoming more important to customers all the time and Turnkey are currently evaluating a Sony CD-ROM jukebox that would allow clients to actually load in and play samples from up to 300 CD-ROM titles.

In the keyboard department, there are dozens of synths on tiered stands, each provided with headphones. If rack modules are your thing, there's an entire wall full of them, with each rack controlled by its own mini master keyboard. To check out an individual module, all you have to do is turn up its volume control. All the outputs are permanently connected via a mixer, so there's no need to patch or switch. The store also stocks a huge range of 4-track and 8-track cassette multitrackers, all of which have their own demo tapes copied from an ADAT master. This setup allows the playback quality and EQ of any recorder to be checked out and compared against the others.

THOROUGH EVALUATION

What sets Turnkey apart from other stores is the new studio room where a vast, computer controlled relay switching system has been installed to allow customers to evaluate their own selected combinations of mixers, outboard, power amps and monitor speakers, again without having to patch anything. The matrix system can also store two separate patches which can be switched at will for true A/B testing of any equipment. Source material is available in 8-track digital and stereo formats, while test CDs may also be used to evaluate effects processors. Customers are encouraged to bring in their own material to help in their assessment.

Up to six mics can be tested simultaneously in the vocal booth.

The Matrix Systems relay switching comparator.

The latest keyboards are always in stock.

An acoustically isolated vocal booth is located at one end of the studio room and this is currently set up so that up to six microphones can be auditioned at the same time, with the results recorded on separate tracks of an 8-track digital recorder. The remaining two tracks can be used to play a backing track for the vocalist to work to, making this one of the best-equipped Karaoke booths on the planet! The vocal booth also allows a full range of mics to be tried through a selection of mic preamps, including models from dbx, Aphex, SPL, Manley and LA Audio.

At the time of our visit, one of the basement rooms was still being refurbished, but the aim is to provide a live sound demo facility where clients can compare PA systems of all sizes, again using a relay-switched comparator system. The basement studio, however, was fully up and running and is used mainly for extensive demos of more costly equipment, including the Waldorf Wave synthesizer. Nick Thomas explained that clients buying upmarket equipment or complete studio packages require a quiet, secluded environment, not just for demonstrations but also to be able to talk over their needs uninterrupted. Turnkey can also handle studio installations at all levels, ranging from the home-based project studio to serious commercial facilities. Recent clients include The Human League, Erasure, Virgin Interactive and Bjork, but it's probably safe to say that George Martin is one of the store's longest standing high profile customers.

Now that the renovations are complete, you can be sure of one thing — the directors and staff of the Turnkey music store will be thinking of what to do next. Standing still is *not* an option! SOS

FURTHER INFORMATION

A Turnkey, 114-116 Charing Cross Road, London WC2H 0DT.
T 0171 379 5148.
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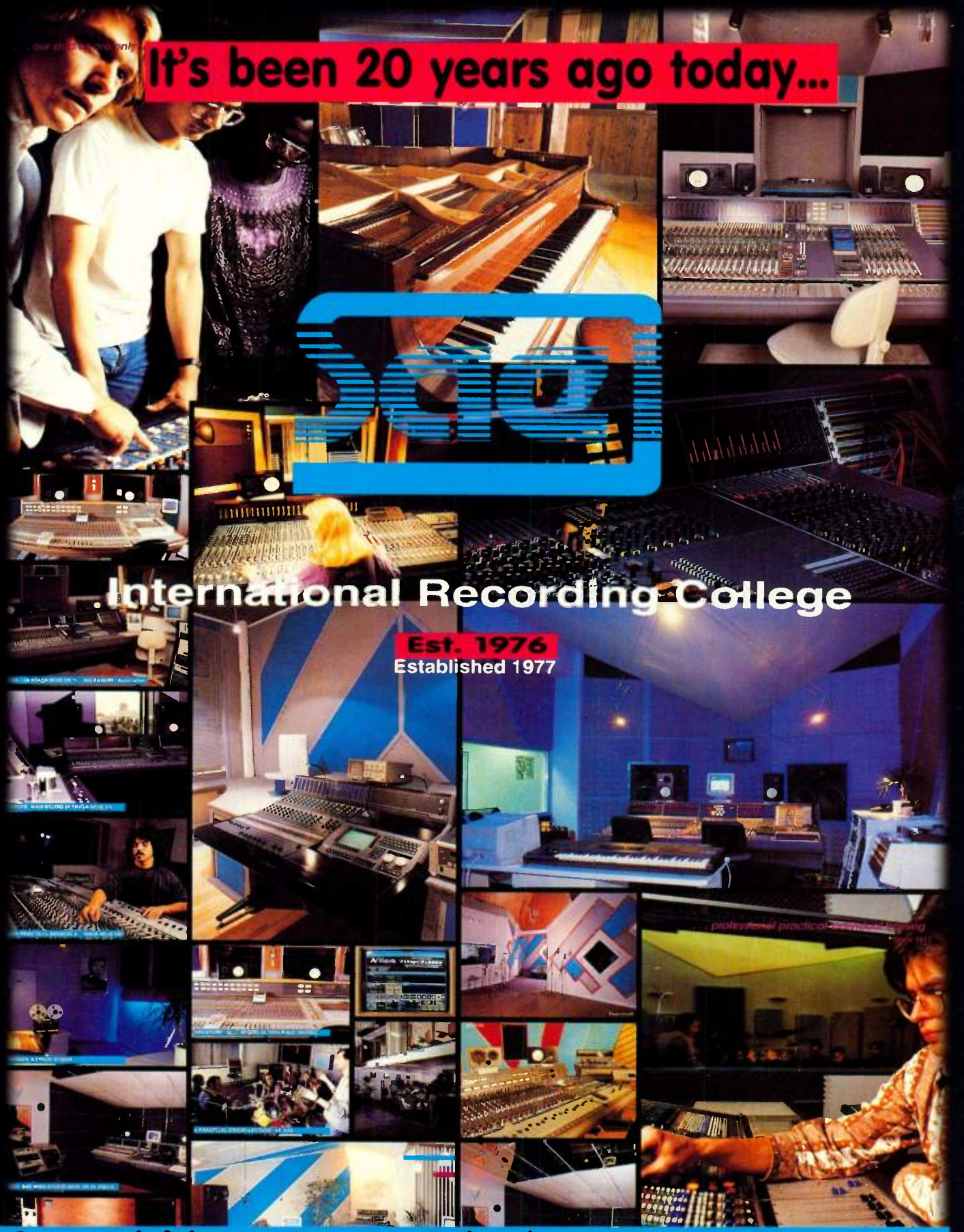

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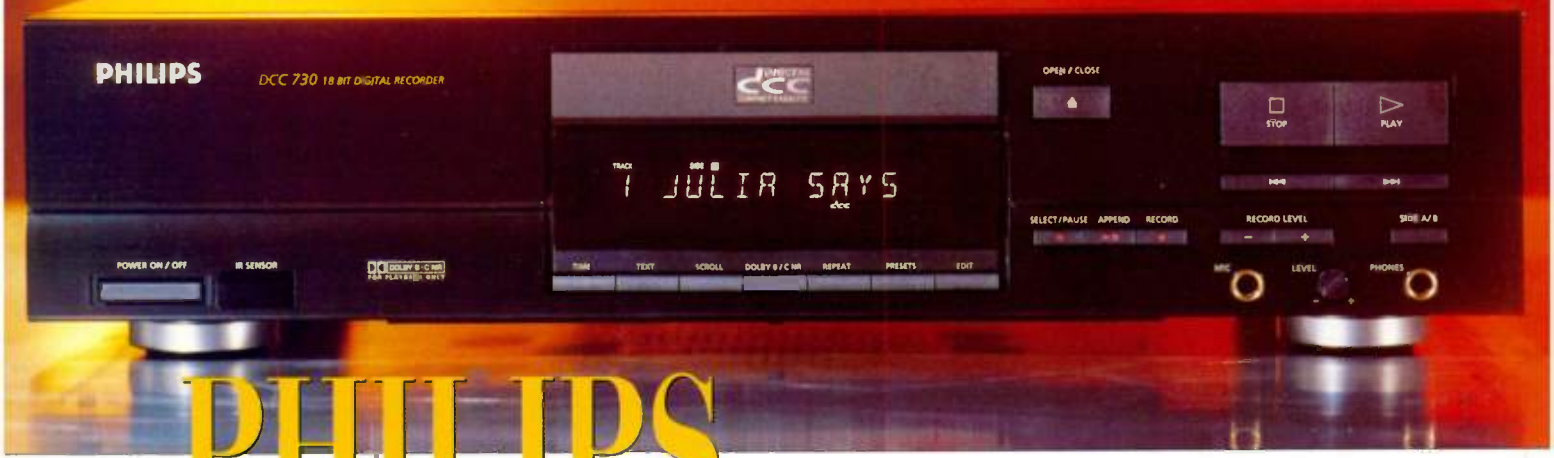

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To enter, all you have to do is subscribe to *Sound On Sound*, answer the tie-breaker question, fill in the form below and return it to us by the closing date of 31st January 1996.

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Post to: SOS Subscriptions Dept., Media House, Burrel Road, St. Ives, Cambridgeshire, PE17 4LE, England.

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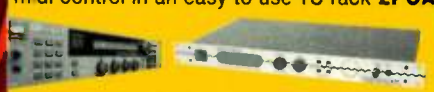

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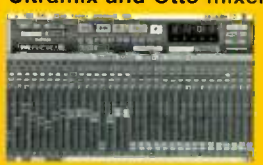

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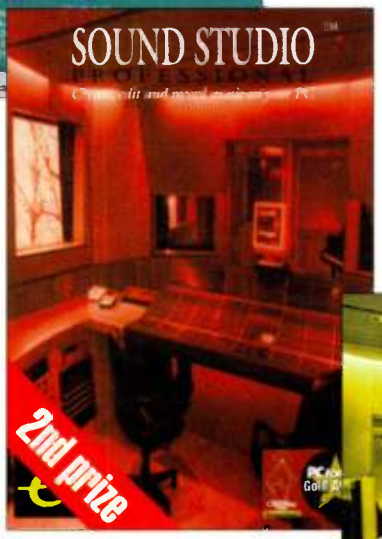

This month, *SOS* have teamed up with Evolution Electronics of Bedfordshire to offer PC 'MIDI + Audio' software worth a total of £850!

In reverse order, as third prizes, we are offering five copies of Evolution's *Sound Studio* package, comprising *Samplitude Lite* digital audio recording and editing software and the acclaimed *Procyon Lite* sequencer. *Samplitude Lite* offers two mono audio tracks (or one stereo) with non-destructive editing, automatic looping, and a whole host of waveform-transforming features including Normalise, Echo, and Reverb. *Samplitude Lite* multitasks seamlessly with *Procyon Lite* to give a truly integrated MIDI + Audio package.

Second prize is a copy of Evolution's *Sound Studio Professional* package, consisting of *Samplitude Multimedia* digital recording software and *Procyon Pro* sequencer. *Samplitude Multimedia* offers all the features of *Samplitude Lite*, but gives you an extra two mono tracks of digital audio, making for a total of four mono (or two stereo tracks). As with the *Sound Studio* package, *Samplitude Multimedia* can be run in conjunction with top-of-the-range sequencer *Procyon Pro* for full integration of your MIDI and audio recordings.

First prize is the Evolution-distributed SEKD *Samplitude Studio* software, top of the impressive *Samplitude* range and worth £400. Given a rave review by Panicos Georghiades and Gabriel Jacobs in *SOS* November '95, *Samplitude Studio* offers up to 16 mono tracks of non-destructive digital audio recording, plus advanced editing functions including (in addition to those already mentioned in the other versions of *Samplitude*) compression, noise gating, limiting, and advanced 5-band graphic and 3-band parametric equalisation. All these effects can be previewed in real time. *Samplitude Studio* can also synchronise externally via SMPTE (if a suitable interface is fitted), MIDI Time Code or MIDI Clock. Lastly, the program can multitask with a range of sequencers including *Procyon*, *Cubase*, and *Cakewalk*, and offers the same fully integrated operation with *Procyon* as the other versions of *Samplitude*.

All you have to do to get your hands on one of these great prizes is answer the not-exactly-taxing questions set out below, and concoct an appropriate tiebreaker. Then send your completed entry to us to arrive no later than **Friday, February 2nd 1996.** Good luck!

Prizes kindly donated by Evolution Electronics Ltd (Tel: 01525 372621).

the small print

1. Only one entry per person is permitted.
2. Employees of Sound On Sound Ltd, Evolution Electronics Ltd, and their immediate families are ineligible for entry.
3. No cash alternative is available in lieu of the stated prizes.
4. The competition organisers reserve the right to change the specification of the prizes offered.
5. The judges' decision is final and legally binding, and no correspondence will be entered into.
6. No other correspondence is to be included with competition entries.
7. Please ensure that you give your DAYTIME telephone number on your entry form.
8. Prizewinners must be prepared to make themselves available in the event that the competition organisers wish to make a personal presentation.

Entrants should take careful note of the minimum hardware requirements needed to run the software on offer. Samplitude Studio requires at least a 386 PC (though a 486 is advised); however, this will give a small number of digital audio tracks, and not all of the editing functions may be available. To take advantage of the maximum of 16 mono digital audio tracks, a PC with a Pentium processor is required. Samplitude Multimedia and Samplitude Lite can run on 386 PCs upwards. All the software on offer here requires a minimum of 4Mb of RAM, Windows 3.1 or higher, and, last but certainly not least, a Windows MPC-compatible 16-bit soundcard.

