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ON TEST

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*IVL
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*AVR
Pro-Series 12 Sampler*

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Martin Russ, Sound on Sound

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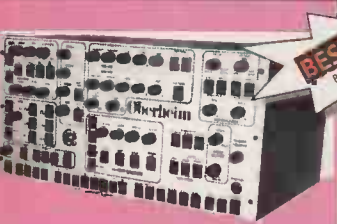
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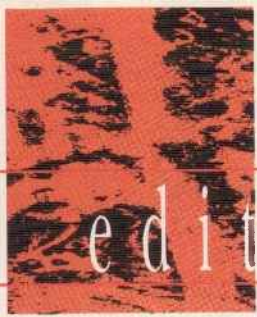
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Within hours of the '91 Frankfurt Musik-Messe closing its doors, this preliminary report was on its way to be printed. Ti Goodyer is the exhausted messenger.



PRESET f1 f2 f3 f4 f5 f6 f7



editorial

PASSING THE BUCK

SOME ARE BLAMING it on the recession, some are blaming it on progress. Others are blaming it on the music itself. The only thing on which these people can agree, it seems, is that a lot of pro studios are having a pretty rough time at the moment. Between dwindling custom and runaway interest rates, many studios are finding it impossible to keep their rates high enough to cover their overheads - and if this situation prevails we're going to see a lot more studios closing down.

For those blaming the current economic climate the argument is simple enough: interest rates are too high to allow profitable trading. That record sales themselves are in general decline is old news, but that doesn't stop their decline from reducing the money record companies have available to spend on studio time. And it is this money that pro studios depend on to stay in business. Perhaps, then, the solution to the problem lies in politics.

Those blaming progress fear the endless succession of technical advances - each makes facilities that were once the exclusive province of "proper" studios cheaper and more freely available; each undermines the pro studio's indispensability. After all, why blow your recording advance on studio time when you can buy the gear and record yourself instead? That way you get to keep the gear for yourself too. This time the solution appears to be to halt progress.

Perhaps saddest of all are those blaming music itself. "Standards have fallen", claim certain industry figures, "people shouldn't accept sub-standard recordings". For them only top-flight studio recordings appear to have musical merit. Perhaps their solution would be to control people's musical tastes.

Perhaps it's time to think again.

One of the benefits of technical progress has been to make individual musicians - and groups of musicians - more self-sufficient. Through the popularisation of synthesisers, drum machines, personal multitrack recorders, MIDI and, most recently, one-inch 24-track machines, technology has taken the initiative away from commercial studios and placed it in the hands of individuals. In short, everybody's getting their own studio. Add to that the fact that everybody except the old-style pro studios seems pretty pleased about it, and it's easy to see why certain parties claim there's a problem.

It was technical progress and popular music that created the need for studios, and now those same forces are threatening to take it away. Well, some of it. . . You see, while personal pre-production studios are fine for composing and arranging music, few of them measure up to pro studios when it comes to items such as high-quality monitors, plenty of outboard gear and mixing desks with enough inputs to handle the plethora of outputs from today's multitimbral instruments. Similarly, many remixes have to be performed in studios equipped with two-inch, 24-track machines (the format of the copy master) and require similar facilities to mix as pre-produced original material.

Why, then, is much of the pro audio industry preoccupied with placing the blame for its current difficulties (mainly at the feet of musicians), when it could be adapting to a situation that still offers it a valuable role in making records? Perhaps it resents musicians moving in on its area of expertise. Alternatively, perhaps it's just forgotten where its roots are. ■ *Tg*

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MUSIC TECHNOLOGY APRIL 1991

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THE PC STRIKES BACK

The mountain of news from PC-specialists Digital Music kicks off with a money-saving offer for anyone after a complete MIDI music package. Digital Music are offering the Prism 16-track, pattern-based sequencer, Band in the Box "backing band" software, Music CAD, which allows you to print out your scores, and an MPU401-compatible MIDI interface card for the all-in price of £299, a saving of £167 over their separate prices. Pretty good for starters.

The company have also sent news of two new programs: Play it by Ear, the first, is dubbed "Interactive learning software for all levels of ability", and offers a music training system which you can tailor to your needs and abilities. The program is designed to help you to master subtleties of chords, intervals and single tones by ear and by their location on the keyboard or guitar fretboard. It's possible to choose from a variety of interactive melodic and harmonic exercises, including note, chord and interval recognition and naming. You can also keep track of your progress using the program's personal scorekeeper and if you're really stumped, you can ask for the correct answer (sounds like cheating to me). The program also comes with a 64-page manual and glossary of terms, and costs a mere £75 plus VAT. System requirements to run the program are: IBM PC or compatible with minimum 640K memory and DOS 2.0 or higher, one floppy disk drive, Microsoft-compatible mouse, CGA, EGA, VGA

or Hercules mono monitor, computer speaker.

The final program for this particular bulletin might catch your eye if you're ever involved in company (or perhaps educational) presentations. Music Partner "combines the excitement of synchronised IBM-based MIDI music and sound effects to any multimedia presentation".

No musical ability is required to use Music Partner (but since you're a regular reader of MT, we'll assume you've got at least a modicum of same). A wide range of prepared songs and sound effects are available in standard MIDI format, but in combination with a sequencing program, you can produce your own soundtracks.

Compatible with any IBM-based software, Music Partner enables you to incorporate up to 120 sound segments into any multi-media presentation or computer-controlled slide show. The actual music and sound effects are generated by a compact, portable sound module, MIDI-equipped keyboard or sound card.

Music Partner works with any MPU401 MIDI interface card, SoundBlaster and Adlib Music card, and will integrate with all graphics packages including GRASP, Animator, Harvard Graphics, Freelance Plus and Corel Draw. The program is priced at £149.

For more information on any of the above, contact Digital Music at 27 Leven Close, Chandlers Ford, Hants SO5 3SH. Tel: (0703) 252131, Fax: (0703) 270405. **Dp**

SHOW ME UP, SCOTTY

The Scottish Music Show '91 (Scotland's only music exhibition) is taking place over the weekend of the 21st and 22nd September this year.

First launched by Music Maker Exhibitions in 1989 to provide a forum for musical instrument manufacturers and retailers, the event returns to Glasgow's SECC with a more diverse exhibitor base to include all styles of music. The Scottish Music Show '91 will occupy nearly 2000 square metres of stand space, accommodating over 120 companies.

Over 3500 visitors came to the

show in 1990, to view a wide selection of instruments - from guitars, drums, woodwind and pianos to electronic keyboards and recording equipment.

This year also sees the establishment of an educational section. Visitors to the education exhibition, whether they are amateurs or seasoned professionals, will be able to seek help and advice from experts in music education.

For further information on the Scottish Music Show '91, contact Clive Morton on (0353) 665577. **Dp**

ARCHITECTURAL IMPROVEMENTS

For the benefit of owners (and prospective owners) of Audio Architecture's Function Junction (see review in MT, September '90), distributors Executive Audio have sent us news of the latest version 2.0 software upgrade.

The upgrade offers no less than seven new features: Improved data throughput means that the Function Junction can now handle very large amounts of multiplexed data; the number of connections which may be handled by both the FJ and the FJ Plus has been increased, with the FJ now having the facility for 12 connections per patch and the FJ Plus 18; Active sensing filtering is now implemented, as are all new controllers in the latest MIDI spec; you can now select which controller messages to send during a patch change - for example, you can now choose whether to keep sustain pedal operative during a patch change; the Function Junction now has an extra display page, cunningly titled the MIDI Monitor page, which effectively acts as a MIDI Analyser, showing you in English, decimal or even hexadecimal, what is going on in your MIDI setup; the Function Junction can now "look" at three different sources for its internal program changes, and finally, naming of all instruments connected is now possible. All these changes, and a number of other small alterations, have been made in consultation with musicians, session players and studio owners all over the world.

The upgrade costs a measly £15 including VAT and p&p and there's a £3 discount for returning the old chip - provided that the chip is sent back intact. Replacing the chip is said to be fairly straightforward, but if owners have any questions, they are welcome to contact Executive Audio or the dealer where they purchased their Function Junction.

As from March 1st, the retail price of the Function Junction (8x8) is £449, while the price of the Function Junction Plus (16x16) remains the same at £699.

More info from the friendly chaps at Executive Audio, 159 Park Road, Kingston-Upon-Thames, Surrey KT2 6DQ. Tel: 081-541 0180/5789, Fax: 081-549 2858. **Dp**

D50 DEALS

ABC Music (as is their wont) have scooped up the last batch of the popular Roland D50 and are offering the instrument at the knock-down price of £649. They're also throwing in four Roland ROMs, worth £55 each, absolutely free. So

if your fondest desire has always been to possess a D50, now seems a good time to realise it.

More info from ABC Music at 85 High Street, Esher, Surrey KT10 9QA, Tel: (0372) 468114, or at any one of their six branches. **Dp**

HIT FOR GAJITS

British-based software developer Gajits Music Software, is releasing a new software package called The Hit Kit. It's a new music composition system, according to Gajits "designed to speed up the songwriting process". Once again, very little musical knowledge is required (this is becoming quite a trend), and the Hit Kit may be used in conjunction with your own sequencer program. Versions will be made available for many popular sequencers both on the ST and Commodore Amiga.

The Hit Kit can apparently help to create professional-sounding drum tracks, basslines, arpeggio patterns and even complete pieces of music. A wide range of musical styles is possible, including ballad, blues, disco, house, latin and reggae. And of course, all this is possible within the familiar environment of your own

sequencer.

As an added incentive for Commodore users, Gajits will be giving away the Hit Kit free with every copy of Sequencer one bought for the Amiga.

Gajits have also recently announced a move to larger premises in Manchester. This is due to their expansion and success over the last year, a success which resulted in the company being featured in Granada TV's *Flying Start* programme for promising new British businesses. Gajits came second in their heat to the overall winner, receiving praise from the judges for the user-friendliness and presentation of their software.

Gajits can now be contacted at their new address, I-Mex House, 40 Princess Street, Manchester M1 6DE. Tel: 061-236 2515/4, Fax: 061-236 4044. **Dp**

RUSSIAN ADVANCE

The Advanced Media Group have been appointed exclusive UK Distributor of the three versions of the Russian Dragon, from Jeanius Electronics of Texas. All three models are devices used to measure timing accuracy of two sounds which were meant to happen at the same time - for example, they show how closely a drummer is playing with a click track, detect the delay between an acoustic drum and its triggered sample replacement, and reveals timing inaccuracies in MIDI equipment. They also monitor how tightly a percussion overdub is performed and check for

the right amount of delay in a delayed loudspeaker system. In short, they tell you who's rushin' and who's draggin' (geddit?).

The three models now available are the RD2 (rackmount pro version) at £369; the RD2R (RD2 with rotary switch window control), at £399, and the RDT (half-U width economy version) at £199.

More information on the Russian Dragon from AMG at Hurst Farm Barns, Hurst Lane, Privett, nr Alton, Hants GU34 3PL. Tel: (0730) 88383, Fax: (0730) 88390. **Dp**

Our apologies go this month to Zone Distribution of 5, Abbeville Road, London SW4, for the incorrect printing of their address in the March issue of MT. Anyone having responded to this ad (at the *incorrect* address of 4, Abbeville Road) is requested to respond again at the correct address of 5, Abbeville Road.

Zone have also sent news of their range of MIDI sequences, available in a variety of formats: MIDI sequences are very popular in the US, but have not yet seen widespread use in the UK. Zone's library runs into the hundreds with all the latest hits as well as many standards and classical pieces, and will run on any sequencer

ACCIDENT ZONE

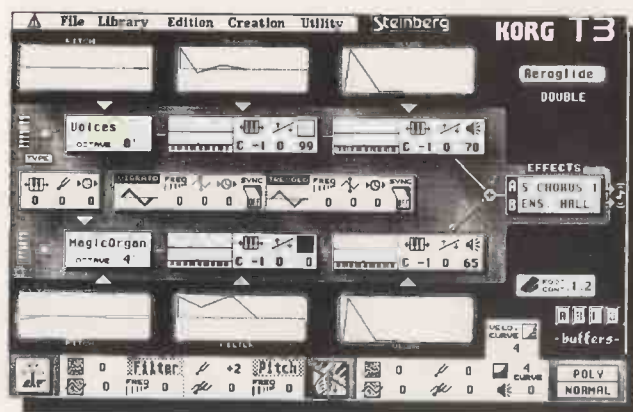
supporting the MIDI File Standard.

The sequences are offered in various formats, including Atari, Mac, IBM and Amiga. However, a number of hardware sequencers are also supported, including the Roland MC500. The sequences are as close to the original as possible and come with full MIDI/drum mapping details. Zone suggest that they are ideal for professional, semi-professional and hobbyist musicians, as they provide a complete working arrangement, ready to go for live use, or for examination of song structures, arrangements and so on.

WORKS ON M1

The popular Steinberg Synthworks M1 editor/librarian and sound creation program has been upgraded and now supports all the following Korg synths: M1, M1R,

GEM), effect library, drum Kit editor, sequencer utilities, extensive library functions (Mix, Copy, Print and Sort), on-screen keyboard, CAS (Computer Aided



M1EX, M1REX, T1, T2, T3 and M3R. The program has a suggested retail price of £165 including VAT.

Like other Steinberg programs, Synthworks runs under M.ROS, which will allow it to run simultaneously with most other Steinberg software. To recap briefly, functions offered by Synthworks include Graphic User Interface (apparently faster than

Sound Creation) and SSP1 (Steinberg Semantic Patch Identification).

SPFTM (Sounds Pretty Flash To Me).

More information on this and other Steinberg software from Evenlode Soundworks, The Studio, Church Street, Stonesfield, Oxford OX7 2PS. Tel: (0993) 898484, Fax: (0993) 898419. **Dp**

PURE GENIUS (PROBABLY)

All you lovers of facts and figures will be well chuffed to know that the 8th edition of the Guinness book of British Hit Singles is due to be published in the not-too-distant future. Crammed with fascinating data from the very beginning of the

pop charts in 1952 right up to the end of December 1990, the new edition is due to be on sale on the 10th June 1991. Watch this space for a review and keep your eyes peeled for a forthcoming competition. . . **Dp**

example, there is a Male Rock Pack on offer (stop sniggering, Brooke-Hamster). Each pack contains three, five or ten songs and they will usually run with an MT32, CM64 or similar. They will be available on most formats and should be supplied from stock.

Zone are also running a club service for anyone purchasing MIDI sequences. Membership of the club will offer price discounts, plus other benefits such as newsletters and special offers. Full details on club membership, along with demo tapes (£5, refundable on purchase) and song lists, are available from Zone at 5, Abbeville Road, London SW4. Tel: 081-766 6564. **Dp**

pointing the way

Please can you explain what song pointers are, what they do and why we need them?

I ask this question because I am thinking of buying a secondhand Yamaha B200 synth and have been told that I can use a MIDI drum machine with the internal sequencer, but that the sequencer does not support song pointers. If this is true, does it limit what I can do with my songwriting?

T Kelling
London

The song pointers you're referring to are actually known as MIDI Song Position Pointer - you can only have one because you can only be at one point in a song at any time.

Without Song Position Pointer, a sync system can't identify any position within a song from any other, all it can do is ensure that two (or more) pieces of gear stay in time with each other. The result is that a song needs to be run "from the top" each time. In your case, when you're running the B200's sequencer together with a drum machine, the sequence and the drum program will need to be started from the beginning of a song, each time you want to run it - you won't be able to run the song from the third verse, say, because you've finished with the first two.

The way in which non-absolute timecodes work is for the master machine to generate sync pulses which slave machines lock into. The start and end of a song are marked with "start" and "end" messages, but between the two there's no means of one machine telling the other that it's halfway through verse

one (for example). In contrast, SMPTE timecode marks each sync pulse with a unique identity so that any point in a song (or three-hour film score) can be recognised and locked on to. MIDI Song Position Pointer works somewhere between the two by counting MIDI clocks (in blocks of six) from the start of the song.

Will it limit your songwriting? I sincerely hope not - people were successfully writing songs with sequencers, drum machines and tape recorders long before SPP appeared on the scene. Use the technology, don't become a victim of its limitations. Tg

come in number 44

In response to Barry Dillon's plea for information on the Matrix 6 in February's issue of MT, as a Matrix 6 driver I feel in a position to help.

To paraphrase the manual, parameter 44 (or Standoff) controls the threshold of the pressure sensor of the keyboard. The higher the value, the harder you need to press to kick in aftertouch.

Make sense now, Baz?

Zenon Schoepe
London

request stop

Some of your interviews over the last year have featured interesting new talent such as Unique 3, Fluke, Gerald (newish) and Derrick May (OK, not new but interesting). But why do you interview people like Jerry Harrison and Tears for Fears? I wouldn't call Tears for Fears a technological band, and Jerry Harrison - Jerry Who? The last

important thing he did was years ago.

Will you please do some interviews with the following: Nightmares on Wax, The Shamen, Baby Ford, Public Enemy (or the Bomb Squad), Nexus 21, The Orb, The KLF, A Man Called Adam, Orbital, A Homeboy a Hippy and a Funki Dred, Krispy 3, The Ruthless Rap Assassins, Rhythmatic, LFO. . .

I know some of these are in the same field, but it would be nice to read interviews with any of these acts during the next year. After all, they are at the "cutting edge" of technological music.

Andrew Hill
Kings Lynn
Norfolk

I can't help but feel you've just incurred the wrath of a sizeable number of people with your casual dismissal of two important musical talents, Andrew. And remaining on the defence for a moment, you've chalked up over 12 months' worth of interviews in a single breath. Think about it - if we were to commit ourselves to the interviews you've requested, apart from becoming musically polarised we wouldn't be able to respond to any new talent that might appear until well into 1992. The fact is that there simply isn't enough space to interview every act worth interviewing (that's assuming they're available and willing to be interviewed). What do we do instead? We compromise.

I hope this doesn't come as a shock, but there are people who don't even share your musical tastes. They have their own "hitlist" of preferred interviews, and they too will have to accept a compromise. What we're trying to do is to cover a huge area of musical interest in an infuriatingly

limited amount of space.

Now, I'm not saying that your suggestions aren't valid. In fact, I'm not saying that some of your suggestions weren't being acted on even before your letter arrived. What I am saying is that you're reading a magazine that is prepared to give serious coverage to a wider range of gear, music and ideas than any other you can buy. So be patient, be prepared to read about other areas of music, and be prepared to learn - one of the many advantages of reading a mag like MT is that you never know where your next piece of inspiration will come from. It may even come from Jerry Harrison. Tg

MXR SOS

Please can you help me out? I've got an old MXR flanger which broke down a while ago. When I took it to a local technician for repair, he threw away the original chip and replaced it with something that doesn't work. For the last two years I've been trying to find out what the original was - with no success. Could you suggest to me either where I might get a circuit diagram (model No 117) or the address of ART equipment in the USA?

Jerry McConnell
Cork
Ireland

Sounds like you've got a pretty poor tech out there in Cork, Jerry, and I'm afraid we can't be much more help with a circuit diagram. We can, however, provide you with an address for ART on the other side of The Pond: ART Inc, 215 Tremont Street, Rochester, New York 14608, USA.

Perhaps another "reader request" for diagrams is in order - anyone able to help? Tg

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Sampling Sophistication



FOLLOWING THE DEVELOPMENT of sampling and its effect on music is quite a fascinating business. While its roots lie in the patient cutting up and reassembling of recording tape practised by the likes of Stockhausen, the fact that many non-technical music fans now recognise the term is directly attributable to the development of the electronic sampler. First the Fairlight made electronic sampling available to the wealthy elite and then. . . Well, then sampling took off. Musicians were demanding affordable samplers from the manufacturers, and the manufacturers were soon falling over themselves to oblige. But amongst all the contenders Akai - like Moog with the synthesiser - managed to attach their name to sampling.

While it was the S900 that really put Akai on the sampling map, it's the S950, S1000 and S1100 that are currently ensuring Akai of a place in musical history. And it's the PB version of the S1000 that could find its way into your musical setup if you win this month's exclusive competition.