QUESTIONS

1. What is the name given to the kind of audio editing offered by the *Samplitude* range of digital recording software?

a. Destructive editing ☐
b. Non-destructive editing ☐
c. Highly explosive editing ☐
d. Pacifist editing ☐

2. How many stereo tracks of digital audio does *Samplitude Lite* offer?

a. 8 ☐
b. 2 ☐
c. 1 ☐
d. Nearly 7 ☐

3. Which of the following sequencers will *not* multitask with *Samplitude Studio*?

a. *Cubase* ☐
b. *Procyon Pro* ☐
c. *Cakewalk* ☐
d. *UMI* for BBC Micro B ☐

4. Which PC will allow *Samplitude Studio* to offer its maximum complement of 16 mono tracks of digital recording?

a. Commodore Vic 20 ☐
b. Pentium ☐
c. Sinclair ZX81 (provided 16K RAM pack is installed) ☐
d. Pythagoras's Abacus ☐

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TIE-BREAKER

If you won one of these digital audio plus MIDI packages, what would be the first piece of digital audio you would record using it, and why? Answers in no more than 30 words, please.

.....

.....

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Post your entry to: *SOS Evolution Competition, Sound On Sound, Media House, Burrel Road, St Ives, Cambridgeshire, PE17 4LE.*

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BOSS DS330 General MIDI sound module, as new, £209. ☎ Mike 0181 771 3841 (London).

CASIO CZ1000 Full size version of CZ101, £170 ono; Seiko MIDI sequencer, £45 ono; volume pedal, £25; Apex Clone stand, £60, 2-tier. ☎ Mark 01782 849019.

CASIO CZ3000 £175; Yamaha QY10, £75; Atari ST,1Mb, monitor, software, £180. ☎ Chris 01296 386043.

CASIO V28M synth module, rackmount, 8-part multitimbral, portamento/legato, warm sounds, home use only, with manual, £140 ono. ☎ Dan 01204 303603 (Greater Manchester).

CONTROL SYNTHESIS Deep Bass Nine, stylish rackmount analogue bass synth, uses same components as TB303 for authentic sound, includes external audio input and MIDI/CV converters, £299. ☎ 0117 942 2521 (Bristol).

EMS SYNTHI AKS with all pins, manual, good working order and in excellent condition, £1500. ☎ 01726 66715.

EMU MORPHEUS rackmount sound module. 1 year old, box, manuals, video. Perfect condition. Free leads, £800; also Atari ST,1Mb, monitor, plus software, £100. Together, £875. ☎ Sam 01359 270847 (Bury St Edmunds).

EMU PROCUSSION Proteus 2 Orchestral and Proteus 3 World modules. All boxed with manuals, £300 each. ☎ Martin 0151 726 9327.

EMU PROTEUS 1 module, £270; Soundcraft Spirit Folio 18:2 Si, £370, all boxed with manuals. ☎ 01295 252792.

EMU PROTEUS 1 module, used only once and then forgotten about! Boxed, manuals, perfect condition, £350 ono. ☎ Mike 01248 681689.

EMU VINTAGE KEYS with Plus expansion, 12 months old, absolutely as new, boxed with manuals, £750; Alesis SR16 drum machine, £150; DBX166 compressor, top quality compression for just £450. ☎ Lee 0831 262589 or 01274 602621 (Halifax).

EMU VINTAGE KEYS module expanded to full 16Mb, resonant filters, 6 output, 32-note polyphony, 16-part multi, vgc, with manual, £600. ☎ 0117 973 8137 (Bristol).

ENSONIQ ESQ 1 sounds on Atari disk editor, manual, £200 ono; DX7, two ROM cartridges, sounds on Atari disk, manual, £200 ono. ☎ John 01709 897577.

ENSONIQ SQ1 + keyboard, vgc, with two cards, manual, pedal etc. Has 16-track sequencer, 32-voice, internal FX, superb piano samples, etc, £450. ☎ Jamie 0191 372 2621 (Durham).

ENSONIQ TS10 24-track workstation, 2Mb RAM, as new, £1,250; Emu ESi32, 2Mb RAM, as new, £950; Roland FP8 digital piano, £850. ☎ 0378 521713 (London).

ENSONIQ VFX synth incl manual, £510; hardcase, £50; flightcase, £75. Contact: B Miller, 5 Goldsmith Road, Friern Barnet, London, N11 3JG.

EVOLUTION EVS1 multitimbral synth with manual and editing software for Atari. Good dance and hybrid analogue sounds. £120. ☎ Paul 01684 561397 (Midlands).

EVOLUTION SYNTH module and editing software, very usable, workhorse sounds, boxed with manual, £100. ☎ 01732 361442 or 01892 540067 (Kent).

FATAR STUDIO 90+ MIDI master keyboard, 88 weighted keys, light home use only, £420. ☎ Andy 01392 216173.

HAMMOND XB2 MIDI organ, built-in Leslie, overdrive, FX, all in 5-octave synth size keyboard, flight case, manuals, totally mint condition, £850 ono. ☎ 01245 421487.

HAMMOND XB2 organ with case, excellent condition, £700; Roland RD300 piano with full flightcase, £500 ono. ☎ Glen 0116 238 6016 (Leicester).

KAWAI K1 Mk2 plus RAM card, full size keys, velocity sensitive, aftertouch, pitch bend, modulation, full MIDI SysEx, £250; Boss DR550 drum machine, £85 ono. Both for £300. ☎ 01273 694084.

KAWAI K4 synth plus Atari sounds (thousands), £350; Sansui MX12 12:6:2 mixer, £200; Encore E83 bass guitar, unused, £75; Alesis microlimiter, stereo, £70. All vgc. ☎ 01933 678608.

KAWAI K4 with flightcase and extra sounds, £375; Yamaha CS5 analogue synth in need of repair, £50. ☎ Laurie 0161 860 4604 before 5pm.

KAWAI TONE MODULE (synth expander) type K1, excellent condition with manuals etc. Offers around £100 considered. ☎ Bob 0171 477 8275 days or 01487 814227 eves.

KAWAI SPECTRA £100 with manual. ☎ 01460 221314.

KORG i3 plus stand and damper switch. Voyetra Sequencer Plus. £1,000. ☎ Stephen Arnold 01732 452758 (Kent).

KORG M1 Mint, case and manual plus two Valhalla cards, £650. ☎ Adrian 0115 986 1640 (Notts).

KORG M1 synth, sounds on Atari disk, manual, £550 ono; D110 module sounds on Atari disk, manual, £190 ono. ☎ John 01709 897577.

KORG M1 Boxed, manuals, home use only, classic! £600. ☎ Seamus 01208 813534 (Cornwall).

KORG M1 £550; Yamaha MDF2, £200; Tascam OSMS, £200. Home use only, all boxed with manuals, excellent condition. ☎ Simon 0191 285 0729.

KORG M1 sounds, 200 brand new programs, fat basses, analogue synths, kits, organs. Most are filter controlled, great for dance techno film, supplied on Atari disk, £35. ☎ 0121 443 1922.

KORG MS10 with manual and patch leads, £150. ☎ Paul 01952 460326.

KORG MS20 mono synth, great condition, £220 ono. ☎ 01223 840436.

KORG 01/W Mint condition with box and manuals, £900. ☎ Nick 0161 256 3126.

KORG 01/W Immaculate condition, never been gigged, £875 ono. ☎ Nick 01242 672058 (Glos).

KORG 01/WFD Boxed, all manuals, plus special Korg tutorial, extra sound disks, flight case, mint condition, £1,050. ☎ 0171 542 6788 (24 hours).

KORG 01/W PRO 76-note workstation, manuals, box and extras, home use, good condition, £1,100 or less. ☎ Toshi 0171 724 8891 after 7pm (London).

KORG 05R/W £280. Excellent condition, lovely sound. ☎ Kez 01208 873649 (Cornwall).

KORG 05R/W Mint condition, £250. ☎ Paul 01787 281925.

KORG 05R/W sound module, 16-part multi, 32 voice poly, digital effects, manual, rack-kit, £325 ono, Roland U20, 5-octave touch sensitive keyboard, multitimbral, manual, vgc, £325 ono. ☎ 01502 476430.

KORG POLY 800 Analogue MIDI synth, £100; Casio CZR1 drum machine, £100; Sieko sequencer, £40; Marlin Acoustic Guitar, £50, chorus pedal, £35, offers invited. ☎ Phil 01782 848493.

KORG PROPHECY £850 ono, or swap for analogue gear with MIDI. ☎ 01424 442653.

KORG PROPHECY synth, brand new, still boxed and under original guarantee, £950. ☎ Mike 01367 240799.

KORG PROPHECY £895; JX3P, £130; Chasebit one, £120; Yamaha CS5, £85; Korg Wavestation SR, £550; MC202, £220; Multiverb LTXFX, £100. All in immaculate condition. ☎ Lez 01206 792123.

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KORG T3EX Excellent condition, home use only, +10 free original Korg disks, original American workstation, box and manuals, £800. ☎ Steve 0171 790 2204 (London).

KORG WAVESTATION EX £775; Kurzweil Micro Piano, £350. Possible swap: Wavestation SR, Yamaha TX802, Matrix 1000. ☎ Paul 01480 391613.

KORG WAVESTATION As new with box and manuals, £650. ☎ Steve 01235 814789 (Oxon).

KORG X3 Including power sounds and other sound disks, 8 months old, £800, Also Roland R5 drum machine, £150; EMC Editor for Korg M3R (Atari) £55. ☎ Dave 0115 939 7354 (Notts).

KURZWEIL K2000R with sample and orchestral options, £1,875; Roland PG200II with PSU, £120, Opcode vision (Mac) version 2.07, £50, MIDI translator II (Mac interface), £40. ☎ 0191 261 2683.

KURZWEIL K2000 to K2500 converter disks plus 1500 new K2500 sound to make your K2000 sound like the K2500, £180. ☎ 0181 995 8773.

MOOG PROGIDY synth, £350 ono, Roland MKS70 analogue rackmount, £450 ono. No offers refused. ☎ Tim 0113 269 3930 or 0585 967395.

NOVATION BASS STATION keyboard, essential analogue synth, £250. ☎ Jeff 0161 834 5353 day 0161 434 5685 eves & weekends.

NOVATION BASS STATION Analogue synth, home use only, £300 ono; Roland R70 drum machine, £250; Akai S01 sampler 2Mb memory, £520. ☎ 0181 549 7311.

OBERHEIM 4 VOICE vintage analogue synth with programmer and manuals, can run as 4 dual-osc mono synths, £2,500 ono. ☎ 0181 995 8773.

QUASAR QUASIMIDI with TRE board. Hardly used, mint condition, with manuals, £1,000 ono. ☎ Mark 01246 812546 or 0831 817932 (Chesterfield).

RHODES MK60 stage piano, copy of Fender Rhodes, £300 ono. ☎ Stuart 0116 231 3552.

RHODES MK80 Digital piano, weighted touch sensitive keys, full sized, sturdy stand, damper pedal and stool, 3 years old, excellent condition, never gigged, £800 ono. ☎ 01527 545886 (Redditch).

ROLAND D10 synth, £295; Casio CT680 multitimbral keyboard, £145; Roland MT32 module, £125; Tandy 4-channel mixer, £15; Axe overdrive effects pedal, £15; Amiga MIDI interface, £10. ☎ Stephen 01553 674076 (Norfolk).

ROLAND D20, D50, JX3P, Jupiter 4, Juno 6, 60, 106, SH09, SA09, RS09, RS101, MKS70, Delta, Trident, MS10, Monopoly DS8, DW8000, DX7, TX416, Prodigy, Opus 3, VGX, SQ1. ☎ Gordon 01670 523363.

ROLAND D50 £400, no cards, all manuals, or swap for Juno106. ☎ 0181 677 9268.

ROLAND D50 Excellent cond, ROMs, manuals, stand, £440. ☎ John 01543 360686.

ROLAND D50 Good condition. Will swap/part ex for D550 or sell for £490 ono; Roland SH09. Classic little analogue monosynth. Preferable to SH101, with built-in PSU. £210 ono; Drawmer MidMan MIDI processor. Turns any MIDI keyboard into a master controller with programmable zones/velocity ranges, rechannelising etc. Clocks sequencers and imposes rhythms on chords in real-time. Far too many features to list! £90; Roland MPU101 MIDI to CV. Controls four synths at once with velocity, mod, pressure etc. £190; Yamaha TX7. Classic FM synth with 4000 sound library on ST disk. £175 ono. ☎ Paul 0114 287 9758 Email paul@ssurreal.demon.co.uk

ROLAND JUNO Two analogue synthesizer, 6-voice, 5-octave keyboard with aftertouch, 128 memories as used by the Prodigy, mint condition with manual, £350. ☎ 0117 973 8137 (Bristol).

ROLAND JUNO 6 (Boxed with manual), £300. Your ideal Christmas present. ☎ 01705 790157 (Portsmouth).

ROLAND JUPITER 4 Classic analogue synth, good working order, £350, no canvassers. Contact: Andy, 783a Christchurch Road, Bournemouth.

ROLAND JUPITER 4 analogue, polyphonic syntheizer, 18 memories, lots of knobs and sliders, £300. ☎ Andy 01793 539993 eves (Swindon).

ROLAND JUPITER 6 and Jupiter 8 with manuals, vgc, Roland TB303 with case and manual, offers, Roland D50, £450; Control Synthesis Deep Bass Nine with box and manual, £400. ☎ Martin 01924 469235 or 0378 058629 (West Yorkshire).

ROLAND JV880 £380, Roland U110, £195, Roland RD250, £400. Roland U110 cards, £15 each. ☎ Brad 01633 873118 (day) 01633 865758 (eves).

ROLAND JV1000 Excellent condition, boxed, home use, £1,100. ☎ John 01480 890014.

ROLAND JV1080 £890; Korg X5 with custom flightcase and 1000 extra sounds, £590; both are 2 months old, never used, spotless, also a keyboard stand, £50. ☎ 0171 720 3702.

ROLAND JX3P with PG200 programmer excellent analogue sounds, ideal for techno/house music complete with manual and stand, mint condition, £375 ovno. ☎ 01462 834604.

ROLAND JX3P Roland Juno 6; Roland RA291 space echo, Ibanez DM1000 digital delay; Fender Rhodes stage 73; Fender Strat, American, rosewood neck, custom; Marshall JCM 800 amplifier, Alesis Midiverb II, Roland JS6 guitar processor; Emu Proformance Plus. Swap for anything. ☎ Ian 01539 723631 (Cumbria).

ROLAND JX8P Very good condition, includes RAM card and case, great for acid bass lines, £299. ☎ Ben 01223 327002.

ROLAND JX10 Analogue synth, spotless condition, boxed with manual, £650 ono. ☎ 01547 529196.

ROLAND MT32 Good condition, manual/PSU, £90, Korg P3, excellent codnition, manual/PSU, £90; Ultra metal distortion pedal, excellent condition, £30, prices include postage. ☎ Tim 01254 680588.

ROLAND RHODES MK80 stage piano, as new, £800 ono; Roland D50 with P1000 programmer, semi flightcase and 6 cards, £500 ono. ☎ 0116 254 9101.

ROLAND SH101 £200, Moog Rogue £175, Korg MS10 £175, Juno 6 £200; Oberheim Matrix 6R (Matrix 1000 with knobs) £475; Akai S1000, 4Mb £1200, Roland JV1000 £1100 ☎ Antony 01386 832586 or Email dq03@cityscape.co.uk

ROLAND SH101 Manual, Grip, shoulder strap, soft case, perfect, comes with rare original mag reviews and brochures, £200. ☎ 01865 749109.

ROLAND SH101 Analogue with modulation grip, manual, PSU, immaculate condition, £250; Transcendent 2000 analogue monster synth, big sound, offers; Roland TR505 rhythm composer, classic dance sounds, £90; Roland TR909 drum machine, mint condition, offers; Yamaha TG100 multitimbral sound module, £175, Yamaha SY35 keyboard, superb Vector sounds, £350; Atari Stacey II lap top computer with sequencing software, hard disk, good condition, £400; Gem WS2 synth, excellent sounds, £450. All excellent condition. ☎ Mark 01252 370550 (Hants).

ROLAND SH101 Mod grip, red, rare, £40 ono; Roland M160 rack mixer, £350; Akai 8Mb board for S2800/S3000, £280. Wanted: Matrix 1000. ☎ Russ 01432 840649.

ROLAND SH1000 Rare analogue synth with case, unused, £200 ono. ☎ Kevin 0181 941 2873 (Middlesex).

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ROLAND U20 £400; Akai S01, £400. Both excellent condition. ☎ 01305 789042 (Weymouth).

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ROLAND U110 with or without two unit rack flight case, £240 or £210. ☎ John 01475 639766.

ROLAND U110 +4 sound cards, vgc, £299; Roland D5, vgc, £299; Laney 6150 PA + 2 speakers, mint, 3 months, offers; Ibanez HD1000, £125, Hohner professional, £250. ☎ Jonathan 01978 757233.

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ROLAND W30 workstation, sampler and 16-track sequencer. Box, manuals, library disks plus Mega Beats sample CD. Home use only. £800. ☎ Gregg 01241 860274 (Dundee).

ROLAND XP50 Still boxed with manuals and disks, genuine reason for sale, £950. ☎ 0141 954 7148.

SEQUENTIAL CIRCUITS Prophet 600, factory preset tape, pedal, owners manual, £600; Yamaha TX816, 8 DX7s in a rack, 128-note poly, £900. ☎ Mike 01942 204800.

SEQUENTIAL PRO 1 Boxed with manual, £300. Home used and in excellent condition, your ideal Christmas present. ☎ Lynton 01705 790157 (Portsmouth).

WALDORF MICROWAVE Great rack synth module, very original and unique sound, with two sound cards and Apple wavepool library programme, boxed with manuals, £900 ono. ☎ 0171 736 0605.

YAMAHA DX7 MkI with 4 ROMs, books, manuals, programme sheets, flightcase; CX5M computer with editing software, mono screen, keyboard, plus more. £350 the lot. ☎ 01203 717685 leave message (Coventry).

YAMAHA CS60 Polysynth, CS80's little brother! £390 ono.; SY85, £725; Korg M1 Pedals case vgc, £575, Kawai K5M, £300, Ensoniq SQR, £245. Will mail anywhere. ☎ 01261 832898.

YAMAHA DX7IID with E! Board, multitimbral, four sound banks, £425, CBX-T3 with Cubase lite for Mac, £99; Kawai MX8R rack line mixe, £99. ☎ Fred 01633 266647 after 6.

YAMAHA DX11 FM Multitimbral synth stand headphones amp, £250, Atari STFM 1Mb hi-res monitor, Emagic Notator with dongle, loads of games, £250. £450 the lot. ☎ Andy 01203 594478.

YAMAHA PSR6700 76-note keyboard, 200 programmable voices with 8-track sequencer and disk drive, complete workstation, £600 or px for Jupiter 6 or Oberheim OBXa. ☎ 01524 382873.

YAMAHA PSS780 MIDI keyboard stereo speakers, mini keys ,8 drum pads, many features comes with stand mains adapter audiovisual tutorial course. Also Atari STFM 1mb RAM software, £299. ☎ 01480 406415.

YAMAHA SY55 workstation, £400 plus postage ono; Akai S1000 PB, no expansion board hence £500 ono; Dynamix stagemix, 8:2, 2 octs, 10U rackmount unit, £200 ono. ☎ Leigh 01472 267665.

YAMAHA SY77 many soundbanks, stand, sustain pedal, as new, a bargain at £620. ☎ Tony 01661 834209 (Newcastle).

YAMAHA SY85 plus hundreds of extra sounds, with Atari 4Mb and Philips monitor, also extra software including Breakthrough v2 and Replay 16, with manuals, home use only, £1,050. ☎ Guy 01702 298418 after 6pm (Essex).

YAMAHA TG77 (MIDI expander module), excellent condition with manuals etc. Offers around £600 considered. ☎ Bob 0171 477 8275 or 01487 814227 eves.

YAMAHA TG500 sound module, good condition, manuals, £550. or swap/pex for Korg M1. ☎ 01692 405332 (Norfolk).

YAMAHA TG500 Boxed, 64-note Atari editor mixermap ,extra souns cards, £560 ono; Korg Audio Valve R6 Applemac package 05W sounds editing sequencing the lot GM Module. ☎ 0181 942 6888 eves.

YAMAHA TG500 excellent condition, not being used, sell for £490, Kawai MIDI key II sell for £150; also in top notch condition, or the lot for £600. ☎ Gareth 01752 766299.

RECORDING

ALESIS 3630 Stereo compressor limiter with gate, with box and manuals, in perfect condition, home use only, £175. ☎ 0171 737 0028.

ALESIS ADAT (latest software), light use only and in excellent condition with box, manuals and LRC remote. Recently cleaned and serviced by Sound Technology. RMB ADAT meter bridge (handles up to four ADATs) £350 or both together for £1,900 ☎ Paul 01684 561397 (Midlands).

ALESIS ADAT V4 plus 7 tapes, low mileage, A1 condition, offers around, £1,800? ☎ Rob 0115 926 2116 (Notts).

ALESIS MICROVERB 3 As new, boxed. £105. ☎ Dave T 01787 311275 (Sudbury, Suffolk).

ALESIS QUADRAVERB effects unit, offers around £180 ono. Wanted: CZ101 or K1 in good nick or swap. ☎ 01925 291805 office ansaphone (Warrington area).

ALLEN & HEATH GS3 (boxed) and Fostex R8, PNC looms used but not abused, open to offers. ☎ Pete 01763 261448 or 0589 167436 (Herts).

ALLEN & HEATH SYSTEM 8 (16:8:2) desk. Very good condition, £550 ono. ☎ Richard 0114 287 5648 (Sheffield).

AMS 1580 stereo broadcast delay, never used SCI prophet five + MIDI + flightcase; Emu Procussion; Emu Proteus 2XR, Yamaha CS40, new condition, offers. ☎ Nicholas 323 236 7954 (Antwerp, Belgium).

ART MULTIVERB III £190 ono, Alesis MMT8 Seq, £120 ono. ☎ Dave 01974 261318 (Dyfed).

BBE 422A sonic maximiser, £150, Drawmer DL221 compressor, vgc, £200; Drawmer DS201 noise gate, £150, Alesis Midiverb 4, mint with manuals and receipt, £300. ☎ John 01904 638272 (York).

DESCTECH BY LANEY 16:2 mixing console. 3-band EQ, 2 aux sends/returns. Quiet and reliable. Excellent condition with manual and original packaging. Genuine bargain at £250. ☎ 01952 260064 (Telford).

DYNACORD CLS222 THE Leslie simulator, no longer in manufacture, £350. ☎ Dave 0181 318 9630 (SE3).

FERROGRAPH Super 7, 3-head, 3-speed, 10.5-inch reels, £175 ono. ☎ Keith 01780 53900 (Lincs).

FOCUSRITE ISA115 £1,900; TC2240HS, £390; ART SGX2000, £450; TLA mini amp, £190; Behringer gate, £180; Audio Design Limiter, £290; Sennheiser MKH40, £350; AKG C451, £200. ☎ Alan 0171 720 7744.

FOSTEX 280 Multitrack, 8-channel mixer, dolby C, 3-band EQ, 2 aux snds + MTC sync to your sequencer.£450 ono. ☎ Joey 0973 392660/0181 6870193.

FOSTEX 280 multitrack. As new, used mainly as a mixer, £350. ☎ Andy 01737 557856 or 0181 684 6615 (Surrey).

FOSTEX B16 16-track tape recorder, with stand, loom and tapes, recently serviced, little home use, excellent condition, brilliant sound, £1,400. ☎ 01908 606936.

FOSTEX E16 Plus 4050 autolocater, immac, £1,750 pair; Seck 18:8:2 mixer, £700. Both negotiable. ☎ Carl 01223 236108.

FOSTEX MTC1 MIDI interface LTC/MTC converter used once, mint condition, boxed, manuals, £150 ono; Opcode Studio 4, as new, £375; Vision 1.4 + Galaxy disks, manuals, £100 ono. ☎ Steve 01522 529330.

FOSTEX R8 Fully working apart from VU meter level display, obviously can't sell for full price, any offers. ☎ 01274 737974.

FOSTEX XR7 4-track, twin speed, 6 inputs, EQ, effects sends, pitch control, Dolby C, punch in/out, foot switch, MIDI sync, hardly used, boxed, £325, buyer collects, ☎ 01522 544307 (Lincoln).

FOSTEX X28H 4-track, high speed, excellent condition, home use only, £200; Ultraflex II from Behringer, used for 10 hours, give away price, £160, boxed. ☎ 0049 5051 2185 between 4-7pm (Germany).

JBL CONTROL 5 speakers, 1 owner, home user only, immaculate, £250. Quad 306 amp, 1 owner, home use only, immaculate, £200. ☎ Patrick 01761 410617 (Bath).

J L COOPER PPS100 SMPTE/MIDI synchroniser, £120; R8 contemporary percussion card, £30. ☎ Andy 01933 50491 (Northants).

KAWAI rackmount MIDI patchbay, 4 ins, 8 outs, all switchable from front panel, all connections on back, bargain at £50. ☎ Neil 01705 736217.

LEXICON NUVERB card for Macintosh, very little used, make me an offer!! I need over £800 to survive the wrath of God (my boss!) ☎ Bob 0171 477 8275 days or 01487 814227 eves.

MACKIE 1202 mixer, excellent condition, manual etc, £195 ono; Akai S01 sampler, as new with manual, £395. Can deliver if fairly local. ☎ Andy 01253 890048 eves (Nr. Blackpool).

MACKIE 16:4 mixing desk, boxed, unused, £580; Fostex GT10 high speed, dolby-s, sync track, 4-track recorder, £350; Roland SRV330 3D space reverb, £425 ono; TC Electronic 2290, full spec, bargain. Contact: M Dennis, The Flat, Farndon Hall, Church Lane, Farndon, Chester.

MACKIE CR1604 16-channel mixer. 1 month light home use, boxed as new, unmarked, all manuals, leads. £640. ☎ John 01543 360686 (Birmingham).

MARANTZ stereo cassette recorder, CP230 plus rechargeable battery RB430. Cost £340 new, bargain at £200; AKG microphone D190E, £80 new, bargain at £40. ☎ 01732 451161 (Kent).