Briefly, the S1000 PB boasts most of the facilities of the industry-standard S1000: 16-bit resolution, 200 samples, 100 programs, ten dynamically allocated outputs, algorithm interpolation playback system - and of course, the Akai name. All that's missing is the ability to make samples. If you're already an S1000 or S950 user then the S1000 PB will allow you to use two units to replay your samples simultaneously; if this is your first Akai machine, then you'll have one of the largest sample libraries in existence to call on.

Now it's your turn. In order to bag the S1000 PB for yourself all you need to do is answer the usual selection of questions:

Q1

What was the name of Akai's first sampler?

- a. S100
- b. S450
- c. S612

Q2

In which year was the S900 launched?

- a. 1985
- b. 1986
- c. 1987

Q3

What is the keyboard version of the S1000 called?

- a. S1000 KB
- b. S1000 Plus
- c. S1200

YOU SHOULD DIAL your answers into MT's Competition Hotline on **(0898) 100768** (calls cost 33p per minute cheap rate, 44p per minute at all other times). The hotline deadline this month is *Friday, 19th April*. Please remember to speak clearly (imitations - intentional or otherwise - of Stanley Unwin, Daleks or malicious callers will be discounted). Employees of Music Maker Publications and Akai, and their relatives are also ineligible, as are multiple entries. The editor's decision is final and no correspondence will be entered into.

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Bob Clearmountain Sampling CDs

These CDs from East West Communications are straight out of the top drawer. Whilst they are not the cheapest CDs on the market they are still great value. As Keyboard Magazine reported "...top-ranked producer Bob Clearmountain has just removed any excuse you may have had for putting wimpy snare, tom, and kick sounds onto your sequenced demos...This CD is a treasure-house of great drums suitable for a variety of styles...The main thing, is that the miking is superb. These drum hits are extremely crisp and realistic."

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From Hit Music Productions, creators of the Valhala International Gold Series ROMs, these CDs contain the very best synth sounds available on CD.

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Review extract, H&SR, Feb 91.

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ACCUPOWER UPS

YOU'RE WORKING INTO the early hours on your computer sequencer. The song nearing completion is the culmination of many hours of diligent work. Suddenly, the lights dim. Cause: a momentary reduction in the mains power supply. Result: computer crash.

Although we're not normally aware of them, power blips are very common. Sometimes they last for a split-second, sometimes for much longer; either way they can have disastrous consequences for computer users. We're not talking about a power cut, but these happen too and have equally serious consequences.

Another common computer-related problem is noise. An electrically noisy fridge or washing machine can produce clicks and buzzes that can be heard on speakers and can upset a computer.

The solution to all of these problems is to use an Uninterruptible Power Supply (UPS). This sits between the mains and your computer and consists of a mains filter (for removal of mains-borne noise), a heavy-duty battery and a charger. The system works in the same way as a car battery. When the mains is on, the battery is being charged, but should the voltage fall below a predetermined level, the UPS kicks in and takes over the job of the mains supply - keeping your computer working.

Such units have been available for a long time but they have usually been large in size and expensive. Emerson Electric Company have now brought out the Accupower range of UPSs which are aimed specifically to protect computers and their peripherals. They can only handle devices with a low power consumption but have a cost to match - for example, the smallest unit (Model 10) retails at just £153. This will deliver just 90 Watts, but it should be adequate for most computer installations. The power consumption figure stated on the base or rear of most devices is often the maximum possible power that can be supplied by the power supply. For instance, the Atari ST is rated at 120W, but the power required by the two voltage rails is only around 34W. Of course, there is enough power from an Atari power supply to run a second floppy drive (and even an internal hard drive on the Mega series, which has the same power supply) but the figure of 120W is misleading when trying to calculate what power output you need from a UPS.

A typical setup might be something like this: Atari ST (34W), SM125 monitor (33W) and a Supra hard drive (25W). Total power consumption comes to 92W maximum and the overload capacity on the Model 10 would allow for the odd two Watts. Printers tend to consume more power - a dot matrix might be around 140W while a laser printer would be nearer to 1kW, although this is only relevant when the printer is working.

Models 10 and 20 (180W) are both the same physical size - 9cm x 14cm x 38cm (pretty small), and one of these should suit the needs of most computer users. The casing is metal with a high-density ABS (plastic) front and it's finished in pale grey. The controls are minimal - an on/off toggle on the front and an LED to tell you that the unit is on. If the live and neutral of your mains supply happen to be wired the wrong way round, the LED turns amber to warn you. The rear has a socket for input and output respectively and Emerson provide you with a distribution block with either two or four outputs.

When the unit kicks in, it does so with a loud, intermittent buzzing, accompanied by the green LED flashing. In the case of a complete power cut, you then have eight to ten minutes to finish what you're doing and save to disk before shutting down the system safely (actual time depends on the load - you could get substantially more than ten minutes). When the battery is close to being drained, the buzzing becomes continuous.

It's an unnerving experience to set a floppy drive into the motions of saving and to then turn the power off at the wall socket, but that's what I did to check the UPS. I'm happy to report that the unit kicked in immediately without any indication from either monitor or active disk drive that anything was amiss. In fact saving to a hard drive, a far more risky affair, also continued normally under the same conditions. In the course of writing this review, the UPS kicked in once as the lights dimmed - it was momentary, but it would previously have cost me a heartbeat or two.

For the price of a low-end sequencer, I'd have to say that a UPS is essential to anyone who uses their computer seriously. ■ **Vic Lennard**

Prices Model 10 (90W), £153; Model 20 (180W), £271; Model 30 (300W), £340; Model 40 (480W), £511; Model 50 (840W), £764.

More From Emerson Electric Company, Elgin Drive, Swindon, Wiltshire SN2 6DX. Tel: (0793) 524121. Fax: (0793) 615081.

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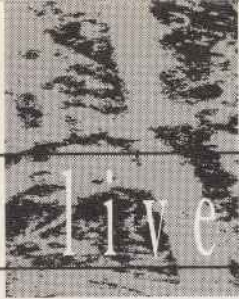
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JEAN-MICHEL JARRE

Cities in Concert, Paris, La Defense

BY THE TIME you read this, Jean-Michel Jarre's latest concert spectacular should be out on (Polygram) video. Created by London-based director Mike Mansfield, who first worked with Jarre on the Docklands concert, and edited in Soho's Molinare facilities house, *Cities In Concert - Paris La Defense* marks a return to the French capital for Jarre, who made his concert debut here by bringing the city's *Place de la Concorde* to a halt with selections from his first album, *Oxygene*.

Since then, Jarre has developed a new concept in live entertainment with his shows in China, Houston, Lyon and London's Docklands. Today, Jarre celebrates Bastille Day in the perfect setting of *La Defense*, a vast esplanade combining the capital's new business quarter with architectural intrigue. He's also promoting *Waiting For Cousteau*, but the concert is mainly a celebration of France's most distinctive public holiday and a development of Jarre's concept of "the city in concert".

Not for Jarre a conventional stage, instead *L' Arc de La Defense* - a huge square-profiled arch mirroring the classical proportions of *L' Arc de Triomphe* standing at the opposite end of the *Champs Elysees*. The stage is a pyramid (itself mirroring the controversial new entrance hall of the Louvre), its metallic structure supporting the PA equipment. It's an uncompromisingly hi-tech installation on which the musicians man futuristic consoles integrating keyboards and expanders.

As for most of his albums and gigs, Jarre's instruments merge Akai S1000s, Roland D550s, Atari Mega4 STs, Elka MK88 master keyboards with ARP 2500s, 2600s, EMS VCS3s with LAG master keyboards and the infamous Laser Harp. (The complex of MIDI connections around the stage is courtesy of Lone Wolf.) The tower blocks surrounding the stage - lower but more concentrated than those at Houston - are converted into 80,000 square metres of projection screen, using images from hand-painted plates in Pani projectors and laser animation by Claude Lifante from eight 20 and 30 watt argon lasers.

For this concert, Jarre's music and images are more integrated than before. A huge animated creature with a solitary dancer in the

centre of its framework of poles, pulleys and decoration is re-created in lasers on the side of one building - animated graphics of steel drums accompany the Caribbean steel band on *Calypso* - and the image of Jacques Cousteau gazes down, giving spiritual approval to the event (he is actually in China, from where he delivers a telephone message of congratulation in the early hours of the following morning).

Monsieur J Rouveyrollis is in charge of lighting - using 200 Arena xenon projectors to create a subtle architecture of colours over the great expanses of glass, metal and concrete, while 16 DCA projectors create a constant light show in the Parisian sky. A spectacular firework display, realised by Daniel Azancot, accompanies the show, while the huge surfaces of the *Arc de la Defense* are used to create a coloured backdrop for each piece.

TV coverage is a major part of the exercise. The TV transmission and the video are able to highlight parts of the concert almost invisible to the spectators - not least Jarre himself, a tiny coloured blur dwarfed by the sheer scale of his staging. Perhaps inevitably, the show is due to be followed by a live album - the whole event being recorded on an Akai DR1200 digital multitrack machine synchronised to the timecodes running the entire spectacle.

The public (around 1.5 million people) watch the spectacle from the opposite side of the Seine. Twelve video screens relay images from the stage while 300kW of amplification assure clear sound reproduction, even at the most distant points, of Denis Vanzetto's powerful but precise sound mix.

On stage, Jarre is accompanied by his usual group - musician and design engineer Michel Geiss, ex-Space Art member Dominique Perrier, Sylvain Durand, ex-Korg demonstrator Francis Rimbart, and Frederic Rousseau on synthesisers, Guy Delacroix on bass, Dino Lumbruso on percussion, and Christophe Deschamps on drums. The band is joined by a group of Arab classical musicians, Al Mawsili, for a version of *Revolutions*; by a choir for *Rendez-Vous*; and by the steel band, The Amoco Renegades, who play on *Waiting For Cousteau*.

With an eye to promotion (amongst any

artist's main reasons for touring), the concert offers a retrospective of Jarre's discography. There's substantial re-arrangement of each piece too - *Oxygene 4*, for instance, opens with new Atari sequences, and this increased sophistication is particularly noticeable on *Ethnicolor*, *Zoolook* and *Revolutions*.

The set of calypsos which comprise the first side of *Cousteau* and integrate synthesisers and steel band, would probably not have sustained interest for the length of an album. Enthusiasts of the ambient side, however, should note that there's around 47 minutes of this material on CD as compared to around 27 on vinyl. While some may find themselves waiting for the piece to start while it's fading out, others will see it as archetypal Jarre, a logical development of his early works. This ambient style isn't particularly suited to concert performance though, and only gets a brief look in the opening of the show. At *La Defense*, Jarre and his group perhaps reach the ultimate definition of a "city in concert". The technical realisation, the number of people involved (over 800 technicians alone) and his ability to create an intense atmosphere of celebration in the centre of a metamorphosed urban space demand admiration from the audience. But the requirements of the simultaneous TV broadcast and the priority given to the requirements of the video crews on stage are to the detriment of the crowd's enjoyment. While around 2000 invited VIPs sit close to the stage, the majority of the audience stands for several hours to get any sort of view, and the concert doesn't finish until after the last metro trains have departed, leaving many stranded in a rather bleak and uninviting section of central Paris.

The term "concert", however, remains inadequate to describe this global television spectacular which, after the first magical moments, perhaps sacrifices emotion for the sake of scale. Jarre has certainly exploited the potential of the concept he inaugurated at Houston; perhaps he now needs to develop a different setting for his music, in case over-familiarity with the televised side of the concept begins to give his audiences the idea that they have seen it all before. **Christian Jacob/Mark Jenkins**

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ON THE

TRIP

Part 19

IN HIS TIRELESS SEARCH TO RECONCILE MUSICIANS AND MACHINES, MT'S DRUM PROGRAMMER EXTRAORDINAIRE TAKES ON THE MASSED DRUMS OF AFRICA. TEXT BY NIGEL LORD.



WHILST IT WAS always my intention to include Africa in our rhythmic world tour (I could hardly lay claim to any kind of completeness), it has, nevertheless, been the one area in which I've harboured reservations about what could be achieved through the medium of the drum machine. This isn't through any belief that African rhythms are in some way sacrosanct and should be spared the hi-tech iconoclasm of machine programming. Rather, it reflects the concern that without

the unique instruments that lie at the heart of all ethnic music (and particularly that of Africa), any attempt to recreate an authentic feel is likely to meet with little success.

In many ways, it's a magnification of a problem we've come up against on a number of occasions in this series. Whenever we move away from those rhythms which we might call "mainstream", patterns often start to become instrument-specific. And whilst

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ILLUSTRATION: CLIVE GOODYER

house here, and I can think of few, if any, recorded sources of sounds (without sampling from album tracks). And even if samples are available, the number of different tonal variations required to achieve anything like a credible result is quite prohibitive.

This was just one of my reservations. Others concerned the difficulty of trying to isolate representative examples from a continent as large and culturally diverse as Africa, and the problem of taking what must, by necessity, be "snapshots" of rhythm tracks which traditionally progress throughout the length of a piece of music. Fortunately, I found the solution to all these problems in but a single approach. Instead of attempting to accurately notate specific African rhythms from a variety of individual countries, I've presented a series of patterns, which, though unequivocally African in origin, represent a rather more eclectic approach to recreating the rhythmic styles of that continent. Of course, I realise that by opting for this method I have laid myself open to claims of having taken the easy way out. However, I believe that it's the success (or otherwise) of the patterns I've included which should be judged. And in the final analysis, a handful of patterns which *do* work, have to be regarded as preferable to a handful that *don't* - no matter how authentic and accurately notated.

My only other concession to the problem was that of dividing the music of the continent into two areas - North Africa, and Central and Southern Africa. And whilst I accept the arbitrary nature of such a division, it does, as anyone familiar with the region will be aware, represent a dividing line between the predominantly Islamic states of the north (with their own, quite disparate musical development), and the rest of the continent. In a rhythmic context this is, I believe, a valid distinction to draw.

It also provides us with a useful split in our two-part coverage of African - though with room for only half a dozen patterns in each, you'll appreciate the >

not necessarily redundant for those without access to the same (or similar) sounds for which they were written, many rhythms are bound to lose something in their journey from my programming system - via MT - to yours. This is one of the reasons I've continually stressed the need for experimentation.

In our fairly exhaustive examination of South American rhythms this problem was offset considerably by the fact that

many Latin instruments have become part of the currency of modern beat boxes. After equipping machines with a dozen or more bass, snare, tom and cymbal sounds, manufacturers invariably look to Latin voices as a way of increasing their sonic capability. The same is not true of African instruments, consequently this is one area in which a sampler comes into its own. We're not talking about the kind of instruments most people have lying around the

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|--------------------|--|
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| AGO-GOS | Fairly high-pitched. Jingles or finger-cymbals would be much better. |
| COW BELL | Preferably a medium to large instrument detuned by a few semitones. |
| HAND CLAPS | Multiple hand clap sample or single hand clap repeatedly triggered. |
| FINGER SNAP | Substitute with any kind of click sound - drumsticks or wood block |
| CONGAS | Use combination of open, closed and slap sounds. Try detuned bongos. |
| DRY TOM | A medium-pitched, single-headed drum, preferably of short duration. |
| TOM 1 | A high-pitched, single-headed drum. |
| TOM 2 | As above, pitched two semitones lower |
| TOM 3 | A medium-pitched, double-headed drum. |
| TOM 4 | As above, pitched five semitones lower. |
| TOM 5 | A low-pitched, single-headed drum. |
| TOM 6 | As above, pitched two semitones lower. |
| TOM 7 | A deep, double-headed drum. |
| TOM 8 | As above, pitched two semitones lower. |
| BASS DRUM | Undamped and open-sounding. Perhaps raised a little in pitch. |

> limitations. I hope that these articles will prove that programming African rhythm tracks is possible, and that you will go on to adapt and eventually write your own.

As you will see, this month's collection of North African rhythms have been assembled from fairly standard beat box voices, but without the usual snare, hi-hat and cymbal sounds. The backbone to these patterns is provided for the most part by series of individually tuned tom-toms, congas and bass drums, which, though quite different from the indigenous instruments of the region, can provide a credible means of recreating its traditional rhythms.

Their success in this role relies to a considerable extent on their effectiveness when played - or when programmed - in concert. Confronted by a battery of different instruments, the ear is far less discriminating about individual sounds and concerns itself more with the overall feel of a rhythm. It is for this reason that the patterns leave little space for you to make qualitative judgements on the authenticity of specific instruments.

Within this framework, we can help matters considerably by using instruments outside their normal tuning range in preference to those played back at their original pitch. This is especially true of tom-toms, which tend to exhibit some of the more unpredictable nuances of acoustic drums when tuned outside their sampled pitch. Full use should also be made of whatever tom-tom voices are available on your machine; try as many different sounds as possible for each part and where a combination of instruments is called for, try to maintain a broad mix of single- and double-headed drums of differing sizes.

As you might imagine, the bass drum doesn't fulfil the same role in these patterns as in Western rhythmic form, and should be regarded as a lower-pitched version of the other drums. To this end, a boomy-sounding voice is more appropriate, and given the almost subsonic thud of most modern instruments, you might find this easier to achieve by raising the pitch slightly.

Instruments such as the tambourine and cowbell, though frequently encountered in African music, are rather too "refined" in the form included in most drum machines. Again, a little detuning or perhaps combining two or

| | | | | |
|----------------------|--------------|--------------------------|---|---|
| PATTERN: 1a | | TEMPO: 110-125BPM | | |
| BEAT: | 1 | 2 | 3 | 4 |
| Tambourine | | ◊ | ◊ | ◊ |
| Cow Bell | ◊ | ◊ | ◊ | ◊ |
| Conga High | | | | ◊ |
| Conga Low | ◊ | ◊ | ◊ | ◊ |
| Tom 3 | | ◊ | ◊ | ◊ |
| Tom 4 | ◊ | ◊ | ◊ | ◊ |
| Tom 5 | | | | ◊ |
| Bass Drum | ◊ | ◊ | ◊ | ◊ |
| TIME SIG: 4/4 | BAR 1 | | | |

| | | | | |
|----------------------|--------------|--------------------------|---|---|
| PATTERN: 1b | | TEMPO: 110-125BPM | | |
| BEAT: | 1 | 2 | 3 | 4 |
| Tambourine | | ◊ | ◊ | ◊ |
| Cow Bell | ◊ | ◊ | ◊ | ◊ |
| Conga High | | | | ◊ |
| Conga Low | ◊ | ◊ | ◊ | ◊ |
| Tom 3 | | ◊ | ◊ | ◊ |
| Tom 4 | ◊ | ◊ | ◊ | ◊ |
| Tom 5 | | | | ◊ |
| Bass Drum | ◊ | ◊ | ◊ | ◊ |
| TIME SIG: 4/4 | BAR 2 | | | |

| | | | | |
|----------------------|--------------|--------------------------|---|---|
| PATTERN: 1c | | TEMPO: 110-125BPM | | |
| BEAT: | 1 | 2 | 3 | 4 |
| Tambourine | | ◊ | ◊ | ◊ |
| Cow Bell | ◊ | ◊ | ◊ | ◊ |
| Conga High | | | | ◊ |
| Conga Low | ◊ | ◊ | ◊ | ◊ |
| Tom 3 | | ◊ | ◊ | ◊ |
| Tom 4 | ◊ | ◊ | ◊ | ◊ |
| Tom 5 | | | | ◊ |
| Bass Drum | ◊ | ◊ | ◊ | ◊ |
| TIME SIG: 4/4 | BAR 3 | | | |

> more instruments at different pitches can work wonders.

Obviously, the lowest common denominator when choosing instruments for these patterns was to make them as accessible as possible to the greatest number of people, but if you have a range of more authentic instruments at your disposal, you should make the appropriate substitutions. You might find that patterns can then be thinned out significantly - for the opposite reasons to those I outlined earlier.

Alternatively, if you're using software-based programming systems (where it's generally easier to manipulate data) you might try moving parts around between different patterns. One of the reasons I've "squared off" the patterns into 4/4 grids is to make parts interchangeable for those prepared to experiment. The other reflects my belief that programmers should be encouraged to adopt different styles and rhythmic forms, and to make this more feasible I've tried to present patterns in a way which will make them usable within the context of Western popular music. Needless to say, in their countries of origin, such convenient structures are rarely encountered.

To most African percussionists, the concept of keeping rock-steady time would also be quite foreign. Within the constraints of playing alongside other musicians, rhythmists would see no contradiction in the idea of keeping time by adjusting it to match the mood of the music. Neither would they pay the same attention to synchronising note for note with other percussionists playing a similar part; adopting the right feel and preserving the flow of a rhythm would be valued much more highly.

This vaguely anarchic approach to playing is one of the things which makes African rhythm so compelling - particularly the music of the central States such as Zaire and Burundi, where the sound of massed drum rhythms are so powerful. Were the drummers to adopt stricter control of their timing to the point where they perfectly synced to each other, the effect would be all but lost.

This, I'm sure, would be cited by purists in their objections to programmed African rhythms. I don't share their reservations. For those of us who aren't Paul Simon and whose bedrooms aren't large enough to accommodate the Drummers of Burundi, the drum machine represents >

| PATTERN : 1d | | TEMPO : 110-125BPM | | |
|---------------|---------|--------------------|---|---|
| BEAT: | 1 | 2 | 3 | 4 |
| Tambourine | ◊ | ◊ | ◊ | ◊ |
| Cow Bell | ◊ | ◊ | ◊ | ◊ |
| Conga High | | | | ◊ |
| Conga Low | ◊ | ◊ | ◊ | ◊ |
| Tom 3 | ◊ | ◊ | ◊ | ◊ |
| Tom 4 | ◊ | ◊ | ◊ | ◊ |
| Tom 5 | | | | ◊ |
| Bass Drum | ◊ | ◊ | ◊ | ◊ |
| TIME SIG: 4/4 | BAR : 4 | | | |

| PATTERN : 2a | | TEMPO : 120-140BPM | | |
|----------------|---------|--------------------|---|---|
| BEAT: | 1 | 2 | 3 | 4 |
| Tambourine | ◊ | ◊ | ◊ | ◊ |
| Cow Bell | ◊ | ◊ | ◊ | ◊ |
| Hand Claps | ◊ | ◊ | ◊ | ◊ |
| Conga High | | | | ◊ |
| Conga Low | ◊ | ◊ | ◊ | ◊ |
| 'Dry' Tom | ◊ | ◊ | ◊ | ◊ |
| Bass Drum | ◊ | ◊ | ◊ | ◊ |
| TIME SIG: 4/4T | BAR : 1 | | | |

| PATTERN : 2b | | TEMPO : 120-140BPM | | |
|----------------|---------|--------------------|---|---|
| BEAT: | 1 | 2 | 3 | 4 |
| Tambourine | ◊ | ◊ | ◊ | ◊ |
| Cow Bell | ◊ | ◊ | ◊ | ◊ |
| Hand Claps | ◊ | ◊ | ◊ | ◊ |
| Conga High | | | | ◊ |
| Conga Low | ◊ | ◊ | ◊ | ◊ |
| 'Dry' Tom | ◊ | ◊ | ◊ | ◊ |
| Bass Drum | ◊ | ◊ | ◊ | ◊ |
| TIME SIG: 4/4T | BAR : 2 | | | |

| PATTERN : 2c | | TEMPO : 120-140BPM | | |
|----------------|---------|--------------------|---|---|
| BEAT: | 1 | 2 | 3 | 4 |
| Tambourine | ◊ | ◊ | ◊ | ◊ |
| Cow Bell | ◊ | ◊ | ◊ | ◊ |
| Hand Claps | ◊ | ◊ | ◊ | ◊ |
| Conga High | | | | ◊ |
| Conga Low | ◊ | ◊ | ◊ | ◊ |
| 'Dry' Tom | ◊ | ◊ | ◊ | ◊ |
| Bass Drum | ◊ | ◊ | ◊ | ◊ |
| TIME SIG: 4/4T | BAR : 3 | | | |

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our best means of tapping into this rich vein of rhythmic invention. With the advent of real-time programming systems and high internal resolutions, we can even capture the spontaneity of human performance. Of course, this means that parts should be programmed "by hand" wherever possible. If necessary, you can reduce the tempo until you're comfortable with the programming speed, and there's no reason you shouldn't enter parts a few notes at a time in a series of overdubs. If you have trouble sight-reading (translating the notes on the grids to the keys on your machine) there's nothing to stop you entering the notes in step time, listening how each part is formed and then re-entering them in real time after you've had sufficient practice.

For those dead against the idea of real-time programming, you could try shuffling step-time entered notes as a means of creating a more random feel, and those with more sophisticated machines or software may like to try achieving the right feel through the use of programmable quantisation. Whatever method you chose, the need to preserve the human component in these patterns cannot be overstated and will be an important determining factor in whether the rhythm tracks you produce are identifiable as African in influence.

In writing these patterns, I drew principally on the influence of music from Algeria, Mali, Ethiopia and Morocco. How well the different elements coalesce is for you to judge, but there should be no mistaking which region of the world these rhythms come from.

Because of the importance of choosing the right instruments, I've included a table giving details of the voices I used to get you started. Programming is quite straightforward, though I should point out that the tom-tom notes in Pattern 3 which appear fractionally before and after the beat division lines are intended to represent the human programming of toms 1-6. How much each deviates from its fully-quantised position will depend on the resolution of your machine and just how ragged you want the drums to sound.

Also, it's probably worth making it clear that although Patterns 4 and 6 appear in triplet time, they are straight 4/4 patterns written that way to accommodate the triplet beats in the conga and "dry" tom parts. If your machine allows you to program individual instruments in triplet time, program the rest of the patterns in straight 4/4. ■

| PATTERN: 2d | | TEMPO: 120-140BPM | | | |
|----------------|--|-------------------|---|---|---|
| BEAT: | | 1 | 2 | 3 | 4 |
| Tambourine | | ◊ | ◊ | ◊ | ◊ |
| Cow Bell | | ◊ | ◊ | ◊ | ◊ |
| Hand Claps | | ◊ | ◊ | ◊ | ◊ |
| Conga High | | | ◊ | ◊ | ◊ |
| Conga Low | | ◊ | ◊ | ◊ | ◊ |
| 'Dry' Tom | | ◊ | ◊ | ◊ | ◊ |
| Bass Drum | | ◊ | ◊ | ◊ | ◊ |
| TIME SIG: 4/4T | | BAR 4 | | | |

| PATTERN: 3a | | TEMPO: 95-105 BPM | | | |
|----------------|--|-------------------|---|---|---|
| BEAT: | | 1 | 2 | 3 | 4 |
| Tambourine | | ◊ | ◊ | ◊ | ◊ |
| Agogo Hi | | ◊ | ◊ | ◊ | ◊ |
| Agogo Low | | ◊ | ◊ | ◊ | ◊ |
| Cow Bell | | ◊ | ◊ | ◊ | ◊ |
| Conga High | | | ◊ | ◊ | ◊ |
| Conga Low | | ◊ | ◊ | ◊ | ◊ |
| 'Dry' Tom | | ◊ | ◊ | ◊ | ◊ |
| Tom 1 | | ◊ | ◊ | ◊ | ◊ |
| Tom 2 | | | ◊ | ◊ | ◊ |
| Tom 3 | | ◊ | ◊ | ◊ | ◊ |
| Tom 4 | | | ◊ | ◊ | ◊ |
| Tom 5 | | ◊ | ◊ | ◊ | ◊ |
| Tom 6 | | | ◊ | ◊ | ◊ |
| Bass Drum | | ◊ | ◊ | ◊ | ◊ |
| TIME SIG: 4/4T | | BAR 1 | | | |

| PATTERN: 3b | | TEMPO: 95-105 BPM | | | |
|----------------|--|-------------------|---|---|---|
| BEAT: | | 1 | 2 | 3 | 4 |
| Tambourine | | ◊ | ◊ | ◊ | ◊ |
| Agogo Hi | | ◊ | ◊ | ◊ | ◊ |
| Agogo Low | | ◊ | ◊ | ◊ | ◊ |
| Cow Bell | | ◊ | ◊ | ◊ | ◊ |
| Conga High | | | ◊ | ◊ | ◊ |
| Conga Low | | ◊ | ◊ | ◊ | ◊ |
| 'Dry' Tom | | ◊ | ◊ | ◊ | ◊ |
| Tom 1 | | ◊ | ◊ | ◊ | ◊ |
| Tom 2 | | | ◊ | ◊ | ◊ |
| Tom 3 | | ◊ | ◊ | ◊ | ◊ |
| Tom 4 | | | ◊ | ◊ | ◊ |
| Tom 5 | | ◊ | ◊ | ◊ | ◊ |
| Tom 6 | | | ◊ | ◊ | ◊ |
| Bass Drum | | ◊ | ◊ | ◊ | ◊ |
| TIME SIG: 4/4T | | BAR 2 | | | |

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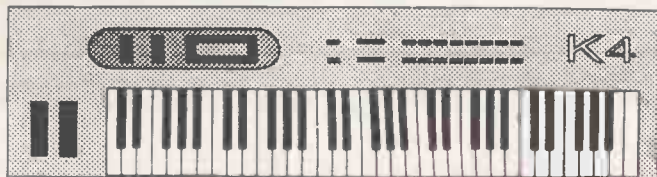
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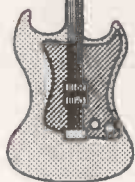
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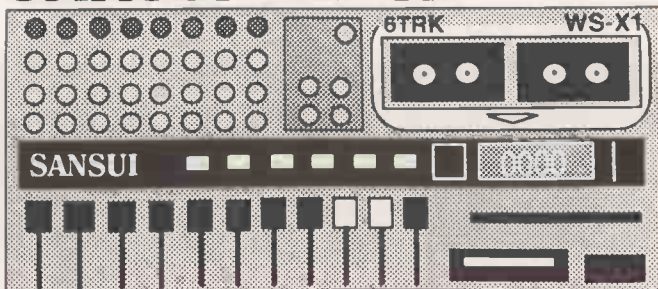
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| PATTERN: 3c | | TEMPO: 95-105 BPM | | | |
|-------------|---|-------------------|---|---|---|
| BEAT: | | 1 | 2 | 3 | 4 |
| Tambourine | ◆ | ◆ | ◆ | ◆ | ◆ |
| Agogo Hi | ◆ | ◆ | ◆ | ◆ | ◆ |
| Agogo Low | ◆ | ◆ | ◆ | ◆ | ◆ |
| Cow Bell | ◆ | ◆ | ◆ | ◆ | ◆ |
| Conga High | | ◆ | ◆ | ◆ | ◆ |
| Conga Low | ◆ | ◆ | ◆ | ◆ | ◆ |
| 'Dry' Tom | ◆ | ◆ | ◆ | ◆ | ◆ |
| Tom 1 | ◆ | ◆ | ◆ | ◆ | ◆ |
| Tom 2 | | ◆ | ◆ | ◆ | ◆ |
| Tom 3 | ◆ | ◆ | ◆ | ◆ | ◆ |
| Tom 4 | | ◆ | ◆ | ◆ | ◆ |
| Tom 5 | ◆ | ◆ | ◆ | ◆ | ◆ |
| Tom 6 | | ◆ | ◆ | ◆ | ◆ |
| Bass Drum | ◆ | ◆ | ◆ | ◆ | ◆ |

TIME SIG: 4/4T BAR 3

| PATTERN: 3d | | TEMPO: 95-105 BPM | | | |
|-------------|---|-------------------|---|---|---|
| BEAT: | | 1 | 2 | 3 | 4 |
| Tambourine | ◆ | ◆ | ◆ | ◆ | ◆ |
| Agogo Hi | ◆ | ◆ | ◆ | ◆ | ◆ |
| Agogo Low | ◆ | ◆ | ◆ | ◆ | ◆ |
| Cow Bell | ◆ | ◆ | ◆ | ◆ | ◆ |
| Conga High | | ◆ | ◆ | ◆ | ◆ |
| Conga Low | ◆ | ◆ | ◆ | ◆ | ◆ |
| 'Dry' Tom | ◆ | ◆ | ◆ | ◆ | ◆ |
| Tom 1 | ◆ | ◆ | ◆ | ◆ | ◆ |
| Tom 2 | | ◆ | ◆ | ◆ | ◆ |
| Tom 3 | ◆ | ◆ | ◆ | ◆ | ◆ |
| Tom 4 | | ◆ | ◆ | ◆ | ◆ |
| Tom 5 | ◆ | ◆ | ◆ | ◆ | ◆ |
| Tom 6 | | ◆ | ◆ | ◆ | ◆ |
| Bass Drum | ◆ | ◆ | ◆ | ◆ | ◆ |

TIME SIG: 4/4T BAR 4

| PATTERN: 4a | | TEMPO: 110-120BPM | | | |
|-------------|---|-------------------|---|---|---|
| BEAT: | | 1 | 2 | 3 | 4 |
| Cow Bell | ◆ | ◆ | ◆ | ◆ | ◆ |
| Conga High | | ◆ | ◆ | ◆ | ◆ |
| Conga Low | ◆ | ◆ | ◆ | ◆ | ◆ |
| Tom 3 | | ◆ | ◆ | ◆ | ◆ |
| Tom 4 | | ◆ | ◆ | ◆ | ◆ |
| Tom 8 | ◆ | ◆ | ◆ | ◆ | ◆ |
| Bass Drum | ◆ | ◆ | ◆ | ◆ | ◆ |

TIME SIG: 4/4T BAR 1

| PATTERN: 4b | | TEMPO: 110-120BPM | | | |
|-------------|---|-------------------|---|---|---|
| BEAT: | | 1 | 2 | 3 | 4 |
| Cow Bell | ◆ | ◆ | ◆ | ◆ | ◆ |
| Conga High | | ◆ | ◆ | ◆ | ◆ |
| Conga Low | ◆ | ◆ | ◆ | ◆ | ◆ |
| Tom 3 | | ◆ | ◆ | ◆ | ◆ |
| Tom 4 | | ◆ | ◆ | ◆ | ◆ |
| Tom 8 | ◆ | ◆ | ◆ | ◆ | ◆ |
| Bass Drum | ◆ | ◆ | ◆ | ◆ | ◆ |

TIME SIG: 4/4T BAR 2

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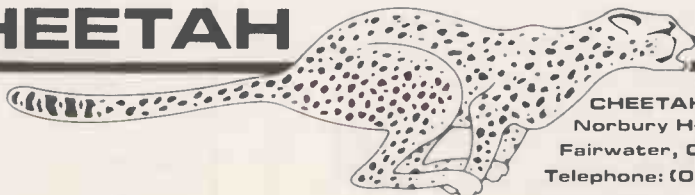


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| PATTERN: 4c | | TEMPO: 110-120BPM | |
|---------------|---|-------------------|---|
| BEAT: 1 2 3 4 | | | |
| Cow Bell | ◆ | ◆ | ◆ |
| Conga High | ◆ | ◆ | ◆ |
| Conga Low | ◆ | ◆ | ◆ |
| Tom 3 | ◆ | ◆ | ◆ |
| Tom 4 | ◆ | ◆ | ◆ |
| Tom 8 | ◆ | ◆ | ◆ |
| Bass Drum | ◆ | ◆ | ◆ |

TIME SIG: 4/4 BAR 3

| PATTERN: 5d | | TEMPO: 165-190BPM | |
|---------------|---|-------------------|---|
| BEAT: 1 2 3 4 | | | |
| Tamborine | ◆ | ◆ | ◆ |
| Conga High | ◆ | ◆ | ◆ |
| Hand Claps | ◆ | ◆ | ◆ |
| 'Dry' Ton | ◆ | ◆ | ◆ |
| Tom 5 | ◆ | ◆ | ◆ |
| Tom 8 | ◆ | ◆ | ◆ |
| Bass Drum | ◆ | ◆ | ◆ |

TIME SIG: 4/4 BAR 4

| PATTERN: 4d | | TEMPO: 110-120BPM | |
|---------------|---|-------------------|---|
| BEAT: 1 2 3 4 | | | |
| Cow Bell | ◆ | ◆ | ◆ |
| Conga High | ◆ | ◆ | ◆ |
| Conga Low | ◆ | ◆ | ◆ |
| Tom 3 | ◆ | ◆ | ◆ |
| Tom 4 | ◆ | ◆ | ◆ |
| Tom 8 | ◆ | ◆ | ◆ |
| Bass Drum | ◆ | ◆ | ◆ |

TIME SIG: 4/4 BAR 4

| PATTERN: 6a | | TEMPO: 120-140BPM | |
|---------------|---|-------------------|---|
| BEAT: 1 2 3 4 | | | |
| Hand Claps | ◆ | ◆ | ◆ |
| Finger Snap | ◆ | ◆ | ◆ |
| Conga High | ◆ | ◆ | ◆ |
| Conga Low | ◆ | ◆ | ◆ |
| 'Dry' Ton | ◆ | ◆ | ◆ |
| Tom 6 | ◆ | ◆ | ◆ |
| Bass Drum | ◆ | ◆ | ◆ |

TIME SIG: 4/4 BAR 1

| PATTERN: 5a | | TEMPO: 165-190BPM | |
|---------------|---|-------------------|---|
| BEAT: 1 2 3 4 | | | |
| Tamborine | ◆ | ◆ | ◆ |
| Conga High | ◆ | ◆ | ◆ |
| Hand Claps | ◆ | ◆ | ◆ |
| 'Dry' Ton | ◆ | ◆ | ◆ |
| Tom 5 | ◆ | ◆ | ◆ |
| Tom 8 | ◆ | ◆ | ◆ |
| Bass Drum | ◆ | ◆ | ◆ |

TIME SIG: 4/4 BAR 1

| PATTERN: 6b | | TEMPO: 120-140BPM | |
|---------------|---|-------------------|---|
| BEAT: 1 2 3 4 | | | |
| Hand Claps | ◆ | ◆ | ◆ |
| Finger Snap | ◆ | ◆ | ◆ |
| Conga High | ◆ | ◆ | ◆ |
| Conga Low | ◆ | ◆ | ◆ |
| 'Dry' Ton | ◆ | ◆ | ◆ |
| Tom 6 | ◆ | ◆ | ◆ |
| Bass Drum | ◆ | ◆ | ◆ |

TIME SIG: 4/4 BAR 2

| PATTERN: 5b | | TEMPO: 165-190BPM | |
|---------------|---|-------------------|---|
| BEAT: 1 2 3 4 | | | |
| Tamborine | ◆ | ◆ | ◆ |
| Conga High | ◆ | ◆ | ◆ |
| Hand Claps | ◆ | ◆ | ◆ |
| 'Dry' Ton | ◆ | ◆ | ◆ |
| Tom 5 | ◆ | ◆ | ◆ |
| Tom 8 | ◆ | ◆ | ◆ |
| Bass Drum | ◆ | ◆ | ◆ |

TIME SIG: 4/4 BAR 2

| PATTERN: 6c | | TEMPO: 120-140BPM | |
|---------------|---|-------------------|---|
| BEAT: 1 2 3 4 | | | |
| Hand Claps | ◆ | ◆ | ◆ |
| Finger Snap | ◆ | ◆ | ◆ |
| Conga High | ◆ | ◆ | ◆ |
| Conga Low | ◆ | ◆ | ◆ |
| 'Dry' Ton | ◆ | ◆ | ◆ |
| Tom 6 | ◆ | ◆ | ◆ |
| Bass Drum | ◆ | ◆ | ◆ |