PHONIC 16:2 rackmount mixing desk. XLR and jack inputs, bass mid sweep and treble EQ, 4 effects returns, talkback and prefade listen facilities, excellent condition, £400. ☎ Neil 01705 736217 (Portsmouth).

SANSUI MR6 6-track cassette recorder, Dolby C; Sansui MX12 12:6:2 mixer. Both boxed with manuals and cables, excellent condition, £500. ☎ 01795 873549 (Kent) eves.

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SECK 18:8:2 MIXER Ideal for home recording, good condition, £550. ☎ 0115 978 4358.

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SIMMONS SPM 8:2 MIDI-controlled mixer. All controls programmable. Variable crossfade between mix snapshots. Even performs autopanning and wah-wah. £175 ono. ☎ Paul 0114 287 9758 Email paul@ssurreal.demon.co.uk

SONY DTC1000ES HHB mod, rackmounted, excellent condition, £525; Roland MKS70 rack synth, £425. ☎ Dominic 0161 431 7425.

SOUNDCRAFT 24:8 Spirit Studio, auto, full fader automation, 56 inputs, bargain, £1,995; Alesis ADAT version 4.03, only 50 hours use, £1,695. Both items boxed as new. ☎ 01226 790541, 0374 936769 (Barnsley).

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TASCAM 488 8-track recorder, £675, boxed with manual and in mint condition. ☎ Chris 01785 819929 (Staffs).

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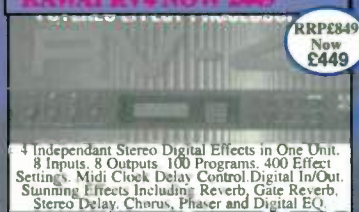

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ATARI STE 1Mb, hi-res monitor, 2nd floppy drive, Creator sequencer, 'That's Write' WP, games, utilities, £230; Proteus 1, 5x5 MIDI switcher, Graphic EQ, PZM. ☎ 01827 58913.

ATARI STE for sale, 1Mb RAM, 120Mb SCSI hard drive plus host adaptor, VGA monitor, software, mouse, MIDI ports, 1Mb floppy, magazines, £260 or swap for good SVGA colour monitor. ☎ Tim 0181 997 7310.

ATARI STE 2Mb, SM124 monitor, 80Mb datapulse hard drive, Cumana floppy, secondary MIDI out, scanner, superb software, eg That's Write, Neodesk 3, all excellent condition, plus documentation, £490 ono. ☎ 01629 56801.

ATARI STF 2.5Mb, SM124 monitor, ICD, 120Mb HD. second floppy drive, Seikosha 24-pin printer, Cubase v3 with dongle, Protext, Prodata, Pagestream, loads of extra software, £800. ☎ 01256 468899.

CAKEWALK 3.1 for Windows, boxed with manual, £100 or swap for Unisyn 1.2 for Windows. ☎ 01723 378868 (Scarborough).

CAKEWALK v3 £100; Cakewalk Audio, £155; SAW Audio Workshop, £225; MXX 32M, £150; Yamaha stereo compressor, £150; Alesis16-band graphic EQ, £150; Roland MT32, £90; Microslave Symphonic Orchestra, £500. ☎ 0171 351 6641.

CONCERTO 24-track MIDI sequencer for Atari, £20 inc P&P; also Atari ST 512k upgrade to 1Mb, £18 inc p&p. All items boxed with manuals and guarantees. ☎ 01232 456377 (Belfast).

E-MAGIC LOGIC Version 2.0, boxed, complete £250. ☎ 01829 732427.

KORG AUDIO GALLERY (Mac) GM sound module, reverb and chorus, (05R/W type sounds), built-in MIDI interface, TRAX sequencer, sound editor, only £100. ☎ Kevin 01405 815415.

NOTATOR SL Version 3.1 for Atari, MIDI sequencer and score editor, whole package unused, cost £350, will sell for £150. ☎ Vern 01753 511839 or 0589 767538.

PHILIPS 14-INCH full colour monitor, compatible with Atari and Amiga, Philips-to-Atari lead supplied, £95. ☎ Steve 0121 449 6534 (Birmingham).

PHILIPS 8533 RGB monitor. Suits Atari ST or Amiga. £95 ono. ☎ Paul 0114 287 9758 Email paul@ssurreal.demon.co.uk

SOFTWARE AUDIO Workshop and Music Quest PC MIDI card for sale, £150 ono. ☎ 01509 504001 or 01509 238112.

STEINBERG CUBASE Audio Mac 2.0.5s (latest version) boxed with full manuals, key disks, etc. Transferrable upgrades/support. £400 ono. ☎ Laurence 01727 762528 or Email laudp@cix.compulink.co.uk

STEINBERG CUBASE 2.5 for Macintosh, current standard version, £175. (Save £200 on list price!) ☎ Martin 0151 726 9327.

STEINBERG MIDEX PLUS MIDI expander, £280 ono. Steinberg Masterscore II for Atari, £180 ono. ☎ Van 0181 555 4393 (London).

STEINBERG STUDIOPAC Cubase v3.0 and Midex + expander, full SMPTE timecode facility, four extra MIDI outs, and two extra MIDI ins, for Atari, as new £375. ☎ Steve 01980 629295.

TRIPLE DAT offers; MOTU MIDI Express PC, offers. ☎ Sean 0171 424 0194.

VOYETRA V22 PC MIDI interface, 32 channels, boxed, shrink wrapped, new, £70; Steinberg Cubasis (PC) sequencer, boxed, shrink wrapped, new, £70. ☎ John 01543 360686 (Birmingham).

SEQUENCERS

ELKA CR99 MIDI datafiler, direct-to-disk, no waiting for song play, handles all MIDI data, ideal for live use, £140 ono. ☎ Dan 01204 303603.

ROLAND MC50 MkI, £350. Excellent condition, brand new, with manuals and box. Will do deal for cash. ☎ Mark 0181 543 7874.

ROLAND MSQ700 sequencer, DCB/MIDI 8-track, £130, also 4 30-pin 1Mb Simms, £25 each. ☎ Ian 0973 303866 (Merseyside).

ROLAND TB303 with case and manual, offers. ☎ Martin 01924 469235 or 0378 058629.

2 X ROLAND TB303 Basslines, £600 each; MC202, £250; Roland R70 drum machine, £320; Roland PC200 Mk11, £150; Bass Station, £290; MT32 + vintage keys & drum sounds for Atari, £120. All boxed with manuals & PSU. ☎ 0161 448 8717.

DRUM MACHINES

ALESIS HR16 and Alesis Quadraverb Plus, both in good condition, £400 ono, (will split) or part ex for Bass Station depending on condition. ☎ 01900 818380 eves. (North West area).

ALESIS HR16 drum machine, great sounds, £120; Alesis MMT8 8-track sequencer, £100, excellent condition, plus manuals. Great starter pack both for £200. ☎ Lynton 01705 790157.

BOSS DR660 808/909 sounds, mint condition, £250. ☎ Andy 01225 837379 (Bath).

EMU SP12 sampling drum machine with disk drive and flightcase with manual, disks included, classic machine, very good condition, £375. ☎ 0171 737 0028.

KORG DDM110 MIDI drum machine. Excellent condition with manual and power supply unit. £40 ovno. Also for sale, Sequential Circuits Pro 1 analogue synth with built-in sequencer, very old (1979), £300 ono or swap for Roland Juno 106 synth. ☎ Lee 0161 723 5523.

ROLAND 505, 626, R70, DR110, DR220, Yamaha RX15, RX17, RX21, Korg DDD5. ☎ Gordon 01670 523363.

ROLAND CR8000 Any reasonable offer. ☎ Dave 0181 567 4205.

ROLAND R8M drum machine with 3 sound cards inc 808 card + manual, £300 or swap for D4 plus cash. ☎ Mark 01744 810091.

ROLAND R70 Hundreds of great sounds plus F/X, £300; Emu Procussion module, over a thousand great sounds, mint, £300. Both ono. ☎ John 01904 638272 (York).

ROLAND TR808 Offers or swaps. Wanted Quicklock 3 -ier or similar and Kenton Pro 2. ☎ Nigel 0171 582 1391 (London).

ROLAND TR909 Hardly ever used, as new, offers. ☎ 01895 678871.

SYNARE III electronic analogue drum synth with two oscillators and ring modulator effects. Great for techno sounds and quite rare. Fully working, £70 or best offer. ☎ Paul 01684 561397 (Midlands).

YAMAHA DD11 digital percussion 8 dynamic MIDI drum pads, 100 rhythm patterns, with speakers and drum sticks, £65. ☎ James 01978 351230.

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IGNITION MUSIK wants your material, jungle, ambient, techno, weirdness. Exciting label happening in London, we want your tapes and biogs. Contact: Caspar,13 Rydal Road, LONDON, SW16 1QF.

LIBRARY MUSIC company requires good writers. ☎ 01223 893920.

LYRICIST/VOCALIST available to collaborate with signed/published artists or publishing company on writing/recording projects. PRS member/TV and session experience. ☎ Chris 01909 569002.

NEW AGE LABEL requires writers. ☎ 01223 893920.

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ANATEK SMP16 programmable 8x8 MIDI and 16x16 audio patchbays, SMPTE sync, Mac I/F, etc, etc. 2U, giant LCD mint, £300. Wanted: Old Eventide stuff, Kenton Pro 4. ☎ 0181 692 8129.

APPROXIMATELY 600 radio, TV, audio valves, unused, original boxes. Any reasonable offer secures the lot. ☎ Paul 01685 350715 (South Wales).

DRUMS Parts of kit. Snare, hi hat, toms, bass drum etc, offers, will split. ☎ Pete 01792 416197.

EV LOADED Soundtech 200W PA cabs (15-inch + horn + tweeters) bi-ampable, excellent sound and punch, (amps etc available), £600 ono. Buyer collects! ☎ 01872 77059 (Truro).

FENDER RHODES Suitcase 73, Fender Strat, rosewood neck, custom model, Marshall JCM800 amplifier; Alesis Midiverb II; Roland GS6 guitar processor; Roland JX3P; Roland Juno 6; Roland RA201 space echo; Ibanez DM1000 digital delay; Emu Proformance Plus. Swap all or part exchange against decent keyboards, ie Korg Wavestation, SY99 or similar. ☎ Ian 01539 723631 (Cumbria).

GIBSON SG custom guitar, absolutely immaculate, practically unused since bought from new, in white with original case, cost £1,200, reluctant sale at £800. ☎ Tony 01705 601955 (office hours) (Hants).

19-INCH RACK Unit, 54-inches tall, £100 ono. ☎ Martin 01223 840436.

PA 3,300W 2 x 18 1200W bass bins plus top, mids. Offers around £1,300. ☎ Rupert 0114 233 8128.

PRS CLASSIC GUITAR Blue flame maple top, case and tools. Excellent condition and a lovely neck. 895 pounds. ☎ Paul 01684 561397 (Midlands).

RECORDING STUDIO for sale, fully equipped and purpose-built on large plot of land. Commercially established 12 years. Ten miles from Humber bridge, £27,000. ☎ Steve 01482 898951.

ROLAND 44Mb SYQUEST hard drive with four cartridges plus massive S750/60 library, offers; also Roland monitor for use with S-series Roland samplers, £120 ono; MQX32M MIDI interface for PC, 2 ins, 2 outs and SMPTE link Saw to a sequencer, cost £275 sell for £189; Cubase v2.61 for PC and Saw v5.1 for PC, offers. ☎ Paul 01302 538304 (Doncaster).

ROLAND GUITAR synth GR1 with SR-GR1-01 expansion and GK2 pickup. ☎ 01703 346855 (Hants).

SWAP FOR SOUNDSCAPE or similar 8-track system, Stepp DG1 and life support unit (mega analogue synth ie12 oscillators per string = 72 oscillators!). Also, offers or swop WHY, Tascam 239 rackmount. ☎ 0860 211417.

TANNOY MONITOR Golds, '60s classics. At low levels, your trousers flap in the breeze! Offers around £420. ☎ Martin 01223 840436.

TRIDENT VFM mixer 16:8:2, excellent condition, £485; Roland power mixer CPM120, 60W per channel, £170; Atari 1Mb, SM124 monitor, keyboard, mouse, all boxed, £180; CR78 Compurhythm unit, £220. ☎ 01904 653518.

VOYETRA VP11 PC-to-MIDI interface with PSU, boxed, as new, £80 ono. ☎ Mark 0181 503 9651 after 6pm.

YAMAHA WX7 MIDI wind controller, complete with power pack MIDI interface, brand new and unused, £270 ono. ☎ Kevin 0181 941 2873 (Middlesex).

ZIMMER FRAME inc bolts etc, £49; R2D2 frame, £35. ☎ Simon 01772 322642 (Lancashire).

ZIMMER RACK 32U stand, only £40. ☎ Martin 0151 726 9327.

WANTED

AKAI CD3000/S2000 sampler wanted plus CD-ROMS/CD-ROM player in any shape, format or size. Contact: Mark Murphy, 16 Elm St, Queens Rd, Hull.

AKAI MPC60 MKII wanted, cash waiting. Also BFS DPR502 Noisegate. ☎ 0181 883 4329 or 0860 482822.

BOSS SE70 £250; Spirit Absolute Twos, £200; Mackie 1604, £450, or swap Roland U20. ☎ 01788 860357 days, 01858 575353 eves.

DANCE CARD wanted for Roland R8 drum machine (number SN-R8-10). Decent price paid, cash waiting. ☎ Shaun 0161 431 0900 eves.

ENSONIQ EPS sampler memory expander wanted. ☎ Justin 01784 432385.

FOSTEX DCM100 MIDI mixer, Roland synth card for U220; Cheetah MS6 module. ☎ 01256 468208.

KURZWEIL K2000 daughter board with contemporary ROM and orchestral ROM expansions. Also wanted, any Proteus, Morpheus or Quasar sound modules. ☎ Paul 01302 538304.

ORLA DE49 or Viscount flute expander module, preferably with drawbars, also music roll spool box or mechanism with/without motor. Any format considered. ☎ John 01753 654596 (South Bucks).

PG800 PROGRAMMER, Cheetah MS6, MS800; Akai AX60, Korg Poly 6 wanted. ☎ 01670 523363.

PG800 PROGRAMMER for a Roland JX8P wanted, cash waiting, must be in good working condition etc. Also Wanted: RAM cards for Casio VZ8M. ☎ David 0191 372 2621 (Durham).

PRO TOOLS 3 wanted, cash waiting. ☎ 0181 883 4329 or 0860 482822.

RECORDABLE CD for Apple computer, speed not important, consider anything working and capable of creating audio CDs. Toast CD-Pro-compatible helpful but not essential. ☎ Leigh 01775 680740 anytime.

ROLAND JV1080 wanted. ☎ Brad 01633 873118 (day) 01633 865758 (eves).

ROLAND S760 wanted, must be in perfect condition, would prefer the one with OP-760-1 option board and sound library, also Yamaha SPX900 or 990 wanted, cash waiting. ☎ 0171 720 3702.

ROLAND TB303 urgently wanted, top price paid, will collect. ☎ Chris 01785 819929.

ROLAND TR909 drum machine. Cash waiting. ☎ Simon 01275 875597 after 7pm (Avon).

SEQUENTIAL CIRCUITS Pro -One wanted, preferably with flight and manuals, must be in perfect working order. Send description and price estimate to: Nils Oedegaard, Postboks 222, 1801 Askim, NORWAY.

SWAP ROLAND TB303 Bassline for Roland TR909 drum machine. ☎ 0171 625 4398.

TB303/TR909 Required urgently at any price! Will collect. No modifications please. ☎ Steve 01246 410799 (24H).

URI 1178 wanted desperately. ☎ Steve 01243 776275.

WANTED MUSIC EQUIPMENT Anything considered, eg sampler, keyboard, FX, DAT, mixer, modules etc. Especially Korg, Roland, Yamaha. Most wanted TR909, TB303, Minimoog. Your price paid. ☎ 01276 31010 (Hampshire).

YAMAHA TX802, Roland D550, Roland MKS70; Kenton Pro 4. Reasonable prices paid for gear in good condition. ☎ Paul 0114 287 9758. Email paul@ssurreal.demon.co.uk

YAMAHA TX802 Kawai K1r, Casio CZ101. ☎ Antony 01386 832586 or Email: dq03@cityscape.co.uk

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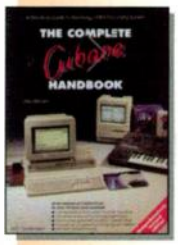

by Udo Weyers

After a short break, the definitive Steinberg Cubase Hanbook is back in print. This *new edition* is once again filled with real world applications and down to earth explanations of how to use all the powerful features offered by Cubase in all its many forms.

The book is now relevant to all three platforms (Atari, Mac and PC), and the main attraction of the revised text is its focus on Cubase Score. The Complete Cubase Handbook is a not-to-be-missed purchase for users of Steinberg's highly popular software.

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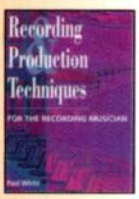
RECORDING & PRODUCTION TECHNIQUES

by Paul White.



This highly informative book by SOS's own Editor demystifies the techniques used by professionals in the recording of contemporary music. It reveals how to make full creative use of all manner of studio effects and signal processors. These techniques can be utilised both in the home and commercial studio. The book concludes with an invaluable section on master tape formats and an overview of the various processes and vinyl records.

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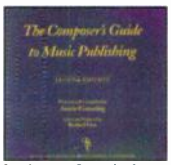

written & compiled by Annie Gunning

This book has been produced by the Association of Professional Composers and examines the business of musical copyright and music publishing from the composer's point of view. It aims to educate composers of all kinds of music in the operation of the music publishing business to help them obtain, negotiate and benefit from publishing agreements and avoid expensive mistakes. Apart from publishing, the book also covers copyright legislation, performing and mechanical rights, the royalty administration societies, music in film, broadcasting, theatre and ballet and commissioning agreements. There is also advice for composers setting up their own publishing companies. An exhaustive and useful book.

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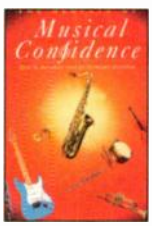
THE SECRETS OF MUSICAL CONFIDENCE - How to Maximise Your Performance Potential



By Andrew Evans

Written by a musician and psychologist, this is claimed to be a first for musicians: a book aimed at maximising performance potential and increasing confidence. A series of questionnaires and exercises allow you to analyse your abilities and needs and allow you to deal with stress, creativity and career management, amongst other topics.

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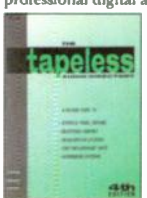
(4th Edition) *By Yasmin Hashmi*

Completely updated, this 4th edition is the only international buyers guide to over 200 professional digital audio workstations and systems aimed at cart replacement and broadcast automation. The comprehensive listings include target markets, hardware and software specifications, operational features, networking and file translation, future development plans, training and customer support, costs and suppliers details for USA, Europe and Far East. The Directory not only covers all existing systems, but those soon to be launched and those on which development has been halted. It also provides a comprehensive explanation of the terminology, with useful tips for potential purchasers.



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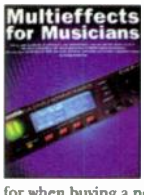

by Craig Anderton

Occasional SOS contributor Craig Anderton adds to his long list of music technology-based books with this comprehensive look at multi-effects units. The book helps you with what to look for when buying a new unit, how to use it when you've got it home, and provides a collection of tips to help you get the most out of your device. 137 Pages.

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TECH TERMS - A Practical Dictionary for Audio and Music Production

by George Petersen and Steve Oppenheimer

This is a concise collection of definitions of electronic music and recording terms; 300 words and phrases are given quick accurate definitions in plain English. So if you're new to recording, synths, samplers and MIDI, this book could be a big help in getting your mind into the terminology.

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New from Sypha is the Nonlinear Buyers Guide. Known especially for their definitive digital audio-focussed Tapeless Directory (look out for the 4th edition in the future), Sypha have applied the same comprehensive approach to digital video systems. The first edition of The Nonlinear Buyers Guide is the only international source of information on over 150 nonlinear video systems. Products included in the Guide are nonlinear editing systems, mixed mode editing systems, plug in cards and software for editing, disk recorders and servers. The information is provided in an easily accessible format and includes operational and technical specifications, future developments, costs and suppliers details. The Guide also gives useful pointers to those considering investing in a system.

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AUDIO

by F A Wilson

Volume 6 of the Elements of Electronics series, *Audio* offers a comprehensive guide to the physics of sound, its recording and its reproduction. There is a lot of physics used in the book – in fact, this aspect makes the book a good basic text for those with a serious interest – but the text in between the formulae is clear and informative. Not bad value for £3.95 – a total of 308 pages.

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SOUND FOR PICTURE

Edited by Jeff Farlenza and Terri Stone

Covers all aspects of film and TV sound, dialogue, music, effects recording, and editing and assembling the result into a final soundtrack. Technical and creative aspects are all covered, and a comprehensive glossary is provided. A good proportion of the book is also taken up with a selection of case studies (including Malcolm X, The Abyss, Northern Exposure and Twin Peaks) that provide hands on information.

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by Godric Wilkie

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By Steve De Furia & Joe Scucciaferro

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By Freff

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RECORDING

RECORDING TECHNIQUES FOR SMALL STUDIOS

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This well written, user-friendly book is designed to offer accessible and helpful tips on how to get the most out of the equipment in your studio. Chapters cover: mic techniques; musical arranging for recording; 4-track recording; the mixer; preparing for an running a session; recording drums; recording vocals; integrating MIDI; using effects and signal processing; location recording, and digital recording. The book is rounded off with an "any questions" section, a glossary and a list of recording studios in the UK. As you would expect from a book based on an SOS series, this is a *must have!*

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THE COMPACT DISC HANDBOOK

SECOND EDITION

by Ken C. Pohlmann, Prominent American audio-engineer and writer on digital audio

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'compelling and fascinating reading, written by an expert with the knack of making complex explanations understandable.' ***Image Technology.***

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Alan Parsons, Bill Foster & Chris Hollebone

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ALL YOU NEED TO KNOW ABOUT THE MUSIC BUSINESS

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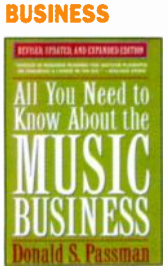

by Donald S Passman

This book is a must: the author manages a portfolio of high profile clients and teaches music business law at the University of Southern California, and has produced a clear overview of the music business. He starts at the beginning of your career, with advice on choosing a manager, lawyer and agent, and moves through getting a record deal, songwriting and music publishing and finishes with details of copyright, mechanical royalties, songwriter deals, films and more. An exhaustive and entertaining read. 415 Pages.

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HOW TO PITCH AND PROMOTE YOUR SONGS

by Fred Koller

The title is self-explanatory: if you've got the songs, and you want someone to hear, publish and/or record them, then this book could save you a lot of grief. There's a lot of sensible information about the music biz in general, plus a few (American-biased) words about setting up as your own publishing business.

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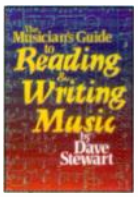
THE MUSICIAN'S GUIDE TO READING & WRITING MUSIC



It's an entertaining but practical introduction, well, to reading and writing music. This is as friendly as it comes. Learning to read and write music isn't easy, but at least the process is lightened up with considerable doses of wit.

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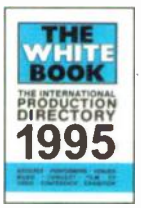
THE WHITE BOOK INTERNATIONAL PRODUCTION DIRECTORY 1995



This is the latest edition of the essential source of contacts for artists, performers, venues, services and facilities associated with music, concerts, shows, festivals, film, TV, video, conferences, exhibitions and corporate hospitality - there's even a comprehensive international section. The layout is logical and an index makes fact finding an easy task - altogether an indispensable 864 pages. The new edition once again comes with a complementary copy of The Little White Book, which distils the contents of the larger volume to a pocket-sized list of names and phone numbers.

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THE SONGWRITER'S MARKET GUIDE TO SONG & DEMO SUBMISSION FORMATS

From the Editors of Songwriter's Market

If you've got the songs and you've got the contacts, this book will help you to choose a format that will get your demo heard as well as overall packaging and presentation and dealing professionally with publishers, A&R reps and other industry people. Plenty of example documents (lyric sheets and letters) are given, and the book is nicely rounded off with a glossary and index. Hardback.

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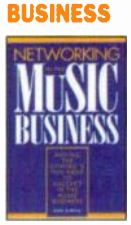
NETWORKING IN THE MUSIC BUSINESS



by Dan Kimpel

Think of this book as a popular psychology course for musicians. If you feel you could benefit from developing a positive attitude to getting ahead in your area of the music business, then *Networking* is for you. There's nothing like it for good, sensible advice: it's often not enough to have talent. To be successful, you'll need to persevere, have good "people skills", and exercise good networking skills. Success depends on what you know, who you know, and perhaps most importantly, who knows you. An essential book, and a snip at £11.95. Hardback.

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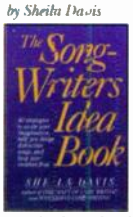
SONGWRITERS IDEA BOOK

by Sheila Davis



If you want a textbook, this is it: 250 pages of serious, intelligent insight into songwriting. Loads of good advice and a friendly tone make this a useful read to anyone, whether beginner or seasoned pro. The focus is firmly on lyrics rather than music, and the prominent references to poetry terminology shouldn't really be a surprise. Use Davis' 40 strategies and you to could soon be "designing distinctive songs". Hardback.

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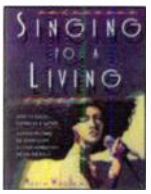

by Marta Woodhull

The title says it all. If you're already a singer, this book gives you everything you need to know in order to exploit your talent further: looking after your voice and voice exercises, business advice and marketing and audience interaction are all covered in this straightforward book.

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BEGINNING SONGWRITER'S ANSWER BOOK

by Paul Zollo

If you're just starting out as a songwriter to haven't progressed very far, perhaps you have questions about the art and business of songwriting that you can't find answers for. Chances are, they're covered in this book. Over 200 of the questions songwriters most often ask are answered in this book. There are 11 chapters, covering subjects such as lyrics, theory, song structure, collaboration, demos, publishing and the music business. Some answers - such as "What makes a professional-sounding demo?" are actually mini-articles - and an index allows you to target subjects without wading through the text. A friendly, informative read.