TIME SIG: 4/4 BAR 3

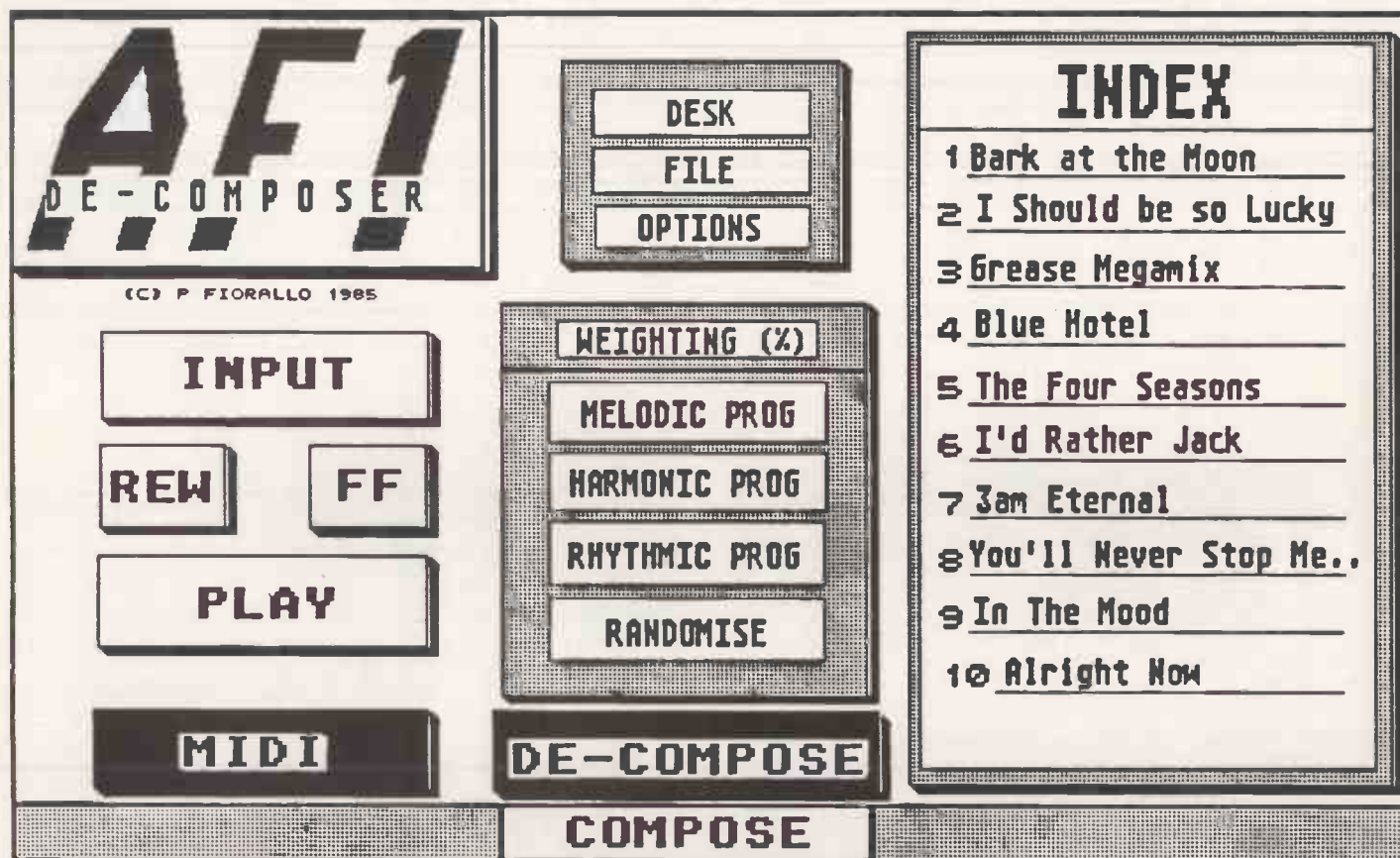
| PATTERN: 5c | | TEMPO: 165-190BPM | |
|---------------|---|-------------------|---|
| BEAT: 1 2 3 4 | | | |
| Tamborine | ◆ | ◆ | ◆ |
| Conga High | ◆ | ◆ | ◆ |
| Hand Claps | ◆ | ◆ | ◆ |
| 'Dry' Ton | ◆ | ◆ | ◆ |
| Tom 5 | ◆ | ◆ | ◆ |
| Tom 8 | ◆ | ◆ | ◆ |
| Bass Drum | ◆ | ◆ | ◆ |

TIME SIG: 4/4 BAR 3

| PATTERN: 6d | | TEMPO: 120-140BPM | |
|---------------|---|-------------------|---|
| BEAT: 1 2 3 4 | | | |
| Hand Claps | ◆ | ◆ | ◆ |
| Finger Snap | ◆ | ◆ | ◆ |
| Conga High | ◆ | ◆ | ◆ |
| Conga Low | ◆ | ◆ | ◆ |
| 'Dry' Ton | ◆ | ◆ | ◆ |
| Tom 6 | ◆ | ◆ | ◆ |
| Bass Drum | ◆ | ◆ | ◆ |

TIME SIG: 4/4 BAR 4

AF1 DE-COMPOSER



Applying MIDI to music analysis and composition sounds like a tall order, but that's precisely what De-Composer does - and with astounding results.

Review by
Tim Goodyer.

IT'S DIFFICULT TO entertain the idea of Dave Smith being a "revolutionary" - the ex-Sequential founder, currently Korg R&D boffin Dave Smith, that is. Yet when he conceived MIDI, he began a revolution as significant in its own way as anything Che Guevara might have started. Whatever hopes he may have had for a "universal musical instrument interface", he's unlikely to have thought about it as a tool to help analyse and teach classical music composition - yet that's just what Audio Fast have set out to do with it in their AF1 De-Composer program for the Atari ST.

De-Composer is designed to store and analyse music entered into it via MIDI. That is, it will assess incoming MIDI data for its musical content and present you with the sort of analysis commonly taught using conventional classical instrumentation, records and manuscript paper. On top of this, it will allow you to impose the compositional style of one piece of music on to another, or even generate new pieces of music in a particular style.

The documentation tells us that the program has been written specifically to cope with the music taught in British higher education, but obviously any music presented to it as MIDI data can be subjected to the same processes. As such it is being marketed as educational software, but the ramifications of this program are somewhat more significant, as we shall see later.

BREAK IT DOWN

DE-COMPOSER RUNS ON any ST from a 520 upwards, with restrictions being placed on the amount of music it is able to handle accordingly. The program comes on a single disk and is software copy-protected - so there's no dongle to lose.

Operation is from two main screens, the De-Compose screen and the Compose screen. Different aspects of the musical analysis are presented on a number of dedicated screens (key signature, time signature and so on). All the De-

Compose screens can be printed out, but there is no provision for printing music on a staff. De-Composer makes no claims to be a scorewriter for under £100.

Using the program is as simple as connecting a MIDI controller (presumed throughout the manual to be a keyboard) to the ST's MIDI In (connection to the MIDI Out is obviously required for composition), setting the time signature and start tempo, clicking on the Initiate Button and putting fingertips to ivories. De-Composer gives you a one-bar count and you're away. And it's here you'll notice the first impressive feature of the program, because the metronome bleep (from the Atari's internal speaker) fades out after the first bar, leaving you free to alter your playing speed at will. The program performs its first analysis on the "Style" of the first bar and uses this information to recognise how the tempo of the music changes during your performance.

You can repeat this process to add up to two further parts - allowing you to build up a reasonably complex piece of music. In this way you can selectively enter parts of an orchestral score to see what makes them tick.

Once you've finished playing, a click on the Terminate Button automatically initiates the De-Compose routine. Now, this process can take as little as a couple of seconds or as much as several minutes depending on the complexity of the music. Once the analysis is complete, however, you are free to examine the intricacies of the music you've just played.

Specifically, the analysis covers the obvious time and key signatures, including any changes that might occur during the piece, and extends to the more academic aspects of melodic curves and harmonic structures, as well as delving into the overall structure of the music.

One of the strengths of a software-based system like this is that it is able to assemble the data in a number of different ways to suit your requirements. The main presentation takes the form of a list of observations plotted against bar number. This vaguely resembles the event lists of conventional sequencers - the bars are listed in sequence in a vertical column and against them appear details of the music. Alternatively you can ask De-Composer to give you the bar numbers of any changes in time signature, for example.

The melodic curve takes the form of a graph of the melody (with reference to either a user-defined or computer-derived reference note). The harmonic analyses appear on the same graph and are presented as a number of further curves (dependent upon the number of harmony lines) all plotted with respect to the same reference note. When run in colour, De-Composer allows you to assign different colours to make these curves more distinct. Finally the overall musical structure appears as a listing of the development of the piece as it progresses through time. Here you may be presented with anything as simple as verse/chorus structures or as involved as sonata

form, such is De-Composer's versatility.

All the above information is available as printout in any of the screen display formats.

BUILD IT UP

THE WAY IN which De-Composer goes about both analysing and creating music is by creating a musical algorithm - called a Style algorithm. Being essentially mathematical in construction, it's possible to create an algorithm - or set of rules - which describes the music in a mathematical form. The same principle is employed in "intelligent" composition programs like Hybrid Arts' Ludwig, but such programs are designed to produce music from scratch while giving you control over various aspects of the composition.

A Style algorithm contains all the information necessary to describe the piece of music from which it was derived - this was more or less confirmed by asking it to compose new pieces of music based purely on the Style algorithm of pieces it had just analysed. Without any additional instruction, De-Composer should, in theory, "re-compose" the piece it has just "de-composed". While there were discrepancies between the "new" pieces and the originals, all were recognisable as the original pieces, and simpler pieces were almost perfect "re-compositions".

Reconstructing existing pieces of music is not what the program was intended to do, however. Instead, by entering the Input page, you can amend existing parameters or add fresh parameters to the Style algorithm. Using this modified algorithm, you can generate variations on an original piece. Further, you can take the algorithms derived from up to ten pieces of music and combine them to produce a new piece that draws on all ten, yet is distinctly different from each one.

Again the intention of the program's authors is for you to be able to compare what you believe a composer might have done with a piece of music with what algorithms of his music suggest he would have done. What they have not fully realised, however, is that the program is in many ways more suited to dealing with contemporary music than classical music.

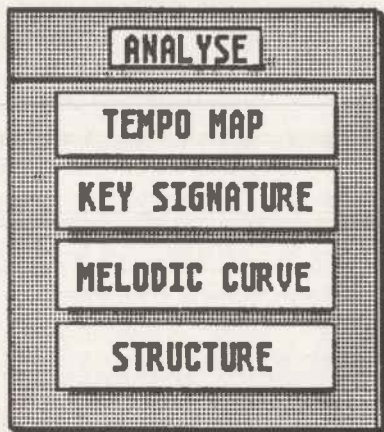
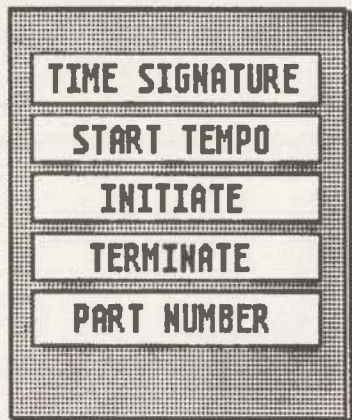
APPLY IT

REMAINING WITH THE intended application of De-Composer for the time being, it's good to see that the program is MIDI Song File compatible. This means that you can draw on the resources of companies like Digital Music Archives who specialise in producing classical music in MIDI sequencer format. This can save you considerable effort in "keying in" the work you wish to study. Of course it also means that you can prepare pieces >

"Thanks to De-Composer anyone can now 'write' a No. 1 hit with absolute certainty - whether you personally find this a satisfactory state of affairs is another matter."

AF1

DE-COMPOSER



DE→COMPOSE

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- 1 Bark at the Moon
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- 3 Grease Megamix
- 4 Blue Hotel
- 5 The Four Seasons
- 6 I'd Rather Jack
- 7 Sam Eternal
- 8 You'll Never Stop Me..
- 9 In The Mood
- 10 Alright Now

➤ on other sequencers (as long as they too are MIDI File compatible) and then load them into De-Composer. It also means that you can offer your own work up to De-Composer for analysis. . .

All this is interesting and potentially useful stuff, but things start to warm up when you stray away from the "serious" educational applications of De-Composer. After working with the program for a short period of time, it became apparent that what I had in front of me had the potential not only to analyse pop music and tell me what, say, the last ten No. 1 singles had in common, but to compose music in a similar vein. Broaching the subject with Audio Fast, the program's originators, elicited what can only be described as a feeble attempt to fudge the whole issue. Discussing the same issue with one of the program's beta testers told me why. It seems that early copies of De-Composer were first circulated almost five years ago and one fell into the hands of a pop production partnership. He wouldn't disclose to me who the producers were, but assured me that they had since cornered the market in production-line pop hits. All they had to do was take a handful of tunes currently favoured by the record-buying public, feed them to De-Composer and then ask the program to compose another handful with similar appeal. The suggestion was that the process was so successful, they're still doing it today.

purpose exceptionally well. It suffers from one main drawback, however, and that is its reliance on your ability to play into it what you want analysed. Happily, its MIDI File compatibility should help out here. But it's as a means of producing pop music to a successful formula that the program really shines. Thanks to De-Composer *anyone* can now "write" a No. 1 hit with absolute certainty. Although whether you personally find this a satisfactory state of affairs is another matter.

As it was intended to deal with the complexities of classical music, De-Composer has no difficulty in unravelling most popular music - the exceptions being sample-based pieces, where the sample source is at least as important as its sound. The skill in applying such a program to chart music comes in your choice of songs to analyse, and the elements of those songs you choose to favour or suppress.

In spite of Audio Fast's reluctance to associate their program with pop music I don't really see how they can hope to prevent it. I suspect that a new era of compositional "talents" is upon us, and with it a new generation of arguments about "real" music and "real" musicians. ■

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VERDICT

AS AN EDUCATIONAL aid, De-Composer is an ambitious project which succeeds in its chosen

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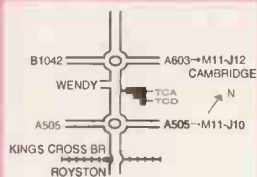
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Dream Warriors King Lou and Capital Q

dream of technology; co-producer Maximum

60 gives the technical lowdown on the

Warrior sound. Interview by Simon Trask.

"WHEN 'WASH YOUR FACE IN MY SINK' came out in the UK, people went 'Woah! What is America coming out with next?'" recalls King Lou, one half of the Dream Warriors. "When we explained to them that we lived in Canada it was like 'Oh, North America', and we were like 'No! Canada'. Then it was 'We didn't know Canada had a rap scene. Did you grow up in America?'"

If there was any confusion to begin with, there surely can't be any now. The UK chart success of 'Wash Your Face in my Sink' and its follow-up, 'My Definition of a Boombastic Jazz Style', has placed the Dream Warriors firmly in the media gaze. Following on from these singles, the group's UK record company, Island, have released their debut album, provocatively titled *And Now The Legacy Begins*. It's a mature, confident and strikingly original debut, endlessly inventive and wonderfully diverse, rich in lyrical and musical ideas.

So it is that King Lou and his partner Capital Q are in London for a string of interviews, and I'm sitting across a table from them at Island's offices. Capital Q, the Quiet Storm, lives up to his name by spending most of the interview leafing through the copy of MT which I've brought along, happy to leave the talking to King Lou.

Canada is a country of astonishing facts. Covering seven percent of the world's surface, it's the second largest nation in the world. Vancouver on the West Coast is closer to Mexico City in Central America than it is to Halifax on the East Coast. The country's prairies alone cover more than the combined areas of India, Pakistan and Nepal, while the 12 percent of its land suitable for farming is equivalent to the combined areas of France, Italy, West Germany and England. Yet for all its vastness, Canada has only around 25 million inhabitants, most of whom live within 200 miles of the American border. Through satellite broadcasting, dish receivers and cable systems, Canadians - or at least English Canadians - have for years been prime targets of US cultural imperialism. It's been estimated that nowadays English Canadians watch US programs for 75% of their TV viewing time, while 97% of the dramas they watch come from the States.

"A lot of people in Canada just change TV channel when it's a Canadian show and not the glamorous American-type show", affirms King Lou. "It's been the same thing for us. We were neglected by radio stations because we were Canadian and we were doing hip hop in a large rock-orientated place. Also, it was always American hip hop first, and if you weren't coming from America then hip hop wasn't a true state to you. Same thing as TV, just a different form of it."

No wonder one of the tracks on the album is called 'Tunes From the Missing Channel'.

The Dream Warriors signed to Island last year, and their sudden rise to fame has all the hallmarks of an overnight success story. But behind it lies many years of hard work and a production company called Beat Factory, which has been working tirelessly for the past eight years to build up Canadian dance music. Situated in the Pickering suburb of Canada's rock capital, Toronto, it hasn't been an easy task.

In addition to the Dream Warriors, artists signed to Beat Factory include Michie Mee and LA Luv, Krush and Skad, Carla Marshall, Gillian Mendez and Sike. All the artists record in Beat Factory's small basement studio. Until about six months ago, the vocals were recorded on an Akai MG14 12-track tape machine, but the Akai has been replaced by a Roland S770 sampler with full memory upgrade. Now the vocals are sampled in sections into the S770, assigned to MIDI notes and triggered from a sequencer along with the other musical parts. It's tapeless recording but not as we know it.

Technological metaphors find their way naturally into the Dream Warrior's lyrics. As King Lou reveals, he and Capital Q have a sensible attitude towards the technological trappings of the modern recording studio.

"We deal with a lot of modern technology so we're very aware of it", he says. "It just kind of adds up. We won't be a slave to technology, we know how to use it but we won't let it use us. Once you know those simple factors there's nothing at all wrong."

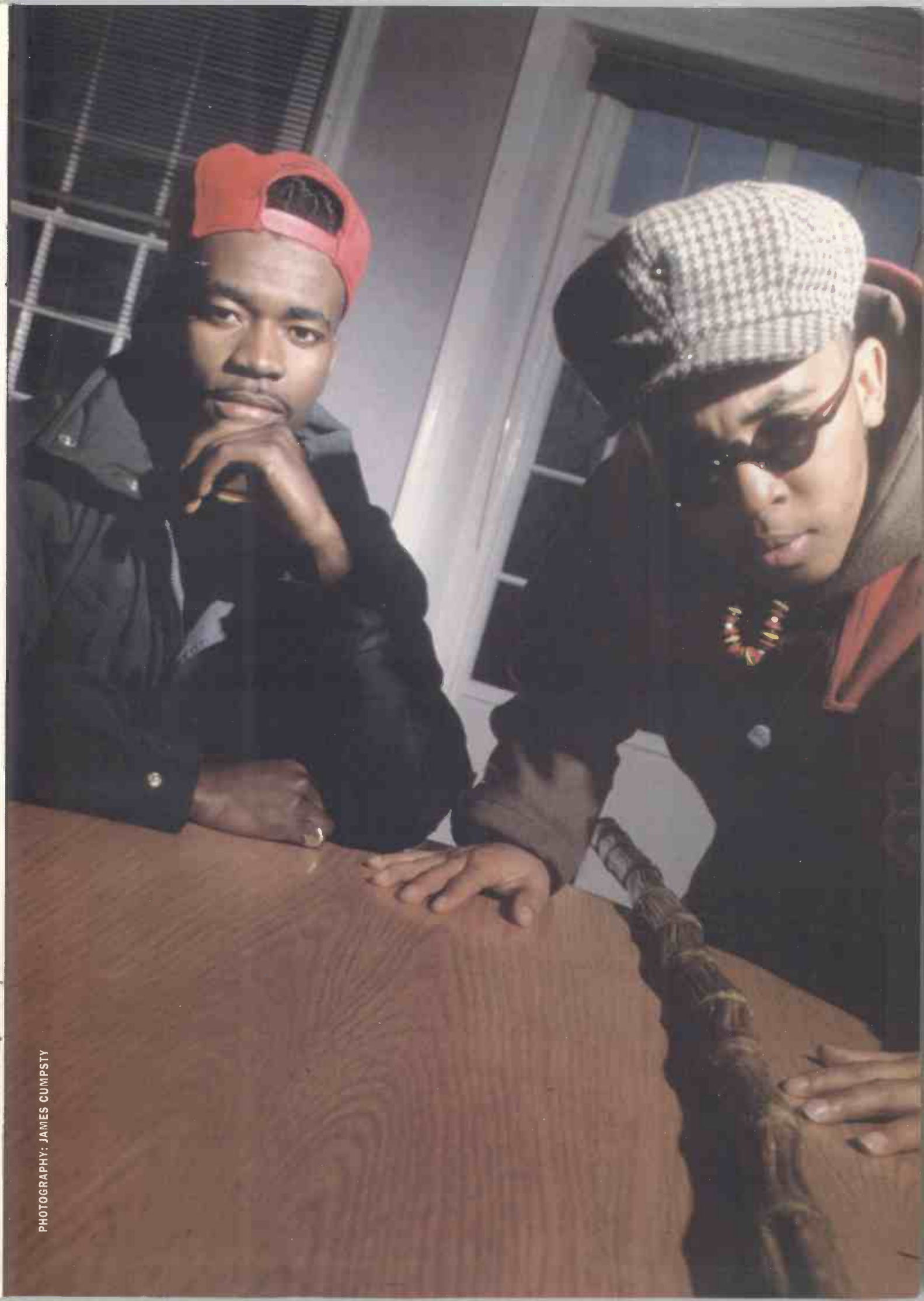
The Dream Warriors' approach to working in the studio, as told by King Lou, runs as follows:

"The thing with us is that our order is our disorder. A lot of people go in the studio and order for them is to have an order, but order for us is to *not* have an order. Anything can work, so have an open mind. It's like, go into the studio and construct something that's your feeling for the day. A lot of people come in and they want to bring a rougher vibe or a more mellow vibe or a more dancy vibe, but when we come in, anything goes. On our album, 'Ludi' is different from 'Wash Your Face in my Sink', which is different from 'Do Not Feed the Alligators' which is different from 'Tune from the Missing Channel'. Every track has a different vibe to it."