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Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

SONGWRITER'S WORKSHOP

Edited by Harvey Rachlin

If you want to work systematically at improving your songwriting skills, then try this book: it's divided into four individual 'lessons', each of which is backed up by audio material on cassette. This allows you to listen in the car or walk around with your personal stereo and still absorb useful information. The four sections are: On Songwriting by Janis Ian (yes, *the* Janis Ian); Making Demos by John Barilla; Understanding MIDI by James Becher; and The Art of Pitching Songs by Teri Muench (ex-A&R director with RCA and publisher). Also included is an intro, a quick and breezy glossary and an index. Includes two cassettes.

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MUSIC BUSINESS AGREEMENTS

NEW!

by Richard Bagrhot

Written by a practising music business solicitor, "Music Business Agreements" can be seem as a legal textbook for the UK music industry. Don't let the formal tone put you off: this book is a mine of information with reference to real-life problems and examples, and a helpful question and answer appendix. Expensive, but invaluable. 522 Pages.

CODE B303 **£58.00**

Postage: UK £2.50, Europe £5.50, R.O.W. £8.50

THE ARC MUSICIANS' DIRECTORY

The new Musicians' Directory from Arc Publishing aims to provide all things to all musicians: whatever your style of music, the comprehensive listings offer you the contacts you need, whether it's labels, studios, venues, music shops or management - and that just scratches the surface of the dozens of topics covered by the book. Apart from being a directory proper, the Handbook also includes a selection of useful articles, including subjects such as how to be a session player (by SOS's very own Paul White), music publishing, releasing your own record, copyright protection, accounting, legal advice and more. The Musicians' Directory offers over 380 information-packed pages for little more the price of a new CD.

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88 SONGWRITING WRONGS & HOW TO RIGHT THEM

by Pat & Pete Luboff

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.

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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.

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by Bobby Maestas

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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.

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YAMAHA SY55 GUIDE

by Bobby Maestas

A good helpful look at this arguably overlooked instrument; technicalities are explained in context of music throughout. 155 pages.

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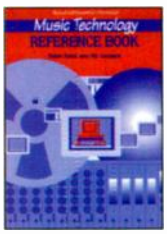
MUSIC TECHNOLOGY REFERENCE BOOK

by Peter Buick & Vic Lennard



Written by Peter Buick and Vic Lennard (author of SOS's Atari Notes column), this book offers information at your fingertips and is an indispensable reference source for the musician or sound professional in the recording, broadcast, live, video, computer, multimedia, post production and theatre industries. It includes comprehensive MIDI spec, General MIDI, MTC, MSC, and SysEx information. It also includes charts, check lists, useful hints, tips, and ideas, plus a glossary, list of contacts and a comprehensive indexed, it is also organised into convenient sections. 150 Pages.

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 RA 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

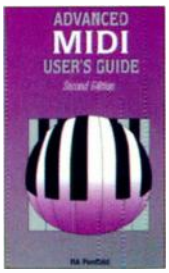
Series Editor: John Strawn

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 system to get the best results from your particular setup, and you'll find out how to use gadgets like switchers and mergers to enhance your system. If you want to incorporate a multitrack tape recorder into your MIDI system there's a section on synchronisers, SMPTE and MIDI time code, and retro freaks will learn how to hook up that dusty old analogue synth to their MIDI systems.

CODE B152 **£10.95**
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

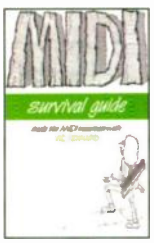
MIDI SYSTEMS AND CONTROL

By Francis Rumsey.

This revised edition has been expanded in an umber of topic areas, to provide even more comprehensive coverage of every area of MIDI. Contents include: an introduction to principles and terminology; MIDI timecode; librarians and editors; different approaches to sequencer software design; practical systems design.

CODE B007AM **£19.95**
Postage: UK £2.50, Europe £6.95, R.O.W. £9.50

MIDI SURVIVAL GUIDE

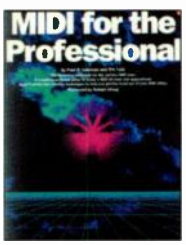


by Vic Lennard

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 Lehrman and Tim Tully

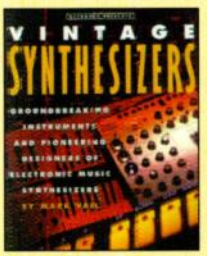
Co-written by SOS contributor Paul D Lehrman, this substantial, exhaustive work covers pretty well any aspect of MIDI that you could think of. As an overview of what MIDI is and does in 1994, this 239 page book couldn't be better.

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.

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Postage: UK £2.50, Europe £6.95, R.O.W. £9.50

KEYFAX 2

by Julian Colbeck

1989 version of Keyfax provides individual summaries and specifications of the last of the great mono synths, digital pianos, and classic polysynths like the Roland JX10 and Prophet VS -forerunner of the SY22 and Wave Station. Early Keyboard and rack-mount samplers are covered in this indispensable guide. Still a great buy.

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KEYFAX 4

by Julian Colbeck

The new Keyfax book (1993) is the most comprehensive guide to professional keyboards yet compiled, Keyfax 4 spotlights synthesizers and expander, and MIDI keyboard controllers. From classic analogue machines right up to the latest synth/sampler hybrids. Reviews include technical tour on a practical, need-to-know basis. Everything you need to decide which instrument is best for you.

CODE B201 **£12.95**
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

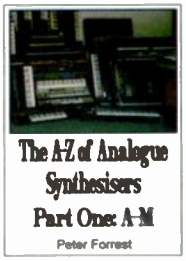
THE MUSEUM OF SYNTHESIZER TECHNOLOGY

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 hardcore synth fanatic will want this book for the pictures. In these pages you will glimpse instruments that you are unlikely ever to experience in the flesh: an exceedingly large Roland System 100 modular set-up, an EMS Synthi 100, an ARP 2500, a large Emu modular and what must be the comprehensive collection of Moog equipment anywhere. The Museum of Synthesizer Technology book is yours for £24.95, plus postage.

CODE B291 **£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.

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Postage: UK £1.95 Europe £5.50 R.O.W. £8.50

DRUM MACHINES

DRUM PROGRAMMING — A Complete Guide to Program and Think Like a Drummer

By Ray F Badness

Coming from a publisher that has a good range of real drum texts, we'd expect this book to be a little different. And it is: it gives plenty of insights into how real drummers approach their job, and there are plenty of example patterns to help translate these ideas to a drum machine.

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DRUM MACHINE RHYTHM DICTIONARY

By Sandy Feldstein

For use with Roland drum machines or any grid-based pattern system. First 75 pages on programming huge range of rhythms in rock, latin, jazz and funk styles. Remainder analyses styles and patterns of world's top drummers - Phil Collins, Billy Cobham, Steve Gadd, Stewart Copeland, etc. Highly recommended.

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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.

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260 DRUM MACHINE PATTERNS

By Rene-Pierre Bardet

Even more drum pattern styles (paso doble, charleston, etc)

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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.

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PLAYING TECHNIQUES

CLASSICS IN SEQUENCE

by William Lloyd & Paul Terry

Takes concepts behind Music In Sequence and applies them to all-time favourite classical music scores. Authors show how to make fresh, exciting interpretations of classic scores. Info on reverb and effects, interpreting scores, editing synth voices. Highly creative—an ideal workbook for the music classroom. Covers Medieval, Renaissance dance music, Bach's Toccata in D minor; Vivaldi, Purcell, Handel; opera excerpts from Rossini, Verdi, 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!

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Postage: UK £2.50, Europe £6.95, R.O.W. £9.50

SOLID GROOVES

By Dieter Peterreit & 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.

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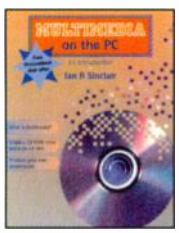
COMPUTERS & MUSIC

MULTIMEDIA ON THE PC



By Ian R Sinclair

If you want to know what multimedia is and what it can offer you, then this is the book for you. Much of the information is general enough for everybody, but as the title suggests, the book is aimed at PC users. The book explains the installation and use of a CD ROM drive and a sound card and covers all key concepts behind multimedia. As an added incentive, if you buy this book, you can send away for a free copy of *Picturebook*, a multimedia authoring package.

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 provide with comprehensive appendices covering a glossary and comprehensive product and manufacturer lists.

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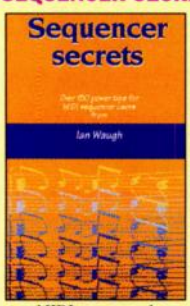
SEQUENCER SECRETS



Ian Waugh

Ian's book aims to "go beyond the manual" in telling you how to get the best from your sequencer. The book features 29 hands-on sequencing projects and is suitable for use with all software sequencers. The book hopes to help you optimise your MIDI system and use your sequencer to create all sorts of useful effects. A troubleshooting section helps you track down stuck notes, double notes and so on.

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COMPUTERS AND MUSIC

By R A Penfold

2nd edition. Covers hardware and software applications. Excellent glossary of jargon, and now bang up to date.

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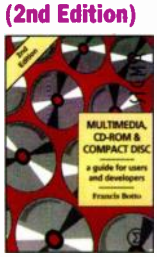
MULTIMEDIA, CD ROM & COMPACT DISK – a guide for users and developers (2nd Edition)



by Francis Botto

Ppractical guide to CD ROM and interactive multimedia aimed at both users and developers. Virtually all platforms and technologies are covered in this book - CD-I, CD ROM, CDTV, Macs, PC clones etc - and a comprehensive range of appendices include a glossary, and lists of development tools, manufacturers, and existing CD ROM titles. All aspects of system development - from image capture to sound - are covered.

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MUSICAL APPLICATIONS OF THE ATARI ST's

By R A Penfold

Includes a general introduction to MIDI, a handful of MIDI add-on circuits (Thru box, MIDI switcher and so on), plus a collection of programs, in Fast BASIC, that allows you to use the ST's internal sound generator and create little MIDI applications.

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LIVE SOUND

SOUND REINFORCEMENT HANDBOOK

by Gary Davis and Ralph Jones

From recording to broadcast, fixed installations to touring, this 400 page reference covers live sound setups, equipment, techniques and jargon.

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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.

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THE FOCAL GUIDE TO SAFETY IN LIVE PERFORMANCE

Edited by George Thompson

This book provides an authoritative look at safety matters for workers in the live entertainment industry. It is edited by the Standards Officer of PLASA (Professional Lighting and Sound Association), and provides good solid information in an easily digestible, well-illustrated form. Topics covered include audience and crowd control, fire safety precautions and engineering, electrical safety, laser safety, sound levels and noise control and much more.

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INTRO TO LOUDSPEAKER& ENCLOSURE DESIGN

by V Capel

The book provides both useful background to speakers and enclosures in general, plus practical information on crossovers and full details on constructing the so-called 'Kapellmeister' design of speakers.

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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.

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PUBLIC ADDRESS LOUDSPEAKER SYSTEMS

by V Capel

All aspects of PA speaker systems are covered in this book, including low-impedence matching, 100V systems, transmission lines and how to install inductive hearing aid loops. At the heart of the book is the Line-Source Ceiling Array, a system that is claimed to improve clarity, even coverage and reduce feedback. Full step-by-step construction and installation details are given.

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ELECTRONIC PROJECTS

ELECTRONIC PROJECTS FOR MUSICIANS

CODE B068 **£10.95**

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MIDI PROJECTS

by R A Penfold

A comprehensive collection of simple MIDI projects, including CV and gate converters and a MIDI Thru box. A lot of the book is taken up with interface various obsolete computers to MIDI (Spectrum, CPC464, Commodore 64, BBC B, ZX81 and so on), but the general information is basically sound. Could prove a boon to musicians who are *really* broke!

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PRACTICAL ELECTRONIC MUSIC PROJECTS

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HIGH POWER AUDIO AMPLIFIER CONSTRUCTION

By R A Penfold

Much useful background to amplifier design, speaker matching and more is included in the first couple of chapters, while the last section contains a selection of high power amp circuits plus suitable PSU circuits. Copper track patterns are also provided to allow you to make your own PCBs. While the circuits aren't too difficult as such, those with limited constructional experience should note that due to the high supply currents and voltages involved, even minor mistakes could be extremely dangerous.

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ELECTRONIC MUSIC AND MIDI PROJECTS

by RA Penfold

Want a MIDI THRU box, patchbay or switcher? Well they're all here. And you don't need a degree in electronics either. All the projects are explained in detail, with full instructions on assembly. So if your into MIDI and you want to expand your system without taking out a second mortgage, fear not. Here's the book to help you build up your MIDI system without laying out thousands on hardware.

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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.

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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.

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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.

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Postage: UK £1.50, Europe £6.95, R.O.W. £9.50

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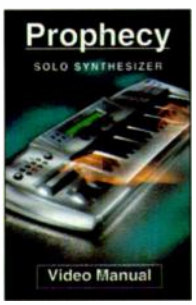
SOS Videos

KORG PROPHECY VIDEO MANUAL



Written by Phil MacDonald

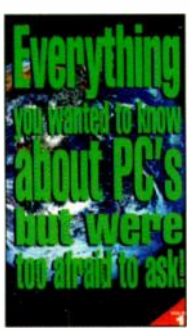
Korg's new Prophecy Synthesizer now has its own video manual!

The video covers all the major features over 6 sections, with lots of examples 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
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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 muli-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

ROLAND MS-1 VIDEO MANUAL

This video manual has been produced by Roland Corporation US, and has been designed to provide the user with tuition, and examples of how to apply your new found knowledge in various applications. There is also a comprehensive "Tips & Tricks" section to give you that extra edge!

CODE V047 **£24.99**

Running time: 50 minutes (approx)
Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

BOSS DR-5 DRUM MACHINE

Presented by Nick Cooper (Roland UK Product Specialist) this video covers all the functions of the DR-5 in a clear and concise manner. Produced in association with Roland UK & USA. By using the information gathered from Roland 'helplines', particular attention has been paid to the areas that many users find most difficulty in. This makes it of interest to beginners and experienced users alike. Nick imparts the information with ease and a professional manner, making it enjoyable and entertaining.

CODE V043 **£19.99**

Running time 57 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

KORG AX30G TONEWORKS VIDEO MANUAL

The Toneworks series of guitar processors from Korg gets a real work out on this 55 minute tape. Korg's guitar demonstrator Steve Fairclough whizzes through the G1, G2, G3 and the flagship AX30G and provides clear explanations of how each units works. And to put the units into context, there's lots of footage of Steve showing off the sonic capabilities of each processor (not to mention his prowess as a guitarist).

ORDER CODE V028 **£19.99**

Postage: UK £1.75, Europe £4.95, R.O.W.£6.95

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: 88minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

THE ART OF SEQUENCING

Composer Don Muro presents six lessons that demonstrate how to create a multitimbral sequence, how to correct wrong notes, how to correct rhythmic errors, how to correct dynamics, how to change synth programs, and how to change tempos. *The tape is not dedicated to any one sequencing package - the information is valid no matter which sequencer you use.*

CODE V030 **£30.95**

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

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: 1hour 30 minutes Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ENCORE 3.0 FOR WINDOWS

The basics of Encore for Windows is covered, with in-depth tuition over 83 minutes. Everything you need to get up & running is here. Basic MIDI, Score Layout, Accidentals, Key Signatures, Note Editing, Step Time Entry, Adding Staves, Click Setup, Record Setup, Linear View, Quantisation, Editing, Printing, Staff Position & Spacing, and much more...

CODE V036 **£34.99**

Running time 83 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ORDER NOW!
01480 461244

YAMAHA PSR6000 ELECTRONIC KEYBOARD VIDEO MANUAL

Yamaha's PSR6000 is a home keyboard with a difference, and offers many professional features plus excellent sound quality. Tim Walter starts at the beginning and makes the instrument look easy and fun. His enthusiasm is catching, and, yes, the PSR6000 is a very capable instrument. The tape runs to 75 minutes, which makes for excellent value.

ORDER CODE V029 **£19.99**

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND GR-1 GUITAR SYNTH

These two video manuals have been produced to help the user get the most out of Roland's sophisticated GR-1 guitar synth, the first covering all the basics from mounting the pickup and getting tuned up to selecting sounds and using the on-board sequencer. Each step is patiently explained and demonstrated by Roland's guitar synth specialist, Jay Stapley.

The Advanced tape takes the mystery out of sound editing, custom tuning, advanced sequencer applications, external sequencer hookups, using other MIDI sound modules, indeed virtually everything the GR-1 is capable of doing. If you own a GR-1 or are thinking of buying one, do yourself a favour and order these indispensible 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

ROLAND JV-1080 VIDEO MANUAL

Roland's amazing JV-1080 synthesizer module is covered in detail in this informative video. Presented by Tim Walter the video the video guides you through the basics, and leads you 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

HOW TO GET A RECORD DEAL

The facts you need from the people who know. How To Get A Record Deal contains vital information and insight that you will not find anywhere else, from artists and executives who have made it and know what it takes. On this video music industry pros give you the straight facts on how to break into this extremely competitive business. Because sometimes the difference between success and failure is information.

Presented by the National Academy Of Songwriters

CODE V003 **£14.95**

Running time: 1 hour 7 minutes
Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

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 Overiew, 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, Extrack 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

SOS MAIL ORDER ☎ 01480 461244 SOS MAIL ORDER ☎ 01480 461244

OVERNIGHT DELIVERY OPTION: ONLY £5.00! See Order Form for details

EMAGIC NOTATOR VIDEO TRAINING MANUAL

This video manual is detailed and helpful, and is presented in a most friendly and approachable manner by session musician Tim Walter, whose tone throughout the video encourages and inspires confidence. If you are new to Notator and are still in awe of its power, this is the video to bring you down to earth. An introduction and 28 tutorials take the user from the absolute basics - including plugging in the dongle - to working with Unitor and SMPTE, and synchronising to video. As well as actual recording of MIDI data and sequencing, comprehensive coverage is given to using the score layout and printing facilities that are so much a part of Notator. Topics covered include; sequencing page, score editing, lyrics and text, graphic arranger mode, hyper edit, the printer page, using the part box.

CODE V012 **ONLY £19.99**

Running time: 2 hours 20 minutes Format:VHS(PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

THE EMAGIC LOGIC TUTORIAL VIDEO VOLUME 1

Produced by Emagic themselves, this video once again sees Tim Walter (featured on the excellent Notator video) in the tutor's chair. There are plans for a series of videos which become ever more detailed and informative, but for now Volume 1 takes you through the first steps of getting the software up and running, and covers virtually all the controls you'll need. *This video is valid for all versions of Logic, whether being run on an ST, Mac or PC.* Presentation is rather intriguing, with a mobile camera that helps to hold the interest more than the average training video and some interesting graphics that aid comprehension and help to quickly find specific tutorials and bits inside tutorials. Contents as follows:

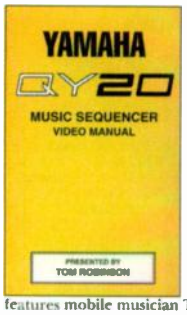
- Tutorial 1: The Arrange window and basic sequencing
- Tutorial 2: Playback parameters & Toolbox
- Tutorial 3: Controlling MIDI data flow
- Tutorial 4: Manipulating sequence data
- Tutorial 5: Moving around in Logic
- Tutorial 6: Windows and key commands
- Tutorial 7: More sequencing
- Tutorial 8: Score
- Tutorial 9: Looking at the Event List
- Tutorial 10: Editing the Event List
- Tutorial 11: Using the Environment
- Tutorial 12: The best of the rest (HyperEdit, Matrix Editor, Cycle Mode and more).

CODE V023 **£29.99**

Total running time 70 minutes Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

YAMAHA QY20 MUSIC SEQUENCER VIDEO MANUAL

by Tom Robinson



Yamaha's popular QY20 portable sequencer/ sound source is a deceptively simple device to use; if you think you might like some insight into getting that little bit extra out of the device, then look no further. Produced in co-operation with Yamaha, the video features mobile musician Tom Robinson showing you how to get the best from this portable marvel. Tom, who has used the QY20 extensively as a writing tool on the road, says: "I never leave home without it".

CODE V016 **£19.99**

Running time: 90 minutes Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

PERFORMER 5.0 BASICS FOR MACINTOSH

NEW

Expert tuition covering the basics and more for Performer 5.0. This video will provide you with all that you need to know, covering all the major topics: Basic MIDI, Tracks Window, Multitimbral Operation, Patch Changes, Time Signature & Meter, Real & Step Time Recording, Event List/Graphic & Notation Views, Regional Editing, Quantisation, Transposing, Copy/Cut/Paste/Merge & Erase, Loop Recording, Track Palette, Device Groups, Counter Window, and much more.

CODE V042 **£34.99**

Running time 87 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND JV-90 SYNTH

NEW

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

KORG X3

This video offers an easy way in to this powerful workstation. It starts from absolute basics, including audio connections and volume levels, and the clear and helpful script covers all basic facilities of the X3. The video features a sophisticated use of picture in picture, with the X3's display cut into the main image to show you clearly what Phil is actually doing, and main points are reinforced with on screen text and graphics. The main section headings are:

- *X3 Audio Connections*
- *Getting Around the X3*
- *Factory Disk*
- *Disk Drive Modes*
- *Selecting Sounds*
- *Global Modes*
- *Sequencer Mode*
- *Quick Sound Editing*
- *Playing MIDI Files on the X3*
- *Using the X3 with an external sequencer*

Note that these are loose headings, with each section also containing information on connected subjects in varying amounts of detail. A lot of ground is covered, and we can recommend the tape to any X3 owner.

CODE V018 **£19.99**

Running time: 55 minutes Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

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 instument before laying out your cash, this is the video for you.

CODE V027 **£19.99**

Running time 55 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ANALOGUE HEAVEN

Remember our feature on the opening day of the Museum of Synthesizer Technology which we ran back in October 1994? Wish you'd actually been able to attend? Well, now you can have the next best thing: the museum has released a fascinating 50 minute promo video that features footage shot on the day as well as a lightning tour of the facility. The program is hosted by SOS contributor Julian Colbeck. The tape opens with synth pioneer Bob Moog making the inaugural speech and officially opening the museum, followed by a nostalgic run through one of his old modular systems. Analogue Heaven makes diverting viewing for anyone interested in vintage synths, represents good value, and offers the perfect companion to the Museum's guide book. also available from SOS Bookshop.

CODE V026 **£15.95**

Running time: 50 minutes Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

CUBASE 2.6 FOR WINDOWS BASICS

NEW

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, Arrangments, Arrange Window, Transport Functions, The Inspector, The Toolbox, Quantisation, Grid Editor, Step Recording, and much more.

CODE V035 **£34.99**

Running time 85 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

MASTER TRACKS PRO 4/5 BASICS FOR WINDOWS & MACINTOSH

NEW

All the basic functions of Master Tracks, from installing the software to advanced editing. Everything you need to know to get you started and beyond in easy to understand step-by-step instructions. Basic MIDI, Track Editor Window, MIDI Settings, Screen Layout, Conductor Window, Transport Controls Window, Inserting Measures, Step & Real Time Recording, Event List Editor, Piano Roll Editor, Quantising, and much more.

CODE V041 **£34.99**

Running time 105 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

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.

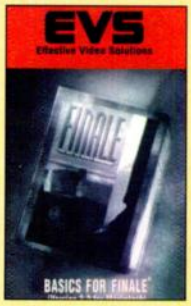
CODE V025 **£19.99**

Running time 69 minutes Format VHS (PAL)
Postage: UK £1 75, Europe £4.95, R.O.W. £6.95

4 FINALE 3.0 VIDEO MANUALS

FOR WINDOWS & MACINTOSH

NEW



Four superb videos covering the Windows Version and four for the Macintosh version. From Basics through to the most Advanced topics in Power User, these detailed videos will guide you through Finale, giving you the knowledge you need to become a Finale expert with ease.

BASICS

MIDI setup, Tool Palette, Default File, Customising Templates, Drawing Slurs & Expressions, Key & Time Signatures, Metatools, Music Spacing & Allotments, Printing, Measure & Page Layout, and much more.

CODE V037 **£34.99**

Running time 123 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

BEYOND BASICS

Custom Instrument Library, Font Size, Pickup Measures, Measure Number Enclosures, Chord (midi & manual input), Finale Chords, Guitar Fret Boards, Mirroring, Mass edit Menues, Transoping, Alternate Notation, Moving Layers, and much more.

CODE V038 **£34.99**

Running time 92 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ADVANCED

Clef Changes, Text Blocks, Tempo Tool, Multi-measure Rests, MIDI Tool, Making an Ossia, Optimising Staves, Custom Score Layout, Page Tool, Multiple Windows, Tiling Pages, and much more...

CODE V039 **£34.99**

Running time 75 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

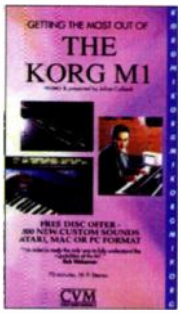
POWER USER

More Options Menu, MIDI Tool, Optimising Staves, Using Clip Files, Grouping Staves, Using a Macro Program, Shape Designer, Importing MIDI Files, Multiple Windows, Short Cuts, Hints & Tips, Advanced MIDI Topics, Tiling Pages, and much more...

CODE V040 **£34.99**

Running time 108 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

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 he whole range of this world-beating instrument.
Comes with a FREE exclusive custom library of fabulous new M1 sounds on Atari format floppy disk (100 Programs, 100 Combinations) created by ABWH/Yes programmer Chris Macleod.

CODE V002 **£24.95**

Running time: 1 hour 10 minutes Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

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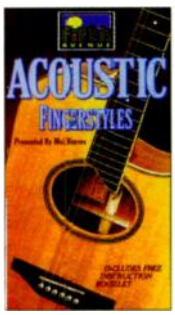
SOS Videos

ACOUSTIC FINGERSTYLES NEW



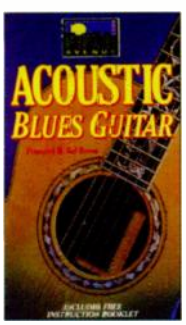
Presented by Mel Reeves

In this video there are 5 major instrumental studies to work through including country, classical and blues. Each style is broken down into small sections allowing you to learn more quickly and efficiently. Each piece is demanding, but great fun to play.The final section looks at styles and techniques used by players such as R.E.M, The Eagles, Sheryl Crow and Paul Simon, and provides an insight into creating new and interesting fingerstyles of your own.

CODE V059 **12.99**

Running time approx 90 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ACOUSTIC BLUES GUITAR NEW



Presented by Mel Reeves

Whether you can already play fingerstyle guitar, or are simply familiar with basic chords, this programme will show you all of the necessary techniques to play great blues guitar. All of the technical aspects are explained in the clearest possible way before getting down to the real business of learning 5 real blues that are great to listen to and terrific to play.