And as King Lou makes clear, the Dream Warriors' "anything goes" credo extends to the sounds they're prepared to use in a track.

"You know, watch out, don't even sneeze 'cos that might go in the song", he warns. "On 'Do Not Feed the Alligators' there's the sound of birds chirping. Whatever sound we like, we'll use it. It could be the >

DREAMWARRIORS



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➤ sound of the wind blowing the drapes open. What we're really doing when we're putting together a track is organising noise, organising sounds. That's what people do with a band - like you'll have a guitar strum here, a hi-hat there. . . It's like, if you put this noise here and that noise there, it sounds like music but it's not, it's just noise organised in a particular way. So if we've used different noises it'll sound like a different organisation. To us, our organisation is just grabbing sounds that we like and putting them into our own sentence. We do it through samples because we don't know how to play instruments, but then if we had a band I don't think it would come out the same.

A lot of musicians'll go 'I wouldn't have played that there because it's not musically inclined to be the right place'. To them, everything has a certain place and a certain time, but we're kind of saying it doesn't *have* to. So they'll say 'Well, how's it supposed to musically sound right?', and that's the thing, that's what makes us different from a band. Musically it's not sounding right, yet it works."

Only two or three songs on the Dream Warriors album were recorded with the S770, the rest of the album being recorded on the Akai 12-track before the sampler came along. Did King Lou and Capital Q find the transition from tape to samples difficult?

"Whether we record onto tape or into a sampler isn't a real change to us", King Lou replies. "For a lot of people it's 'Wow, you can sample in the vocals', but we've actually spoken the vocals with the same feeling and they're being said in the exact same way as when we recorded onto tape. The sampler can still only record as much feeling as you're feeding into it. If you're speaking off of a piece of paper then it's going to sound as if you're speaking off of a piece of paper. If you speak your lyrics like they're coming from the heart then it's going to sound like they're coming from the heart.

"I think the sampler's an improvement if it can improve time and improve quality, but that's just a convenience for the engineer. We can sample the vocals in sections, which gives us the facility to say 'I like the beginning part but I don't like the end part, so let's do the end part over again'. You can do the same thing on tape with punching in, but it's just more convenient with sampling."

THE MAN BEHIND THE MIXING DESK AT Beat Factory's in-house studio is 27-year-old Richard Rodwell - aka Maximum 60 (so called because, in King Lou's words, he "controls the speed in the studio"). As well as engineering, mixing and co-producing for Beat Factory's artists, Rodwell is part owner of the company along with Ivan Berry and Rupert Gayle. He's also been playing keyboards for the past 12-13 years, and used to be in a couple of rock groups.

"Believe it or not, my early musical influence was the Stranglers", says Rodwell, speaking on the phone from Toronto. "I used to love those guys. The keyboard player in the Stranglers was really amazing. Also I used to love Devo, the Doors, that kind of thing."

The origins of Beat Factory lie in a group called

Traffic Jam which consisted of Rodwell, Rupert Gayle and Len Grant and was managed by Ivan Berry.

"Len and I were always into the hi-tech stuff", recalls Rodwell, "and we used to have about ten keyboards, all these analogue synths. We had an SH101, a Juno 106, a Yamaha CS01, an ARP Odyssey. . . My very first drum machine was a Roland Drumatix. But none of this stuff was MIDIable, so eventually we got rid of it all."

With money made from playing, the group invested in a small four-track studio setup based around a Yamaha MT1X, and it was as a result of interest in some tracks which they put together with local rapper LA Luv that they decided to fold the group, start up Beat Factory and concentrate on developing Toronto's rap talent. Eight years later and the Beat Factory roster of artists is poised to break out of the confines of the Canadian market in the wake of the Dream Warriors' international success.

The Beat Factory studio has progressed considerably from the early four-track days, but as Rodwell explains it's still a relatively modest affair - and that's the way everyone likes it.

"The studio's in a space maybe 15' by 10', and we have a very small vocal booth. But the space has never really been a problem for us, because the concept of everybody here is that the smaller and the more basic it is, that comes out in the sound. You could have a really big 48-track, huge digital studio, but. . .

"It's like the more equipment you have the less 'street' the music sounds. Beat Factory has a certain kind of sound. I don't know what it is but there's a certain element that's worked for us. We must be doing something right, so we just keep on doing what works.

"To tell you the truth, the only things I use for sounds in Beat Factory are the 770, an S330 and a D110. That's it - it's amazing, isn't it? We use the 330 for beats and loops and basslines, and sometimes the D110 gets used for basslines as well. The 770 is usually just for vocals, but if the 330 gets filled up then we'll drop maybe another guitar loop into the 770. It has to be something that it's not critical for the rapper to listen to when he's recording his rap, because the 770 can't sample and play at the same time."

Rodwell elaborates on the typical Beat Factory recording process: "Usually we'll loop up the loops first and then punch in a drum rhythm afterwards", he explains. "That's how it works with the Dream Warriors, but we have another group called Split Personality who usually like to make up the beat first.

"After we've got the loops and beats going, we'll play the song back and the rapper will rap over it. With the 770 we'll use the 'Previous' function for sampling, which is great because I can keep the beat rolling in the 330 and then once the rapper does a good take they'll say 'OK, keep that one' and then I just press the Sample button and the S770 keeps the sample. It's like sampling backwards from when you press the button."

One of the first things Rodwell did when he got the S770 was to upgrade the memory to the full 16 megabytes. To maximise the sampling time, he uses the 770's 24kHz sample rate for all the vocal sampling. ➤

"What we're really doing when we're putting together a track is organising noise, organising sounds - that's what people do with a band. . ."

> "The 770's incredibly clean", he comments. "Forty eight would be great, but of course it's half the sample time. With a fully-expanded memory, 24K gives you about six minutes."

So does this mean that a rap might be sampled straight through?

"Sometimes the rapper will rap right through a song, if they're really confident and they want to do it all in one take", Rodwell replies. "But usually I find it's better to sample in sections, like verse one, verse two, chorus, because then you keep the energy happening - and if the rapper makes a mistake then the whole sample isn't screwed up."

Surprisingly, considering Rodwell's background as a keyboard player, the only keyboard in use at Beat Factory is not an 88-note controller but an instrument of distinctly more modest proportions: a Yamaha KX5 MIDI remote.

"I have an old JX3P that I used to use for playing basslines and stuff", Rodwell says, "but lately the MIDI's been really screwing up on it, so now I just use it as a source of analogue sounds for the samplers."

"I want to maybe get a D70 - that's a nice machine - but I'm an analogue person myself, because I grew up on analogue synths and I like the warmth and the rawness of analogue sounds. Also, I find most digital synths just too bloody hard to program. If you want to change something, oh my God. . . But the D70 incorporates the analogue kind of programming with digital sounds. Actually, I've always been a Roland fanatic."

Nowadays, sequencing in the Beat Factory studio is taken care of by Opcode's Vision software running on a Mac Plus, which has been in place for around 18 months. Previously, Rodwell used Steinberg's Card 32 sequencing software running on a Commodore 64, recording the original version of 'Wash Your Face in my Sink' with it. As the studio now uses Vision, has Rodwell thought about upgrading to Studio Vision for its combination of sequencing and hard-disk audio recording?

"Studio Vision looks interesting", he replies, "but the only problem with it is that it doesn't have separate outs yet, it only has the two master outs. That's why I like the 770, because it's got six separate outputs."

With the 770 firmly in place, it would seem that the Akai 12-track is now redundant in the Beat Factory scheme of things.

"The Akai's history now", confirms Rodwell. "And check this out - before I dumped it I had to sample every recorded vocal of every artist into the 770 and save them all onto optical disk. That's a great unit, you can't do without it. I remember when we first got the 770 we were saving things to floppy. Never again, never ever again. It's so slow and it takes so many disks. You have to buy the optical disk unit, there's no way around it. We don't use the onboard hard disk for storage at all because you get a lot of good factory sounds on it. The percussion stuff is amazing - the Latin stuff is great."

Nowadays the mixer of choice at Beat Factory is a Tascam MM1, with its MIDI-controlled channel muting run from Vision. Sporting just treble and bass controls on each channel, the MM1 doesn't have the

most sophisticated EQ in the world, but this isn't something which bothers Rodwell.

"We just try to make the sound as raw as possible", he says.

"Whatever needs treble, we'll put up a little treble, whatever needs bass, we'll put up a little bass. I've also got a separate 15-band EQ, but I only use it if the song really requires a lot of bass or a lot of detailed EQing. We don't get into a lot of processing. We have a Yamaha SPX90 and a Yamaha R1000 reverb unit and that's it. The R1000's kind of an old unit. I just use it to put a bit of reverb wash on the vocals. The only thing I really use the SPX90 for is echo. We don't use compressors for the voice, anything like that."

With everything, including the vocals and the automated mixing, sequenced from Vision, Rodwell is able to do without SMPTE code - a fact which makes him very happy.

"We used to have a lot of problems with SMPTE", he recalls, "but now that we're using the 770 for vocals SMPTE doesn't exist any more with me. I'm telling you, it was a real pain in the ass. We used to have a lot of trouble with the signal leaking into the audio track. If you listen carefully to 'Wash Your Face in my Sink' you can hear the SMPTE tone right through it!

"I'll let you in on a secret. When we first got the Akai we were just scraping by so we needed to save on tapes, 'cos those tapes are expensive. We only used the Akai for vocals, because everything else was running live from the sequencer, so because we never needed 12 tracks of vocals for a song, what I would do was I would have, say, tracks one, two and three for Dream Warriors, tracks four, five and six for Michie, and so on. I would use the same SMPTE start times and everybody's vocals would be starting at roughly the same time. For the particular song we were working on I would just leave those tracks up and put all the other tracks on Line so I could put the instruments through those channels. But there was one time, it's actually near the beginning of the Dream Warrior's 'U Never Know a Good Thing Until U Lose It', where you hear a female reggae voice. That is actually Carla Marshall. We'd been mixing her song the day before and I'd forgotten to switch her vocal track over to Line before we did the Dream Warriors mix. We all listened to it and said 'That sounds pretty good', so we just decided to leave it in!" ■

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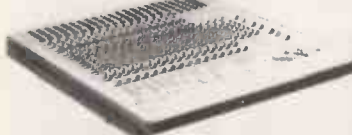
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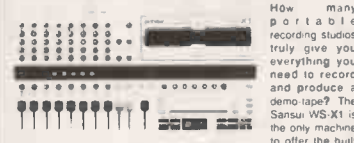
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POCKET SEQUENCER

Forget the compositional power of software-based sequencers, forget their editing options and scorewriting facilities - consider instead a sequencer small enough to fit in your pocket.

Review by
Vic Lennard.

MOST OF US know how unpleasant an unexpected attack of inspiration can be - you're sitting at a keyboard in a music shop or at a piano in a pub, and suddenly the notes start to flow. You finger the chords, the melody rings through your head, the drum beat is instinctive. . . You arrive home anxious to capture your inspiration in your sequencer - but somehow your brain suffers a system reset just as you flick the mains switch on your own keyboard. The melody line has evaporated, the chords are in the wrong order and the drum beat has become a tom fill from *EastEnders*.

I suppose it's a sign of the times that so many of us rely on sequencers to store our ideas instead of the "tadpoles on telephone lines" that served the classical greats so well. However, ideas are often instantaneous and a sequencer small enough to fit in your pocket could be an attractive *aide memoire* when it comes to those moments of inspiration. Well, wait no longer - Anatek, the Pocket Product people from Canada - have just released their Pocket Sequencer.

POCKET LOOK

THE POCKET SEQUENCER is of the standard Pocket Series size (about 8cm x 5cm x 3cm). On the top is a three-way toggle switch with Record/Stop-Continue/Play and three LEDs. The right-hand (red) LED is the power/MIDI activity indicator, the left-hand (red) LED shows the condition of the record buffer and the bar metronome, while the centre (green) LED is used for the beat metronome and to show that data is being saved to memory.

There are sockets on the side for MIDI In and Out, and a footswitch, which is used to control the sequencer functions. Finally there is a slot which takes a small, plastic 256kBit card (with lithium battery back-up for memory), one of which is included with the package. Anatek have cheekily emblazoned "256k" on the side of the card as this infers its storage capacity is 256kBytes while it actually stores only 32kBytes. In fact, some 7kBytes of the card are taken up by the operating system so reducing the RAM to around 25kBytes.

If you've read any of MT's previous reviews on the

Pocket range you will already have guessed that Pocket Sequencer, like its stablemates, is powered via the 5 volt MIDI line.

POCKET FEATURES

POCKET SEQUENCER HANDLES 16 tracks of MIDI sequencing with a resolution of 96 pulses per quarter note, and is capable of recording all MIDI data including System Exclusive for synth memory dumps. Of the unit's 16 tracks, each is dedicated to one of the 16 available MIDI channels. This means that it works best with a keyboard which can change its MIDI channel output assignment. A soft Thru is automatically provided so that you can hear pre-recorded tracks along with whatever you are currently playing, without needing a merge box.

Using the three-way toggle switch is inconvenient - it's a shame that Anatek have opted for these instead of three separate switches. At least there is an alternative with Pocket Sequencer via the footswitch socket - a non-latching footswitch will operate most of the functions. The polarity is checked when the sequencer powers up.

As with any sequencer, you need to set Pocket Sequencer's tempo/metronome click and time signature before you start work. Pressing and holding the Stop/Continue button causes the green LED to flash at the current tempo, and an internal sounder beeps along to the beat. You can now set the tempo by tapping in beats either on Middle C, the control bar or the footswitch. Holding down the control bar then sets this tempo, with a rather rude tone advising you of this. Pocket Sequencer uses various different tones to guide you around its functions. You set the time signature in a similar way except that instead of pressing Middle C, there's an enclosed chart for reference. The white notes between C3 (MIDI note number 64) and E5 (88) are used for this setting. The tempo and time signature set initially cannot be changed during the course of a song.

To record the first track, press the record (left) side of the control bar and the red LED indicating Record status comes on. A tap on the footswitch gives you a one-bar count, and then you're off. When you finish, another press on the footswitch stops the sequencer and leaves the red LED flashing to inform you that there is data in the record buffer. Press the footswitch again and the

track plays back. Quantisation involves entering the same mode that was used for tempo setting and further reference to the chart - white notes between C2 (MIDI note number 48) and B2 (59) are used for the various quantise values, with C#2 (49) turning quantise off. Playback again - you can change the quantise value if you get it wrong. More to the point, if you record again on this track, the quantise will act as a pre-record option. Unfortunately, this means that you can't set different quantise options for different parts of the same track.

If the recorded track is now OK, you need to save it to the RAM card by pressing and holding the Record button. If the track has failings, you have two options: to re-record from the top or to punch in and out on the offending section. You can't do this from the footswitch - you have to double-click on the Record button to enter Punch-in mode. Set the sequencer to play, and the moment you press a note, it changes to Record mode with the footswitch stopping as before.

You can also do overdubs where the new notes played in are merged with the existing ones on the track. As this is unlikely to be at the start of the track, the record and play buttons act as fast forward and rewind once the sequencer is in Play mode. It would have been helpful if some markings had been included on Pocket Sequencer's screening to remind us of this. If you use the transport controls, you can also stop at any point and then drop into record there.

Multitrack recording is a straightforward continuation from here: change the MIDI output channel of the keyboard and record as before (although you will now hear any notes which have already been recorded and saved to the RAM card). You can even toggle between a take on RAM card and a different take in the record buffer. If you want to have the entire song repeating, there is also a loop facility.

On the erase front, you have the option of targeting a single track or the entire memory. As the number of the track is associated with the MIDI channel number, you simply enter erase mode and press any note on the keyboard. Beware though, if you've reset the keyboard's MIDI channel since recording the track you now wish to erase, as this method will bin the wrong track.

Pocket Sequencer responds to MIDI Clock and Song Position Pointer if you are syncing it to an external sequencer or drum machine. It also outputs MIDI Clock, Start, Stop and Continue commands as well as Song Position Pointer, so you can use it as a master device. Useful this - you could program your drums on a drum machine and the rest of the keyboards on Pocket Sequencer to save sequencer memory.

From running various experiments, it appears that Pocket Sequencer will save around 22Kbytes of SysEx data. This will handle the edit buffer from any synth (which is usually less than 1Kbyte) and will also record a patch dump from the likes of the Yamaha DX7 and Roland Alpha Juno. Unfortunately, most of the modern synths have SysEx dumps in excess of 22kB including the Korg M1, Roland D50 and Oberheim Matrix 1000.

PROBLEM POCKETS

POCKET SEQUENCER RECORDS everything - including All Notes Off messages. Some manufacturers transmit this MIDI message from a MIDI keyboard each time all notes have been released to ensure that any notes left hanging by the loss of a note off are silenced. A problem occurs here, however, when you overdub. As the track is playing back, every time an All Notes Off message appears, it cuts off the new notes you're playing. Anatek are considering adapting their operating system to handle this.



- Another drawback is that you can't turn individual tracks on and off at playback - you have to erase a specific track to mute it. While this is a shortcoming of the unit, however, you could simply turn down the sound source as an external means of muting.

To help keep down the delays associated with MIDI's serial nature, Pocket Sequencer uses running status to play back pitchbend and aftertouch. However, it uses a 9nH message for notes on and 8nH for notes off, so retaining and transmitting the note-off velocity value. Bearing in mind the small number of devices which respond to note off velocity, perhaps it would have been better to use 9nH with a velocity of zero for note off. This would have allowed running status to be utilised for notes as well. Pocket Sequencer actually uses this method if a lot of quantisation is used, to give a maximum storage of about 6000 notes. However, if recordings are made in real-time, you could get as little as 2500 notes. In use, I got a figure of around 3500 notes. The reason for this is the storing of the timing of MIDI events, which also utilises RAM. Perhaps Anatek should mention the point that the number of recordable events is increased if quantising is used.

Admittedly, you'd need to carry a footswitch to make Pocket Sequencer friendly, but it is possible to run it from the control bar at a pinch. And there are no mains or battery problems - all you need is a couple of MIDI leads and a keyboard (or any other MIDI controller). Anyone of a creative nature could benefit from Pocket Sequencer. Alternatively, Pocket Sequencer offers anybody who fancies the latest bank of sounds from someone else's keyboard the ideal medium with which to steal them - perhaps Anatek should include a sticker marked "Swag" for such occasions.

The main drawback of Pocket Sequencer is that you can only record one song on each RAM card, irrespective of the amount of memory still free. This is also true for SysEx dumps - you're only allowed one of these, and you can't use Pocket Sequencer for SysEx and a song at the same time. Looked at this way, £159 (the cost of Pocket Sequencer) is excessive for a one-dump or one-song sequencer. The cost of extra RAM cards has yet to be announced.

Still, Pocket Sequencer works, and may well find a market among those requiring extreme portability and those in love with MIDI gadgetry for its own sake. Considered as a first-time or main working sequencer, however, Pocket Sequencer doesn't make too much sense. ■

“Alternatively, Pocket Sequencer offers anybody who fancies the latest bank of sounds from someone else's keyboard, the ideal medium with which to steal them.”

VERDICT

IT'S AN INTERESTING idea, a 16-track sequencer that you can whip out of your pocket at a moment's notice.

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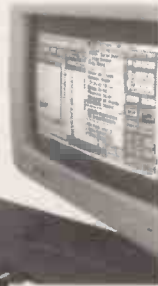
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DD1000



PHOTOGRAPHY: JAMES CUMPTSY

With the massive storage capacity of optical disks has come a new age in digital editing - witness the Akai DD1000, the first of a new generation. Review by Vic Lennard.

REGARDLESS OF WHETHER you record with MIDI or multitrack tape, there comes a point at which you must master your recording. Presently if you're not mastering to half-track tape or cassette you're probably a recent convert to DAT. And while all these media have their strengths, none were designed with editing in mind.

One edit-friendly alternative is a hard disk mastering system like Digidesign's Sound Tools. With digital inputs and outputs, such a system allows you to download a song from DAT, edit it, and then upload back onto DAT, all in the digital domain. Systems like Sound Tools are reliant upon a host computer and hard disk, and it is the latter which restricts the system as the available recording time is directly proportional to the hard disk's storage capacity - over 40 Mbytes are necessary to record a four-minute song at 44.1kHz, stereo (excluding storage space for extra edits). Consequently, we're talking of at least 400 MBytes for an album, at a cost of around £2000. More to the point, what happens when the disk is full? You could back up on tape streamer or DAT, but recalling a

small section of a previous take is then extremely time consuming. Alternatively you could simply wipe the hard drive at the end of each project. . .

One alternative to a hard disk is a Magneto-optical disk system. This uses a laser to heat a magnetic layer underneath the protective surface which is then written to by a magnetic head. When the layer cools, the data is fixed until the laser is re-applied to over-record. This involves none of the disadvantages of magnetic disk technology - you can transport the disk without fear of corruption by magnetic and electrical fields, and once a disk is full, you simply use a fresh one. These disks have a storage capacity of 650 MBytes giving 30 minutes stereo at 44.1kHz per side. And it is this latest technology that Akai have utilised in their new DD1000 digital recorder.

OVERVIEW

THE DD1000 OFFERS a two-track record, four-track playback system with the playback possibilities of two pairs of stereo tracks, two mono tracks, or one stereo pair and one mono track simultaneously.

Sixteen-bit resolution, eight times oversampling and 24-bit internal processing define a recorder of very high quality. Takes are recorded and then sub-divided into Edit-Cuts. These are used in one of three ways: a Q-List triggers them via SMPTE time; a pattern-orientated Song chain can be established; and a Playsheet assigns them to the numeric keys as a Playsheet for manually triggering. Files from the different modes can be viewed on-screen via the disk file selector.

The DD1000 weighs in at a little over 16kg and requires 5U of rackmount space. The front panel can be broken down into five main areas. At the top are the horizontal level meters, using 12-segment LED bar graphs, with record and output rotaries. Below this is an 8 x 40-character LCD which breaks down into a grid of approximately 240 x 60 small squares for graphic purposes. The bottom row of the display has a menu with different options depending on the current mode; the menu selections are made by the six soft keys directly beneath the display (marked in blue as F1-F6) or by using the Page button. Movement between the various modes is by pressing one of the bottom row of buttons. These also have LEDs to indicate the current mode. You move around a screen by using the cursor keys, and alter values using the Data ± buttons or the Data wheel. The latter also doubles as a Jog wheel in Edit Cut mode - more later. Altering names is achieved by pressing Letter and then keying in the relevant letters and numbers - all of the letters of the alphabet are assigned to keys on the front panel. The feel of the keys is excellent; large and well-spaced.

The rear panel has analogue inputs and outputs (balanced XLR) and MIDI sockets along with two SCSI ports (for the DL1000 remote control unit and an external optical drive respectively), RS422 Sony interface, AES/EBU digital inputs and outputs (incorporating the SPDIF protocol for domestic DAT machines), optical fibre digital input, SMPTE and Video/Word Sync inputs, two footswitch inputs and a Centronics printer output (for printing information from the various DD1000 pages). If you happen to have another DD1000, there's also a Digital Buss interface for transferring data from one to the other.

RECORDING

BEFORE A RECORDING can be made, the DD1000 has to be set up using the Record and Set Up pages. Either analogue or digital recording has to be selected followed by the method of digital input (if the latter is chosen) along with the sample rate and pre-emphasis on/off. While the DD1000 cannot judge whether a digital input is at 32kHz, 44.1kHz or 48kHz, it can be used to convert in real time between one and another. If external sync is being used, the reference has to be selected, and if footswitches are connected to the rear panel, their uses can be defined for each main menu. Many of the settings can be saved to disk as default values.

Once in Record, recording is started by pressing the relevant button. If the recording is analogue, the input levels have to be manually set. Two on-screen

counters show the elapsed time of the recording and the time left on the disk respectively, while you can mark off the start and end points along with a third general-purpose point at some position during the recording. These are then used for reference when making cuts. You can abort or finish the recording, and the Take can be named before or after the recording has taken place. Playing back is achieved by pressing the F3 soft key - in fact, F3 is used for playback on all menu options where possible.

For the primary purpose of real-time recording, there's the facility to overdub. You select time points between which a take will playback and also punch in and out points for the new recording. The original can be monitored via outputs B while the overdub is heard on outputs A. The point here is that the overdub doesn't erase the previous take - it's recorded to disk as a parallel take (disk space has to be pre-erased to allow for this). You can immediately hear the overdub but not both takes simultaneously. However, a cue list is automatically created and so moving to Q-List mode allows you to immediately hear both takes.

CUTS

THE CENTRAL FUNCTION of the DD1000's editing system is to divide a Take into a number of Cuts. You can sub-divide each Take into a maximum of 50 overlapping Cuts which are then used in the subsequent menus.

On entering the Edit Cuts main screen, a Take is selected and "loaded" by using F5. What's actually loaded is the graphic waveform representation of the Take along with the pointers for the various cuts which you may have already saved. Consequently the loading time is less than a second. Playback is direct from the optical disk. The original Take will be named "Cut 1" by default and any Start, End and General Purpose markers set at the time of the recording will be shown onscreen.

By moving the cursor to the Start or End fields, start and end points can be roughly set onscreen with the pixels in between the marks inverting within a rectangle. F3 then lets you playback the Cut while F4 plays the entire Take. Pressing F1 takes you into Detail mode where you can zoom in on the Take using keys F5 and F6. At the maximum magnification of 15, the entire screen shows a portion of about 50 milliseconds of the Take. If the Start field is being edited, the start mark is in the middle of the screen with the area to the right in inverted graphics; for the End field the left side is inverted. The Take can be moved around using the data wheel or the Data ± keys, the latter giving finer resolution. If the amplitude of the recording is low, there's also the option to increase the vertical magnification by up to nine times and left and right channels can be viewed individually.

Trying to find a particular point in a recording is always going to be difficult. Consequently there are various aids available on the DD1000:

By eye: setting the magnification to a high value helps you to pick out features of a Take. In the case ➤

“The DD1000's Q-List is perfect for work where a series of events have to be synchronised to a central time reference, such as a SMPTE or Video sync.”

➤ of dialogue, the start and end of a speech can clearly be seen. For music, you may see a repetitive phrase like a chorus by the shape of the waveform.

On the fly: on playback, the numeric pad keys can be used to divide the Take or Cut into continuous, new Cuts. The end of new Cut 1 will automatically be the start of new Cut 2 and so on. If further division is needed, playback one of the Cuts and repeat the process. By this method, up to nine Cuts can be made during a single playback.

Jog wheel: the Data wheel doubles as a Jog wheel by pressing F4. In this mode, rotating the wheel moves the recording forwards or backwards depending on the direction of rotation. At the same time, the recording can be heard via the outputs. You need to take a little care with the monitoring system because the frequencies are low at take up and set down and the cone movement can be quite alarming.

The maximum speed of the Jog wheel can be set as normal, double or triple speed.

Spooling: this uses the Jog wheel in a mode analogous to taking the brakes off a tape machine and letting the tape run free across the heads. The speed of spooling is set by how fast you turn the wheel, and you can slow down or speed up without having to stop first. This mode is very useful because a further press of F4 stops the spooling and leaves the waveform at the precise stopped position.

The Start and End times are dependent on the SMPTE frame rate being used; this can be altered from the Edit Cuts Setup screen. If you are working with music in terms of bars, beats and MIDI clocks, you can select this mode instead of time, with the tempo, beats per bar and clocks per beat all being editable.

The General Purpose marker can be used in various ways but its main use is with, say, a two minute section requiring an End point. Listening to the entire Cut would make life awkward, so the general marker can be set near the end point and the Cut then played from this point to the end by using F2.

Cuts have to be saved to disk otherwise they're lost when another Take is loaded. As a Cut is only a pair of markers, no recording space on disk is taken up by the saving of this data.

CUE LIST

THE PURPOSE OF a cue list is to enable various Cuts (and possibly different Takes) to be played back at specific SMPTE times. This could be for a 12" remix where sections of the song have to be tacked on to the end, or for audio-visual work where a visual cue has to be locked with a sound. While the DD1000 has four-track playback capability, don't forget that there are limitations.

In Q-List mode, the screen has a list of events and their SMPTE times. There are four event options; the

first is Cue which plays a specific Cut from a particular Take. You can set the SMPTE time at which this will be played back and can also decide which outputs are going to be used. From a separate Edit Q screen, certain characteristics of the Cue can be altered; the fade up and down times along with a choice of two curves and the level, the pan position and the SMPTE In and Out times. The latter effectively lets you create a new Cut if you decide that the current Cut is incorrect.

The second event option is Fade. This lets you create fades within the Q-List which will affect all sounds emanating from either outputs A or B. The time and final level can be set and, again, there's a choice of two curves.

The other two event options are for MIDI. Either a Note On or a MIDI Program Change can be sent out at a specific SMPTE time. The MIDI channel can be set for either along with the Velocity and Note number for the MIDI Note (a Note Off is sent by using a Note On with zero velocity), and Patch Number for the Program Change. This lets you trigger MIDI events on external units, especially a sampler, without the need for a sequencer.

Building up a cue list is straightforward. Move to any cue and press the Start Mark button to highlight that cue. You can then Copy that event to the same position as the current event to duplicate an event with a second sound, to a position directly after the current event (Copy+T) to append events one after the other, or after the General mark within the current event (Copy+G) to set a specific gap between the two events. If you want to handle a block of events, the start and end marks are used to pull out the required cues, inverting the screen display to show you which events are included in the block.

Edits then available are similar to those for a single event with the inclusion of Slip. This allows you to move the entire block backwards or forwards in time, which makes life easy when you need to change a part in the middle of a song but keep the rest the same relative to itself.

When playing the cue list, there's the option of playing the entire list from the top or from any cue. Pressing the General Purpose marker prepares the cue list to play from the current cue. The Set-Up option for Q-List lets you set a pre-roll time so that you can hear how a cue sits relative to the previous cue. It also has the option to move the entire list by an offset, so allowing you to ensure that the list is accurately locked to an external SMPTE source. While the list is playing, the current cue gradually inverts to show you where playback is up to and you have the option to Grab times during playback for setting up further cue points.

When setting up events to visual cues, the chances are that the events will be out of order. It may be that you work with one particular sound first and position it wherever necessary throughout the piece. To ensure accurate timing throughout the cue list, Sort repositions all cues into their correct time order. Similarly, you may wish to set up characteristics for a cue and then use the cue at various points in the Q-List. To this end, the DD1000

has a buffer to which cues can be copied and then pasted to the required position. More to the point, because the Song and Playlist options work in a similar way, you can copy and paste from any edit option to any other. If you want to copy the entire cut without the fades, pan and other parameters, there's the additional Copy and Paste Text function.

Another common situation in A/V work is where a list becomes too long and unwieldy. For this, the Retake option presents the entire list as a single entry in the new cue list that you then create.

PATTERNS

CUE LISTS ARE ideal for A/V work but not as well suited to music involving repetitive sections. Song mode lets you work drum machine-style, building a series of patterns into a chain. Each "pattern" is a Cut from a Take and there are options for the number of repeats, overlap with the preceding event and output.

The Set-Up option is as for the Q-List, offering time offset, pre-roll and timing reference. Each event has edits as in Q-List, including fade up and down times. This, in conjunction with the overlap facility, lets you manually create crossfades to hide any glitches between cuts. Let's say that you want to switch the order of two verses in a song. When you try to exchange the verses, you find an open hi-hat was played earlier on the run in to one verse than the other, resulting in an imbalance between the amount

of hi-hat before the cut and after it. Crossfading one cut into the other, especially with full control over the overlap and the fade, can eliminate the glitch. It takes practice, and will benefit from the more graphic approach of the Apple Mac editor soon to be available.

Once you have created a song, there may be times when you want to reduce it to a cue list. Make Q-List automatically carries this out. The two different Copy and Paste functions, the inverting of the current event work, and the Grab facility all function in the same way here as in the Q-List.

MANUAL CUTS

SETTING UP A Q-List or Song can be time-consuming when all you want to achieve is the playback of a series of Cuts. For instance, you may want to use the DD1000 as a high-quality sampler and then trigger the Cuts from a sequencer. Alternatively, you could be using a DD1000 live and need to trigger Cuts manually.

Playsheet mode encompasses both of these situations. You are presented with a screen with nine slots, each of which house a Cut from a specific Take. By pressing a number on the keypad, the relevant Cut is replayed with the title inverting to show the current position of playback. Fade up and down times, and level and output can be set for each entry in the Playsheet, as can MIDI channel, Note number and velocity. There is even the equivalent of >



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“Most radio DJs would kill for the DD1000's Playsheet: the ability to access jingles at the press of a button eliminates the need for cartridges.”

- one-shot mode where an entire cue plays from the press of the number key as opposed to playing until the key is released.

No matter how fast the optical drive transfers data to the DD1000, there has to be a time delay at the attack of an event. Akai have got around this by loading the beginning of each event in a Playsheet into memory and then playing this portion while loading the rest from disk - neat. There is a drawback, however. The Set Up for the Playsheet gives you the option of two or four track playback. If you select two track, all nine events in the Playsheet have their attack portions buffered, but you can only use a stereo pair or two mono events. Attempting to trigger more than this shuts off the events currently playing. If you select four-track playback, this problem doesn't occur but the attack portion of only one Playsheet event can be buffered - the first in the list.

If the DD1000 is locked to a sequencer or timing reference, it would be useful to be able to record the Playsheet button presses into a cue list for precise reproduction at a later date. Record to Q-List achieves this. It also gives a higher degree of accuracy than the alternative of outputting MIDI notes by

keypad presses to be recorded onto a sequencer.

As the availability of only nine cues would be a restriction, the 0 key on the numeric pad calls up another Playsheet from disk, and the buffers are automatically primed with the attack portions. On the MIDI side, each Playsheet can have a MIDI Program Change number assigned to it for remote selection via a sequencer.

The facilities from other modes such as copy, paste and time offset are all offered for Playsheet mode as well.

EDITING

BECAUSE OF THE way in which the various edit options have been designed on the DD1000, it's suited to all walks of audio life. The majority of DD1000s are likely to find their way into post-production, especially in view of the machine's digital interfaces. The Q-List is perfect for work where a series of events have to be synchronised to a central time reference, such as a SMPTE or Video sync. Sound effects can be located to a precise time point and then shifted if their attack is such that the cue is out of sync with the picture.

The Q-List can be used for dividing up a song and piecing it together in a different order - a common practice these days. However, Song mode is better suited to this process because the glitches which occur from such a procedure can be hidden with the overlap and fade features. The main difference is that overlaps within the Q-List occur by actually altering the start time, while you enter a percentage in Song mode. I'd personally hire in a DD1000 for this purpose alone.

With 12" remixes, the DD1000 comes into its own. Take as many Cuts as you need and experiment with

different cue lists. Glitches can be cured using Song mode with overlaps and fades. You never need to touch a razor blade again. Similarly, you can transfer songs from DAT, edit them, and transfer back, all in the digital domain.

Most radio DJs would kill for the DD1000's Playsheet: the ability to access jingles at the press of a button eliminates the need for cartridges. Live work involving cues not dependent on a time reference would also be ideally suited to Playsheet mode. Using the Record to Q-List option, you can playback cuts at approximately the correct places and then time slip them later - a great way to get a feel for a remix.

The number of playback tracks is too limiting for most multitrack work and the various modes of operation haven't been created with this use in mind. However, the DD1000 would be well suited for spooling in backing vocals and string or brass sections.

There is one omission I'm sure that Akai will deal with. Currently, you can't sync the DD1000 without a SMPTE source, which means that you have to provide a timing reference from another machine. If the DD1000 was able to recognise MTC, it would be possible to reference it directly to a sequencer without the added complication of a source of SMPTE time code, such as a SMPTE synchroniser or tape "striped" with SMPTE.

VERDICT

OVER A COUPLE of weeks I used the DD1000 on projects ranging from pop to audio-visual. The results were not only impressive in quality, but were also achieved more quickly than would have been possible with a separate sequencer and sampler.

The user-interface is superb - Akai can be justifiably proud of how easy they have made the DD1000 to use. Bearing in mind the complexity of the various operations, this is no mean feat. The process is an ongoing one; version 1.3 of the software has just been released and further enhances the ease of use. Future software releases are likely to add new functions.

The only possible advantage of a computer and hard disk system over the DD1000 is a larger screen for editing. To counteract this, software is on the way for the Apple Macintosh and the Atari ST to enable you to edit via computer - watch this space. Taking this into consideration, only the cost separates an absolute recommendation of the DD1000 over hard disk editors. Even so, the advantages of a removable, 650 Mbyte disk probably outweighs the financial concerns to most people in the market for such a system.

For many of us, however, the DD1000 is likely to remain a pipe dream, thought of in the same bubble as the Fairlight and Synclavier. There again, it is much cheaper. . . ■

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WORLD PARTY



PHOTOGRAPHY: E

Manu Dibango's latest album maps a musical direction for the '90s - jazz, funk, rap, African choirs, makossa grooves and dancefloor rhythms look to the future while respecting tradition.

Interview by Simon Trask.

AN INTERVIEW WITH MANU DIBANGO IS like scanning one page of a very thick book. Now 57 years old, he's an elder statesman of African music with a long and varied musical career behind him, dating back to the 1950s. He made his recording debut, with Zairean musician Joseph Kabasele, in 1961, and had an international hit under his own name in the first half of the '70s with 'Soul Makossa'. He's lived at various times in France, Belgium, Zaire, Cameroon and America, but since 1965 has made his home in Paris. As a performer he's best known as a saxophone player, though he also plays piano, vibraphone and Hammond organ. Musically his background encompasses not only various styles of African music, including the makossa rhythms of his native Cameroon and the rumba music of Zaire, but also jazz, funk and soul. In fact, he is a true musical cosmopolite - or, as he likes to refer to himself, a *negropolitain*. He's also been a determined advocate of modern technology for many years, encouraging its adoption by African musicians.

Dibango is more open-minded than many musicians half his age, and to judge from his new album, *Polysonik*, he's still intent on charting new musical territory. Recorded in Paris and mixed in London over a space of some 18 months, with Working Week's Simon Booth producing and London rapper MC Mell 'O' providing raps on a couple of tracks, *Polysonik* has been inspired in part by British dance music. Ironically, then, at the time of writing it has yet to get UK distribution although it's already available in both France and Africa.

Early February saw Dibango on a rare outing to the UK with his band for a one-off date at the Town & Country Club in London, supported by Working Week. Heavy snow and sub-zero temperatures across the capital didn't stop the T&C from being packed out and the atmosphere inside the venue from being warm, with the saxophonist and his eight-piece band turning in a lively - and above all live - performance which breathed with the audience and the spirit of the moment in a way which eludes many bands.