CODE V058 **12.99**

Running time approx 63 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

PLAY KEYBOARDS NOW! NEW

Presented by Mel Reeves

An up-to-date video/booklet that gets to the heart of modern keyboard playing with no need to read music!

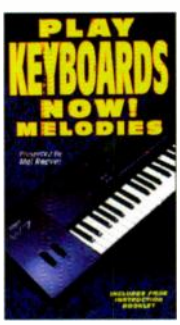
All you need to be able to create pop, rock and even jazz chord accompaniments using major, minor, seventh, sus 4th and added 9th chords. Learn arpeggios, random arpeggios, chord 'splitting', crushed tones, boogie blues, inversions and much more.

Free instruction booklet and stickers included.

CODE V054 **£12.99**

Running time approx 60 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

PLAY KEYBOARDS NOW! MELODIES NEW



Presented by Mel Reeves

This programme will not only teach you note reading, rhythm, rests, ties and how to move up and down the keyboard with ease, but will also teach you 6 complete melodies familiar to lovers of rock, pop and classical music.

In addition, there is a further look at improvising, making use of melody and scales combined.

Clear computer graphics and the booklet enclosed will mean you won't miss a thing.

CODE V057 **12.99**

Running time approx 55 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

PLAY BLUES NOW! NEW

A complete guide to blues guitar playing that shows a variety of blues rhythm and soloing styles — for both beginners and advanced players alike.

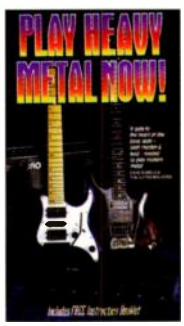
Learn the blues style of Eric Clapton, Stevie Ray Vaughan, Peter Green, etc. The programme not only covers the usual blues shuffles and scales but using 4 complete songs, gives you the resourses and techniques to create professional blues parts and solos in a wide variety of blues styles.

CODE V051 **£12.99**

Running time approx 50 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

PLAY HEAVY METAL NOW! NEW

A concise, easy to follow video guide to real heavy metal playing for guitarists of all levels.



A guide to hard rock/heavy metal techniques for guitarists of all levels. The programme covers RHYTHM, SOLOING, and TECHNIQUE. All of the techniques, solos, etc are clearly demonstrated

No need to read music.

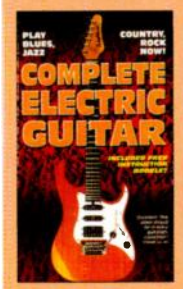
Free booklet contains tab, chord and scale diagrams.

CODE V052 **£12.99**

Running time approx 65 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ORDER YOUR VIDEO NOW!
01480 461244

COMPLETE ELECTRIC GUITAR NEW



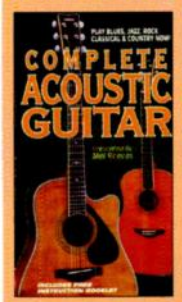
Presented by Mel Reeves

Learn how to create solos and rhythm parts in any style! The programme covers ROCK 'n' ROLL, BLUES, JAZZ, COUNTRY, ROCK and FUSION and much, much more. Plus the clearest possible guide to chord and scale construction, tonal centres and working out parts for yourself. Includes free construction booklet.

CODE V050 **£12.99**

Running time approx 65 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

COMPLETE ACOUSTIC GUITAR NEW



Presented by Mel Reeves

Whether you only know a few chords, or are already proficient, this easy-to-follow programme will show you all of the main guitar styles, as performed on the acoustic guitar. As well as learning tips and 'tricks of the trade' Mel Reeves will show you 6 great instruments, step-by-step and take your playing to new heights. Plus, open tuning, the capo, high-strung guitar, reading music and more!

Styles include: Guns 'n' Roses, Bon Jovi, Hendrix Blues, Mississippi Blues, Django Style Jazz, Nuits En Moscow, Classical, Romance, Carter Style, Buffalo Gals and Bottleneck/Slide Style.

CODE V056 **£12.99**

Running time approx 78 minutes
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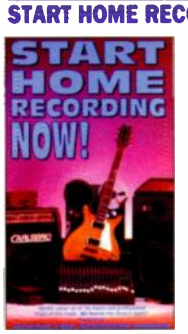

This is the ideal volume one guide to the use of home recording equipment. From the set up of basic 4-track cassette machines to sub-mixing Mel Reeves uses straight-forward language to talk to fellow musicians about the methods used to get the sounds in their heads onto tape. Includes free instruction booklet.

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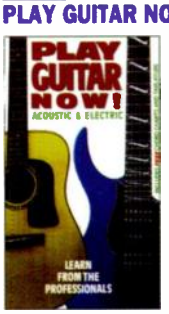

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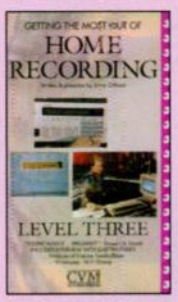

This video is packed with information and professional tips on advanced MIDI applications in the home studio, including interfacing with sequencers, which sync code is best for which application and why. Hit producer Martyn Phillips (Erasure, London Beat) discusses modern recording techniques, and top programmer Paul Wiffen examines the opportunities and benefits offered by hard disk recording.It offers practical advice on sampling - how to save time and tracks; plus professional tips on advanced arranging and mixing techniques, including spectrum mixing.

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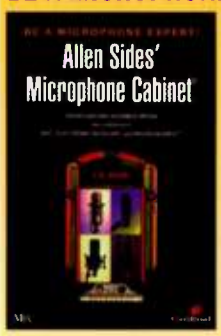

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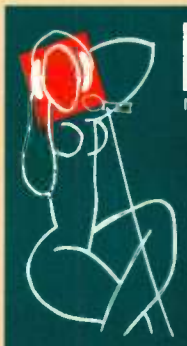
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WRH

sounding OFF

SOS reader EUGENE ROMAIN frankly faces up to the embarrassing problem of gear lust, and asks: do we *really* need the next 'big thing'?

We buy too much. We really do. We upgrade to more powerful and more fancy equipment when we haven't got anywhere near the ceiling on the old gear. I think that instead of taking pride in how much we spend, we should be taking pride in just how *little*. My Atari 1040 is now a continued source of pleasure on this count, but it has taken some time for me to appreciate it in this regard. I confess, there have been times when I have stood around in trendy showrooms meekly apologising to salespeople for not having a Mac. Well, that has changed. Having a 1040 no longer says I am cheap and inferior, it now says I am independent, intelligent and not easily led by fashionable badges. Yes, just as flares are back, doggedly having your original Atari for as long as possible not only makes sense, but is also, in a post-modern, urban gypsy kind of way, cool. It's ironic, then, that the Mac, with new babies like *Logic Audio,* has finally left the Atari neighbourhood and gone to a leafier and more swanky suburb. It is now substantially better, with facilities you can't get on a 1040. But before the Mac owners weigh in with their "told you so"s, the point is: change when you are forced to, jump when you're pushed. Macs are a lot cheaper now than 5 years ago, when you could spend £3,000 for a MIDI sequencer system which did no more than a £1,500 Atari setup.

In areas of technology where the developments are thick and fast it is *crazy* to jump unless you really need to. Some manufacturing and marketing strategies are *designed* to prise as much money out of the end user for as few features as possible. This is why really big revolutions in music gear provision often happen when a relatively new company with a new attitude and no vested interest in the status quo comes along. Alesis make a habit of doing this in a variety of markets; they could have sold the ADAT at a higher price and settled for less sales. Digidesign (bless 'em), on the other hand, have a policy of relatively high unit prices, but if people are buying, who can blame them?

But if we can't blame, we can certainly influence, and this is where we, the end users, have much more power than we realise. The more reluctant to buy we are, the more features per buck the manufacturers will have to offer. If you can wait, then in six months or a year you will be offered more. Manufacturers tempt the 'must haves' with flashy new stuff that doesn't do much, then get the more discerning purchaser by bringing out later models that do the job properly.

To say that we buy too much is really to say that we buy too quickly. We allow the manufacturers to take little grudging steps forward, rather than the massive revolutionary ones technology allows. But why? Why are we so easily consumed by gear lust? As a consumer group, we are a pretty discerning lot. How many washing machine manufacturers routinely have their customers picking through the spec sheet of the latest spin dryer? The reason we have this discernment but so often ignore it is probably hormonal; face it, if you are spending more money than you can sensibly afford on gear that you are then not fully exploiting before you trade it in for the next upgrade, then I'm afraid your gear has turned into surrogate children.

The answer to this expensive problem is self-discipline. If you want to buy something, stop and take a look at the gear you've already got. If you haven't done all the things you promised you would when you were persuading yourself you needed it, then quite simply don't buy the new stuff. Just say no! If you take this stand, you might get back to doing some music, for as we all know, there are two mutually exclusive modes of thought in relation to music gear. One is getting it, the other is using it; and just as Michael and Latoya never appear together, so you don't do any music when you're held in the feverish madness of gear frenzy. Don't feel bad, it happens to us all sometimes.

If we can all get control of our natural urges, we will be less enthusiastic about this year's flashy new gear and manufacturers will have to work harder. And two grand for half a dozen A/D converters in a rack tells me that somebody, somewhere, has got it much too easy. Fancy a 48-voice direct-to-disk system for under four grand including computer and hard disk? The more patient you are, the quicker it will come. And believe me, it will come.

Eugene Romain is a freelance composer and session player. An *SOS* reader for several years, Eugene has played on records by Adamski, Snap, and the Rebel MC, in addition to work with the Royal Shakespeare Company and the BBC World Service.

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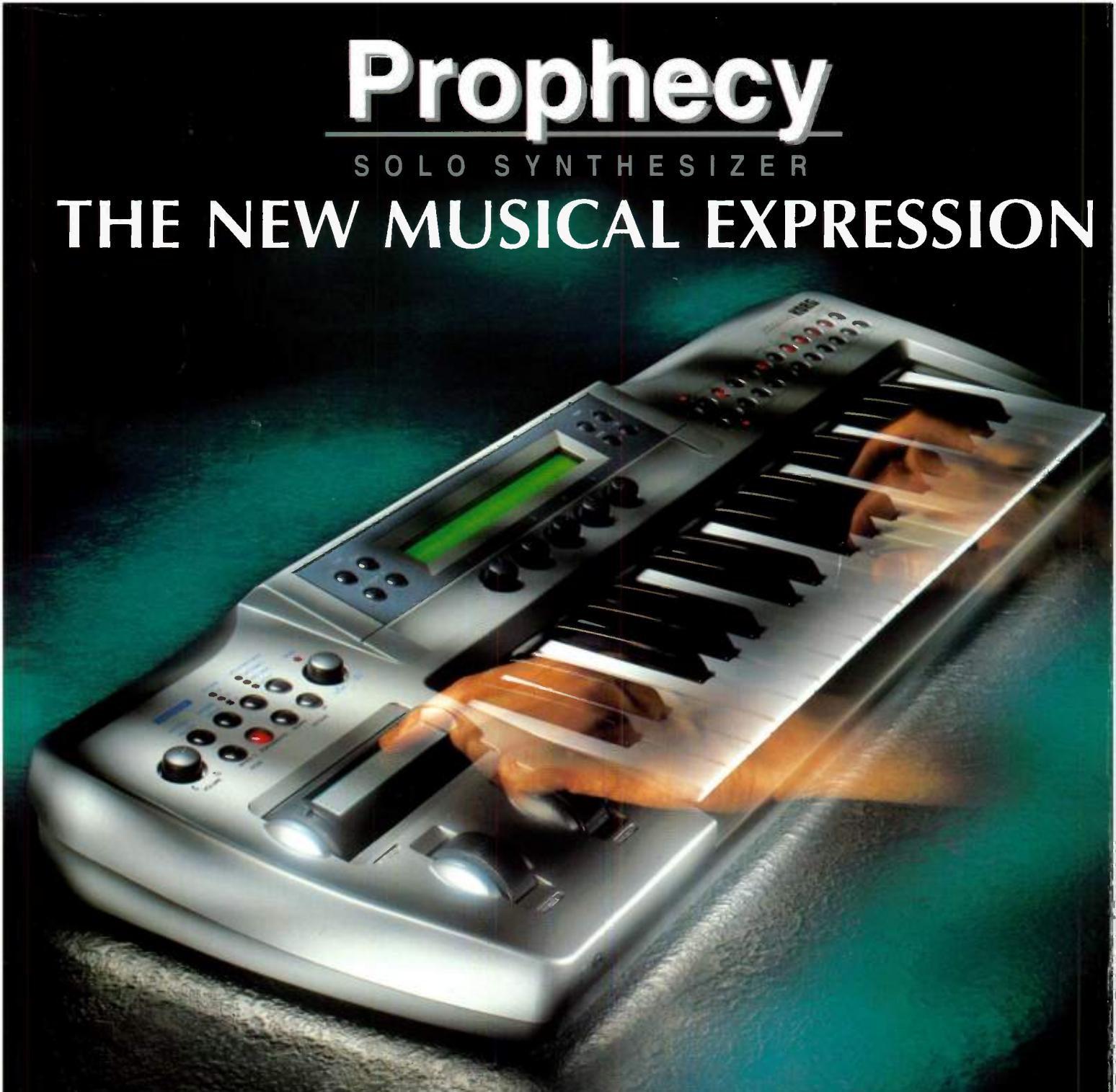

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