Three days and a number of telephone calls later and I'm sitting at a table with Dibango in the bar of his London hotel. I wonder first of all, given that the T&C performance was devoid of drum machines and sequencers, if he prefers to keep this side of technology for the studio only.

"If I'm in the studio then I use one part of

technology and one part of human performance, but for me live performance is about human performance", Dibango affirms in his deep, rich, musical voice. "Once in a while it happens to me to use a drum machine on stage, but if I have a good drummer then I don't need to go to sampling stuff. Though I like people who do that, I think that is another way. Also, we are not going on stage to do the same as we did on record, because my past was with jazz, and I'm still a jazz lover and a jazz musician, so I don't want to do twice the same thing. We're on a different feeling because the audience also brings something new to you. The place where you are playing, a lot of things happening when you are playing. . . you must have a chance to respond to that."

The dangers of relying too heavily on technology when performing on stage were brought home to Dibango some five or six years ago when a concert he was playing didn't quite go according to plan.

"I did an experimentation with somebody who was very very heavy on technology", he recalls. "We were working together and we went to play in Geneva. Everything was connected up, no problem. Then the third song, the machines said 'no' and I had to play saxophone by myself! So I said 'OK, thank you, never again. I'll go back to my roots with real people playing'.

"But I like musicians that know very much about technology - enough to be able to forget the technology and just play, because they already know what's going on. We didn't bring it with us this time, but we have some electronic stuff with my drummer, and my guitarist has a lot of effects. We use regularly some effects in the band. Myself, a long time ago I was using a microphone in my saxophone, with pedals, wah-wah and so forth. In '74 or '75 I did the record 'Makossa Man' and I used a lot of effects, which was *avant-garde* at the time."

Dibango's predilection for experimenting with technology was given full reign in the electronic '80s with the burgeoning technology of drum machines, sequencers and samplers. His 1984 single 'Abele Dance', produced in Paris by Martin Meissonnier and mixed in London by Godwin Logie, saw him adopting Linn drum machines, Prophet 5 and DX7 synths and a slick modern production sound aimed firmly at the clubs. Speaking in an interview that same year, he said: "What's important to me about 'Abele Dance', maybe

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➤ more than the record itself, is the way we have tried to get out of the 'ethnic music' label, to let people know that there is an electric Africa also, that people there are dealing with electricity and with computers."

DIBANGO WENT ON TO WORK WITH American producer Bill Laswell in '85, contributing to the culture-clash experiments of the Deadline album and to Sly and Robbie's *Language Barrier* album as well as recording his own LP *Electric Africa* with Laswell producing. The result is certainly electric in the technological sense, with Fairlight CMI, Yamaha DX7 and Oberheim DMX contributions from such familiar Laswell cohorts as Herbie Hancock, Wally Badarou and Bernie Worrell added to the playing of Dibango's own group. However, it lacks the richness and diversity of *Afrijazzy*, the album which Dibango himself produced the following year, and has often been criticised for lacking warmth.

"This is because of Laswell and the way we worked", Dibango explains. "The way Laswell is working is unique, because he has his own studio with his own technician and he wants nobody else on the desk - including the musicians. So in the beginning it was a very frozen atmosphere."

In fact, Laswell has come in for a lot of criticism in the past for his work with African musicians. As one of those musicians, what is Dibango's perspective?

"I think that maybe it is because he is a shy guy, because there is a wall between you and him, even when you are working together", he replies. "At the end you know that he is a warm guy, very sympathetic, because you talk about a lot of things beside the music, you don't talk about the music. But once in a while he'd say 'Hey, Manu, listen, what do you think about this?', and he'd take the bass and play, and if I said 'Yes, OK' he'd use the line. So somewhere there was communication, but... not easy. I was not really really easy when I was doing *Electric Africa*, because I did not have, how you say, *habitude* to working that way. I was used to being with the producer from the beginning to the end."

Dibango wanted *Polysonik* to continue on from *Afrijazzy* rather than *Electric Africa*, and consequently he was keen to keep it a European affair. In particular he was impressed by the willingness displayed by young British dance and jazz musicians to experiment with the combination of different musical forms.

"I wanted to have a British producer this time, and I wanted him to come to Paris so we could talk around the project before starting to play", Dibango recalls. His publisher gave him some CDs to listen to, one of which was Working Week's fourth album, *Fire In The Mountain*.

"I listened to all these projects and I decided that Working Week was definitely the one", he says. "I liked the music very much because it was very open, and so I decided that Simon Booth was the man I wanted to meet. I like somebody who is experimental, who deals with a lot of different stuff in music. Also, Simon is an acid jazz lover."

"So, my publisher arranged for him to come to Paris. I was already rehearsing with my rhythm people,

because I had already the songs. I gave him three or four songs to listen to, and afterwards he said 'OK, we can do that, I understand where you want to go'. So it took one or two months for me still working with my people, then he came back again to Paris and we went into the studio with three pieces. We worked for the next six months, not recording continuously but once in a while, taking time, listening to what was going on. And we were always talking, bar after bar, 'How do you see that?'. We were talking architecture and relief."

"After we finished recording in Paris we were totally OK. Then about two months later I came to London and stayed ten days with Simon to do the mixing. I like recording in Paris but I don't like to mix there, because the French ear is not as good as the British ear."

"Also, Simon brought MC Mell 'O' along, because when we were talking it was a question to use a rap section in at least two songs, and so we saved room in the music. MC Mell 'O' is one of the talented guys in rap music, and we worked two days together in the studio."

From listening to *Polysonik* it would seem that Booth did what a good producer should do, namely help the artist realise whatever it is they want to achieve. Was this an assessment that Dibango would agree with?

"Yes, exactly. That's it", he replies. "He makes it more clear for you because he gives you maybe two ways or three ways in this situation. It's interesting to have three ways instead of one way, because you've got a choice. I am going to do another album with Simon, because only one album is not enough. Next time I'm going to ask him to bring one or two songs and we are going to work in his own way, too. That is a perfect collaboration."

Is *Polysonik* aimed perhaps more at European than African listeners, or equally at both?

"The way I feel, the music is Afro-European", Dibango replies, "because it's coming about between France, Britain and African people who are living in France or in England but not really in the continent in Africa, you see. We have to deal with all these things. If you are going to be a musician now you must devise a new bible!"

"The album is working fantastic in Africa. Even in France it's working. People are very surprised about this album, and I am surprised that they are surprised, because I did this type of music a long time ago. Nineteen years ago I did 'Ma-ma-ko, ma-ma-ssa, ma-ma-ko-ssa', which is the first rap, in 1972. A lot of people are surprised I'm using rap now. I say 'Thank you, but I'm going back!'."

WITH THE HOME STUDIO A REALITY FOR many musicians these days, has Dibango perhaps put together a setup of his own which allows him to work up musical ideas at home?

"In my home I have just a Korg M1 and a grand piano", he reveals. "When I come home and I'm in the ➤

**"He was facing
the drum machine
and it was like
they were playing
together, there's
this conversation
between the
machine and the
man."**

➤ mood to play, I sit down and put my fingers on the piano and I have a sound immediately. Whereas if I want to work by night I can work more quietly with the M1. This is for work, it's not for pleasure. The pleasure is to sit down with my piano or with my saxophones. I have eight saxophones.

"If I want to go really to work with technology I have my friend who has a 16-track studio with all that I need. My M1 is just to test some few things. Also I have a little Casio keyboard in my room here at the hotel so I can try out ideas if I want. Then when I go back to Paris I can work some more with my M1, and then after that I can go to my friend's studio and see what happens. Then if the stuff is good we'll go to a 24-track or a 48-track studio."

While he might use technology in the first place to work on musical ideas, Dibango prefers to develop the music with his musicians before using technology in the final recording process.

"We did not go programming the machines before having the song", he explains. "I mean, we rehearse the song before, all the songs, and then we take the tape, we go to the studio and then we start to put that rehearsal on machine in sequences.

"It's better to play with people before, and see if something works, and then go to the studio with the machines. I have a regular band and we have a regular studio where we go to rehearse. So once we have something for a project, we play it first maybe many times, then we take a tape and we work with the machines from the tape."

Working with drum machines and sequencers and catering to the modern taste for tight rhythmic playing is not something which, it seems, always sits easily with the much looser playing style of many African musicians. Dibango explains that getting the feel he wanted on *Polysonik* required an unorthodox approach.

"We would play like eight bars, and then sample something from these eight bars, because we were going to use maybe one bar of that later on. This kind of thing I like, because there are some people who play not too steady drums. Sometimes they play good but they are not in time, they cannot play two minutes really steady, so they play eight bars steady and it's OK, thank you. That's why, to get the sound of *Polysonik*, we did a lot of sampling like that."

Also important for Dibango was ensuring that amidst all the technology the human dimension of the music didn't somehow become lost, as he explains: "For this type of record, I set a drum machine so we have a timing and I bring the drummer and the percussionist in on that, and they're used to playing with the machine. The problem is to be able to take off the mechanical feel of the machine. The musicians know already how to deal with that. In 'Polysonik' there's some guy playing bongos at the end. He was facing the drum machine and it was like they were playing together, there's this kind of conversation between the machine and the man. That's the perfect combination."

A perfect combination it may be to Dibango, but that's not the way everybody sees it. To some people, the technology of drum machines, sequencers and samplers is a corrupting influence on African music and

musicians, one more way in which the West exerts its own values and priorities on another culture. As a long-time exponent of modern technology, Dibango has little time for such attitudes.

"To be saying 'I'm the one who knows, and I'm going to tell you that you don't have to use that because you are taking off African. . . ' is stupid", he says. "African musicians have been dealing with European instruments for a long time. I mean, the Portuguese came to Cameroon in the 14th century and they brought the guitar. Since that time the guitar has been very popular in Central Africa. So what? It's technology already. You bring computers now, four centuries ago you brought something else. So we're used to dealing with this. But this level now, it looks so heavy that people are afraid, and they forget that a lot of African musicians are playing guitar, keyboards, saxophones and drum kits which are Western instruments.

"Technology is a natural extension of your playing. You save time, you are more in control, and it's only machines. A machine is a vehicle, no more, no less. What time is it going to take me to get there? I know that with machines I'll save time."

In Britain we take the availability of recording studios and the latest technology very much for granted - as we do the infrastructure which makes possible a thriving and diverse music industry - but musicians in Africa are beset by many problems in these areas. What is Dibango's assessment of the state of the recording industry in his native Cameroon?

"Bad", he replies somberly. "There are enough musicians in Cameroon and good musicians, really, to have a studio. But this is a political problem, because in our country there is confusion between politics and government. There are the same people doing politics and the same people at the administration, so it's not easy to work with them because you are not free and you cannot put money into recording studios because they do not understand.

"The situation is so bad that musicians are now going across the border to Nigeria - 45 minutes and you are in Lagos. You can record in Lagos, even you can go to record in Librville. They've got 32 tracks and 24 tracks. They have a digital studio in Librville.

"But generally the situation is bad, which is why most of the musicians, if they are able to come they are coming to Europe, because the structures for the music are not yet correct in Africa. It's not the money problem, it's a political problem. It's not at all a money problem."

Finally, with his T&C performance being so well received, can we expect to see Dibango performing more often in Britain?

"I hope we are coming more and more, because it looked like people enjoyed it", he comments. "It was positive. A lot of people despite the snow problem, the political problems. . . See, music is the real weapon. It's unique, because only music can bring people together like that. Almost two thousand people in that place on Saturday. It was a warm atmosphere. People loving music. Because, to go outside in the snow and the cold just to put your hand in your pocket to pay something, I respect that very much. Very much." ■

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QUADRAVERB PLUS

The recession bites, and many of us are looking for the most cost-effective way of improving our studios. One option is equipment upgrades - Quadraverb owners come on down. Review by Nigel Lord.

WHAT WOULD YOU expect to be able to buy for 12 quid these days - a box of floppies perhaps? A reel of quarter-inch recording tape or a decent MIDI cable or two maybe (so that you don't have to keep stealing the one off the stereo system which doesn't work properly anyway). In the light of this rather modest prospect, how would you fancy a multi-tap delay/resonator/ring modulator effects unit for the same amount? In case that's not interesting enough in its own right, how about adding auto-panning and tremolo effects to the offer? And (to make it a tad more interesting), suppose we gave it a sampling capability - just to help out when the Synclavier is full. Does that sound like a good 12 quid's worth? Alesis obviously think so.

The catch? Well, if you're one of the thousands of people who own a Quadraverb there isn't one really. Just send a cheque for £12 to Sound Technology plc and they'll send you a shiny new chip for your unit which will provide all the above effects - in addition to those it is already capable of. If you don't own a Quadraverb, things are likely to be a bit more expensive, I'm afraid. But nevertheless, in the Quadraverb Plus, you'll be getting arguably the best specified sub-£500 multi-effects unit on the market - sub-£400. Still interested? Read on. . .

The policy of upgrading is nothing new of course, but Alesis do seem to be more diligent than most in making the benefits of continued research in their products available to existing customers. Already we've had upgraded versions of the HR16 (via the HR16B) and the DataDisk (now suffixed with an SQ). Now it's the turn of the popular Quadraverb.

The upgrades are listed in a separate manual, which I understand is made available to existing owners who send off for the new chip; those investing in the Quadraverb Plus will find themselves in possession of two manuals amounting to more than 125 pages of user information. Not bad for an effects unit. And it's all well written and very explicit.

Of all the new facilities, I suppose it's sampling which is likely to be the most sought after. Though there is a precedent for including sampling facilities on an effects unit, the Quadraverb Plus takes it on board in a fairly serious way. Though maximum sampling time is limited to 1.55 seconds, you are given a range of editing and looping options which help make this a much more usable tool.

Sample recording is initiated either manually (by pressing Bypass) or automatically (by a signal above the threshold level). Subsequent playback is possible

using manual or audio triggers - the former requiring a jab on the EQ button, the latter a signal sufficient to light the -18dB LED on the front panel. MIDI triggering is also possible, and here again, two options exist. In One Shot mode, a note-on message from any key of an external device will trigger the sample which will play for its entire length, regardless of when the key is released. In Gated mode, on the other hand, playback of a sample is linked directly to the note-on/note-off messages of the external device. Press a key and the sample plays, release it and playback stops. Press a different key and the sample plays back at the corresponding pitch. Press two keys and. . . sorry, this is strictly monophonic sampling, you'll have to find room on the Synclavier after all.

Looping is a straightforward in/out function and as such is somewhat unpredictable in terms of how well it performs. You can adjust the start and end points of complete samples (in ten millisecond steps) - but not of the loop in isolation. The quality of your samples, therefore, depends very much on the nature of the sound itself: there's little you can do to obviate clicks or any of the other unwanted side-effects associated with looping.

Limitations aside, this is still a very usable feature - particularly for percussion samples which are relatively short, do not require looping and can be triggered in the One Shot mode. And don't forget, we're talking 16-bit sampling here: providing you don't move too far from the "base" pitch (when the effects of munchkinisation become noticeable), it is possible to achieve some very high quality results indeed. The only real disappointment as far as I'm concerned is absence of any storage facility. When the power supply is lost, so are the samples, I'm afraid.

THE RING CYCLE

BACK IN THE late '70s/early '80s, there wasn't a synthesiser worth its salt which didn't sport a ring modulator amongst its complement of sound manipulating tools. As the mass "digitalisation" of equipment took place, however, this particular form of modulation became less and less common. Today it seems to have all but disappeared from hi-tech instruments - and represents a criminal omission from the synthesist's palette. Full marks, then, to Alesis for acknowledging its potential and including it as an effect among those we are more accustomed to seeing on signal processors.

Essentially, the ring modulator provides us with a means of amplitude modulating two signals such that the resultant output comprises only of sum and

difference harmonics. This contrasts with conventional forms of modulation where sum and difference frequencies are heard in addition to the modulated signals themselves. The resultant sound, has, depending on the type of input signal, a ringing, metallic quality, rich in harmonics and very resonant.

On the Quadraverb Plus, the Up and Down output signals produced by the ring modulator are routed to the left and right outputs. These represent versions of the input signal with its harmonic spectrum shifted up and with it shifted down and you can adjust the overall level of each. Don't confuse its effect with that of an exciter which simply adds a little top-end sparkle. This is a very distinctive form of signal processing which needs considerable care in setting up if it isn't to sound clangorous and unusably discordant.

A similar, but more straightforward effect is provided by the Resonators which the Quadraverb Plus now sports. Like the ring modulator, these generate harmonic derivatives of the input signal - but in a much more controlled way. The Plus boasts a total of five Resonators; the fundamental frequency of each may be adjusted in semitone steps from -24 to +36 (in other words, across a five-octave chromatic scale). This takes place in Continuous mode, where it is also possible to adjust the decay time of each resonator on a 0-99 scale.

In the second Resonator mode, MIDI Gate, the frequencies generated can be made to track incoming MIDI notes from an external device. And because resonator frequencies can be adjusted, you can therefore program the Quadraverb to generate up to five-note chords from any type of input signal. Pretty neat. And it works too. With a little patient setting up, you can produce some excellent results which more than justify the inclusion of the Resonators on what is, after all, a sound processor rather than a sound generator.

As an effect, multi-tap delays have been around for quite some time now, and it is perhaps surprising that the Quadraverb was not capable of generating such useful multiple repeats in its original form. No matter, they're here now, and the versatility of their implementation on the Quadraverb Plus is likely to make them a very popular effect indeed. Basically, you can tap into the overall delay span - which may extend to some 1.55 secs - at up to eight individual points and adjust each signal for delay time, volume and pan position. As you may imagine, this allows you to set up very complex/interesting delay patterns, whilst maintaining precise control over where and when repeats take place.

The last two new effects, Auto-Panning and Tremolo Modulation, share a common identity in that they're both essentially amplitude modulation effects, and to that extent are mutually exclusive -

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you can't run both simultaneously. Both of them are included within the Quadraverb's EQ-Pitch-Delay-Reverb and Five Band EQ-Pitch-Delay configurations, and both are adjustable for speed and depth. Neither, I hope, require any explanation from me.

VERDICT

WITH THE SORT of "extras" we've been looking at here, it would have been quite easy for Alesis to justify the release of an entirely new effects unit and left owners of existing Quadraverbs to hawk their machines around the shops looking for a good part-exchange deal or chance their arm in the classified columns - in other words, upgrading the hard way. Similarly, it wouldn't have been difficult for them to justify adding at least another 50 quid to the price of the Quadraverb to cover all the extra features, and put it down to inflation. That they have done neither will, I'm sure, reflect very positively on them and ensure some loyal customer support in the years to come.

Though by no means the last word in their respective areas of operation, all these effects are extremely usable and as in so many other areas of hi-tech equipment, help blur the line drawn between creative and non-creative instruments. Recommended. ■

Price Quadraverb Plus, £399; £12 update for existing users. Both prices include VAT.

More from Sound Technology, 15 Letchworth Point, Letchworth, Herts SG6 1ND. Tel: (0462) 480000.



ENRO



RTING



MIDI PATCHBAYS ARE CERTAINLY A CONVENIENT WAY OF MANAGING MIDI EQUIPMENT, BUT ARE THEY ESSENTIAL - OR ARE THERE CHEAPER ALTERNATIVES?

TEXT BY VIC LENNARD.

THERE COMES A point in the setting up of a MIDI system where a decision has to be taken as to how the MIDI signals are going to be routed. The most inviting of devices is the all-singing, all-dancing MIDI patchbay which will do everything bar making the mandatory cups of black coffee (no sugar).

A MIDI patchbay is a matrix of MIDI inputs and outputs which allow you to patch between them by pressing a few buttons. The more expensive ones also incorporate a degree of processing - possibly including rerouting according to MIDI channel or note velocity, filtering various elements out from the input and remapping MIDI controllers.

But is this really the best device for you? To answer that you need to decide exactly what the MIDI side of the system

has to be capable of achieving, so let's have a look at a few typical setups.

MULTIPLE MIDI

THE MOST COMMON type of system is one in which you have a sequencer sending MIDI information to various MIDI modules. There may be a synth which is acting as a master keyboard and using local off to divorce the keyboard part from the sound module. This is connected via two MIDI cables to the MIDI In and Out of the sequencer. Other modules are then connected MIDI Thru to MIDI In in a "daisy-chain". But why bother using another piece of hardware when almost all your devices have MIDI Thrus? There are three reasons: firstly, a MIDI Thru will not operate unless the device containing it is turned on. (Obvious perhaps, but this means that all the devices in your system are going to have to be on all of the time.) Secondly, the opto-isolators in the MIDI interface age and so slow down. This doesn't lead to delays (as popularly believed) but will affect the shape of the waveform from the MIDI signal - instead of being a square wave, the leading edge starts to slope. Thirdly, if you want to use your computer as a librarian - that is, for transferring sounds to and from the computer using MIDI System Exclusive

messages - you'll continually need to repatch your system.

So we need a MIDI patchbay, right? Wrong; all you need to deal with the first and second situations is a MIDI Thru box which takes a single MIDI In and turns it into many Thrus. Typically this costs between £15 and £35, depending on the number of Thrus that you require. We'll look at the bulk librarian issue later.

MULTIPLE MASTER

UP A STEP in sophistication from the previous example is the situation where you have more than one MIDI master controller. These might include keyboards with weighted and unweighted action, a drum machine, a guitar synth and a wind controller. On some occasions you might want to input notes to the sequencer from a keyboard, on others you'll be tapping away on the drum machine pads or blowing soulfully on a MIDI sax. In order to be able to do this, you either have to repatch between controllers or use a MIDI patchbay, right? Again, wrong. All you need in this case is a MIDI switch box. This usually has a number of MIDI Ins and one MIDI Out; by rotating a switch you can select which of the Ins feeds the Out and, hence, which controller is the current master. Of course, you can't switch while

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MIDI data is passing through as you run the very real risk of data corruption, but a switch box will remove the necessity of plugging and unplugging MIDI cables.

Cost again is quite low - typically £25-£40. There are also MIDI switchers with two MIDI Outs so that you can have two controllers patched to different places at the same time.

PROCESSING

AS MENTIONED EARLIER, a MIDI patchbay will often have an in-built processor for altering MIDI data as it passes through the unit. So we need a MIDI patchbay for processing data, right? Still wrong, I'm afraid. If you're working with a sequencer, and most of you reading this will be, the facilities for data processing on the sequencer are likely to be quite comprehensive. The most obvious example of data processing is input filtering, where unwanted MIDI information can be removed from the incoming data stream. This might be useful, if you're playing drums from a keyboard with aftertouch sensitivity - aftertouch won't add anything to the drum part, and removing it will save sequencer memory. As another example you might filter out All-Notes-Off messages - this saves the awkward situation where you record, say, a piano in two takes with the left hand first and the right hand second. The second take will have notes cutting out whenever you removed your fingers from the keys in the first take.

Most sequencers will also let you re-map MIDI controllers. If you're using a Yamaha WX7 wind controller, the loudness of each note is controlled by the lip movement on the sensor (sent out as MIDI controller #2, Breath Control). Apart from Yamaha equipment, not many other synths respond to this controller but you can get the same effect by remapping this to MIDI controller #7, MIDI Volume. As the relevant data is received at the MIDI In, it is altered into its new form before being recorded.

MIDI MERGING

USING A VISUAL editor for a modern synth makes patch editing a much more appealing prospect. But what happens if that synth is a module - so it has no keyboard of its own - how do you edit it and play it from an external keyboard at the same time? Time yet for the MIDI patchbay? Not quite - instead, a MIDI Merge box will merge the data from both MIDI Outs and send it to the module. MIDI merging requires a processor because

MIDI messages are usually made up of two or three bytes which have to stay together if the message is to be correctly understood. Cheap MIDI patchbays generally don't have onboard processing and so cannot carry out merging, while a dedicated merger can be bought for less than £100.

THE MIDI PATCHBAY

SO WHEN, IF ever, do you need to consider using a MIDI patchbay? The most obvious application is when you have many MIDI master devices and modules and so would need a maze of MIDI Thru and switch boxes along with a merger to cope with all eventualities. A MIDI patchbay would solve the problem that the cabling would present. But do you need to spend several hundreds of pounds on a sophisticated unit?

To answer this, a little MIDI patchbay theory is in order: most units that are moderately priced are software-based, in that MIDI data arrives at an input controlled by a Universal Asynchronous Receiver Transmitter (UART) which informs the processor of this occurrence. The byte(s) are then stored in RAM, altered in whatever way is programmed and then output. The problem with this is that if too much data appears at the inputs at the same time, the system becomes overloaded. This leads to delays (on a good unit) or corrupted and lost data (on a bad one). A well-written software program is essential for the efficient working of a MIDI patchbay and even with this, there has to be a minimum delay in the moving of data to and from RAM. The moral is if you don't need processing power in a MIDI patchbay, keep to a simple design which routes Ins to Outs for minimal delay of MIDI data.

A non-processing patchbay with four or eight Ins going to eight Outs will cost around £100-£150 secondhand. Units like the Yamaha MJC8 and Akai ME30P are quite easy to find secondhand. There is also the Philip Rees 5X5 which is a five-input, five-output unit operated via front panel switches and which can be expanded.

The simple addition of a merger makes the unit a little more expensive but you should be able to find an Akai ME30P or a Roland A880 in MT's Readers' Classifieds for under £200.

A company called DACS had a rather clever idea on MIDI patching: as there are only two active connections in a MIDI lead, they designed a MIDI patchbay similar to

its audio equivalent. This meant that you could set up patches with ¼" jack-to-jack leads on the front panel. The unit also included the ability to hard wire a preset configuration of the eight inputs and outputs. It was a little restrictive in complicated situations, but represented an inexpensive patching system.

Isopatch and MTR have passive patchbays which require you to use short MIDI leads for patching. These make life easier in that all the patching is done in one place (again like an audio patchbay).

LIBRARIANS

ONE OF THE pleasures of having a sequencer with a disk drive is being able to save sounds to disk - like 180 DX7 banks onto a DS/DD disk. But how do you get the bank into the sequencer? Either you initiate the dump from the synth or send a request command from the sequencer - so you're going to need a two-way MIDI connection allowing you to send sounds between two. This isn't too much hassle when you only have one or two synths (use a switch box), but when the system grows and you have perhaps six synths, switching between them each time you want to transfer sounds is going to get tedious.

One solution is offered by the Anatek Studio Merge - an eight-way merger with corresponding MIDI Ins and Thrus - by using this and a separate Thru box you can set up eight modules, each with their own handshaking MIDI configuration. Not cheap, but if that's the way your system functions it is difficult to conceive of a simpler setup.

THE REAL NEED

BACK TO SQUARE one. Some people simply put up with repatching MIDI leads while others ignore the cheaper options and buy the latest fad in MIDI patchbay technology. Part of the decision will also depend on your sequencer: some hardware sequencers have multiple MIDI Outs, while the manufacturers of software sequencers often have their own proprietary interfaces giving extra MIDI Ins and multiple independent MIDI Outs.

I can offer one last piece of advice, in your quest for the ideal patching system. Before you go out and buy MIDI routing devices, work out how many inputs and outputs you need for your current system - and double them! Failure to take expansion into consideration will invariably result in costing you more money when you have to update inadequate devices a few months later. ■

STEELRIDER



PHOTOGRAPHY: JAMES CUMPSTY

The Country & Western favourite pedal steel guitar might seem an unlikely convert to the world of MIDI, but IVL's Steelrider makes it an able MIDI controller.

Review by
Vic Lennard.

ALTHOUGH MIDI WAS originally designed with electronic keyboards in mind, it's since been adapted - with varying degrees of success - to work with other instruments. MIDI is a logical extension of the guitar synth (although most suffer from the delays attributable to pitch-to-voltage conversion and any not using such a system are usually prohibitively expensive). MIDI wind controllers have enjoyed a degree of success through the Yamaha WX range (although slurring notes without retriggering or using pitchbend is still a problem). Drum pads have probably been the most successful of any non-keyboard MIDI instrument. Simmons and Roland, in particular, have capitalised on MIDI, but now even cheap drum machines offer touch-sensitive pads capable of transmitting MIDI information to the outside world. IVL, a Canadian company, brought out a system they called Pitchrider some time ago - in fact, it's at the heart of the MIDI versions of the Chapman Stick. The 7000 series Pitchrider is a guitar unit, while the 4000 is triggered by microphone, giving MIDI to "traditional" acoustic instrument players. IVL have now turned their thoughts to one instrument which has never been successfully adapted to MIDI - the pedal steel guitar - and have adapted the 7000 series accordingly.

RIDIN' IN

STEELRIDER IS NOT a new MIDI interface but has recently benefitted from various updates. The rackmounted "brain" comes in a 2U-high black case whose front panel is divided into three areas: String, which has 12 numbered LEDs for monitoring which

strings are currently being triggered, and a string select push button for choosing a particular string whose parameters need to be edited; Setting, which has a two-digit display and individual increment and decrement buttons for altering the values of parameters (this also shows the tuning of a string while playing); and Mode, allowing 11 different operational parameters to be edited. The Mode section has six LEDs and a Mode Select button for moving between parameters. On the left-hand side is the power switch.

The rear panel of the Steelrider is a relatively sparse affair with an input socket for the external, 7-10v AC power supply unit, a stereo footswitch socket for connection to the MFS40 foot unit and a single MIDI Out.

There are three aspects of the pedal steel guitar which make it a prime candidate to succeed with a pitch-to-voltage system. Tolerances in the manufacture of the instrument, for example, are so fine that the height between the pickup and strings is guaranteed to remain constant. Also, string lengths remain absolutely constant due to being locked at each end - there are none of the problems associated with guitars, where strings can move across the nut when a string is bent. Then there's the speed of note attacks - notes played with fingerpicks have a slower attack than on a fretted guitar. Consequently, delays are not likely to be as audibly apparent.

There are two basic varieties of pedal steel - these differ in having either ten or 12 strings. Curiously, then, there are three types of pickup provided by IVL: ten-string, 12-string standard size (0.343" gap between poles) and 12-string special (0.32" gap). The pickup is bolted directly to the bridge assembly and may need a

> new block in order to give it the rigidity necessary for accurate triggering. Indeed, the setup is the kind of task which should only be undertaken by an experienced technician. The leads from the pickup pass through carefully routed holes in the pedal steel body to a small box mounted underneath which contains two pre-amps; one deals with even-numbered strings, the other with odds. A pair of eight-pin cables then connects the pre-amps to the front panel of the Steelrider's brain.

RIDIN' ON

WITH A FRETTED guitar, specific kinds of MIDI events have to be generated - for example, notes on and off, and pitchbend for string bending. Most guitar synths will also give access to MIDI modulation and aftertouch. Fortunately for its players, a steel guitar is far more simplistic in its MIDI needs. At the moment the strings are plucked, MIDI notes on for each string have to be sent. Any change in pitch is then carried out by the movement of a steel bottleneck (called a steel) over the strings - there is no need to retrigger. Consequently, once a MIDI note on has been generated, all other movements are translated into MIDI pitchbend. Modulation is achieved by a gentle movement of the steel, so doing away with the need for MIDI modulation. This makes the MIDI implementation of Steelrider relatively simple.

Each string can be set to any MIDI channel, so you can end up with many strings sharing the same MIDI channel. When you bend a string on a normal guitar, you change the length of the string and the pitchbend information being transmitted will be directly proportional to this change in length. Bending more than one string will entail sending out different amounts of pitchbend per string. This necessitates the use of MIDI mode 4 - where a separate MIDI channel is allocated to each string - with guitar synths, to be able to send out multiple string pitchbends. A pedal steel is entirely different in operation - moving the steel does not change the length of the string and the steel always moves at right-angles to the strings, so the pitchbend value sent out is the same for all strings. All Steelrider has to do is to ignore identical values of pitchbend on the same MIDI channel when received consecutively.

BRAINWORK

PRESSING THE STEELRIDER'S Mode select button cycles you around the 11 available functions, showing the current value of each parameter in the two-digit "setting" display. Some functions can be different for each string, in which case the relevant string has to be first selected via the string select button. Other parameters are global, that is for all strings. Sixty-four groups of settings are allowed, each termed a Preset. The available functions are:

MIDI Channel: each string can have its MIDI channel set independently. So you can set up, perhaps, three or four strings with the same MIDI channel to create a chord with the same sound.

Pitch Bend: a global setting of up to one octave in semitone steps.

Transpose: \pm octaves per string in semitone steps.

Volume Dynamics: this is equivalent to touch sensitivity. At a value of zero, all notes have a velocity of 64. The higher the value, up to a maximum of nine, the wider the velocity range.

Input Sensitivity: a value is set between zero and seven which dictates the input threshold to ensure that mis-triggers don't occur with different playing styles.

Tuning: the tuning reference has a value between zero and 60. Add this on to 400 to give the tuning in hertz. Standard is 440Hz but due to the fact that many pedal steel guitars use a tempered flat tuning on several strings the master tune needs to be around 437Hz. Otherwise many of the open strings will be sending pitchbend to compensate. This setting has to be a compromise and needs a good pair of ears coupled with the display in tuning mode - see the end of this section.

Program Change: each string can have a MIDI patch change assigned to it. Whenever a preset is selected, those patch changes will be sent out on the MIDI channel for that string. A zero setting is available for no patch change transmission.

Sustain Limit: any of the 12 strings can be set to be sustained while the non-latching Sustain switch on the MFS40 foot unit is held down. The MIDI note off is suppressed until the switch is released, allowing a player to play other notes over the top of those being held.

Hold Select: this is controlled via a latching Hold switch on the floor unit and offers a choice of three modes. Mode zero allows non-selected strings under Sustain Limit to transmit over their set MIDI channels while Mode one suppresses all MIDI transmission. Mode two again gives MIDI transmission but on a selected MIDI channel so that a solo can be played on a specific sound. Unfortunately all pitchbend is suppressed while either of the foot switches is on. This is because, should one of the sustaining strings be on the same MIDI channel as one being used for solo, its pitch would change with the pitchbend information being sent out. This makes mode one the most useful in practice.

Preset Save: having gone through the settings and selected the relevant values, they can be saved in one of the preset slots. This is achieved via the MFS40 foot unit again.

Preset Delete: a preset has to be deleted before another can be saved in its place (you can't update them). This is inconvenient as you can only move in one direction round the settings - which means that you select your values, go to preset delete and then hack back round again. Still, it deters you from making rash decisions.

Having a two-digit display does have its shortcomings. For instance, if you set a negative transpose of greater than -9, you lose the negative sign, which can be confusing. On the other hand, IVL have a neat method for being able to check the tuning of a string. When playing, the display acts as a tuning guide for the string currently being played; using small vertical and horizontal lines the display shows seven degrees of tuning from severely flat through in-tune to severely sharp. Due >

“Pitchrider 4000 is used by many professional wind and brass players, and I fully expect Steelrider to attain a similar standing among pedal steel guitarists.”

➤ to the non-fretted nature of the pedal steel, this lets you play microtonal tunes with the display as a guide.

FOOTWORK

THE OPTIONAL FOOT controller gives you control over various of the Steelrider's functions from the floor. It consists of five pedals; Chain, Step, Hold, Sustain and Bypass.

Chain and Step work in conjunction - you can regard Chain as a collection of Presets in a specific order and Step as allowing you to move through these Presets one at a time. A maximum of 32 Chains can exist with up to 16 Steps per Chain, but subject to the maximum number of Presets, which is 64. In fact, Presets cannot be saved or accessed without the MFS40 which makes it a little more than “optional”. More to the point, a pedal steel has various pedals and knee levers - the model demonstrated to me had six of each - and an additional foot unit is difficult to operate. Perhaps IVL should consider a small hand-operated unit as an alternative.

Selecting a Step sends out all of the information for the Preset assigned to that Step. This includes the MIDI patch changes per string.

The really interesting part about the MFS40 is the hold/sustain. Pressing the Sustain switch lets you set how many strings are going to be sustained (between 0-12). The idea of this is to be able to play a chord whose notes then sustain and to follow with a second chord which will then cut out the notes from the first chord. This is particularly effective when playing an arpeggio of, say, four notes with the sustain set to the same number. Each new note played beyond the fourth will cut out the first and give a rolling note effect.

The Hold switch selects one of the above three modes, and can be set to a number independent of the Sustain switch. So if it is set to, say, three, the Hold switch will ensure that a three-note chord is held while other notes are played over the top. The only restriction is the maximum of 12 for the combination of numbers set for the Hold and Sustain switches together.

The purpose of setting the master tune to around 437Hz was mentioned above, but it is really brought home when using Sustain or Hold. Not only is pitchbend suppressed, but values are sent out on the relevant MIDI channels to re-centre the pitchbend. Consequently any strings which require a small amount of pitchbend to give their true pitch when open will now sound out of tune.

RIDIN' OUT

THE MAIN PROBLEM with a pitch-to-voltage system is the delay between the note and the MIDI equivalent. IVL claim a speed of 1.5 cycles or 12 milliseconds, whichever is greater. This means that any string with a frequency of greater than 125Hz should have the same response time, and on a 12-string pedal steel that would encompass all but the four lowest strings. The lowest string has a response time of about 24 milliseconds. Steelrider will also track to two harmonics beyond the natural notes of the strings,

but draws the line at anything below 60Hz. This only rules out tracking the bottom B string when detuned by the pedal steel.

Steelrider scans incoming pitchbend in a rather novel way. Given an octave range, the steel playing slowly through an octave on four strings gives about 60 changes in pitchbend per string - the equivalent of around seven-bit resolution. Play the same sweep at high speed and only about 30 changes occur - around six bits of resolution. But you don't hear any stepping - this shows a very intelligent approach on IVL's part as most pitchbend systems have a fixed resolution which can give delays at high resolution and a lot of pitchbend information, or an audible step through the pitch at low resolution.

The system was demonstrated by BJ Cole, one of the world's foremost pedal steel guitarists (credits span the Sensational Alex Harvey Band and a recent spot on *Tonight With Jonathan Ross*). Using an Evolution EVS1 as the MIDI sound source, Steelrider's tracking proved to be no problem with only very occasional glitching. More subjectively, the response was quite incredible, especially when using a choral sound and altering chord voicing via levers and pedals. The result was what you would expect from a real choir where only some of the different vocal parts change at any one time - a result difficult to achieve on a keyboard and nigh on impossible on a guitar. Vibrato is imparted as marginal pitchbend by subtle movement of the steel, and the result is uncanny. With careful setting of instruments for each string, a complete string section could be played quite authentically.

The technology of using pitchbend to move between notes effectively rules out any serious use of samplers with Steelrider. Samples would be played outside their useful range when sliding the steel more than a couple of semitones, resulting in “munchkinisation” (the “Mickey Mouse effect” associated with severe pitch shifts on voices). Any vibrato recorded with the sample would make the situation that much worse.

VERDICT

THE WAY IN which IVL have implemented MIDI within Steelrider is most impressive - just notes on/off and pitchbend without any MIDI controllers. The response of the Steelrider interface is excellent, and has to be one of the most usable MIDI systems on an instrument which can still retain its original integrity. Pitchrider 4000 is used by many of the professional wind and brass players, especially saxophonists, and I fully expect Steelrider to attain a similar standing among pedal steel guitarists. ■

Price Series 7000 unit, pickup and MFS40 foot controller, £835 (approximate only, due to fluctuation of the Canadian dollar exchange rate).

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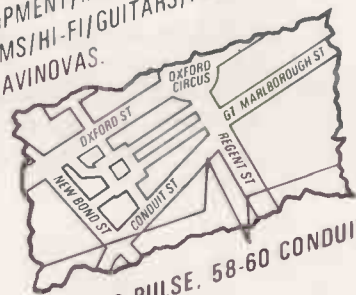
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software

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The disks have been arranged to make best use of the available storage space, so the combinations of programs on any disk are a result of this attempt to make the service as friendly and cheap as possible, not for any other reason. Please note that not all the programs will be accessible to the 520ST due to the nature of its disk drive, but the disks will run on all other STs. If you're using a 520ST we will supply each "Disk" on two single-sided disks, thus ensuring all programs are accessible to you.

DISK 1

Vkiller, TDM Prodigy, Mididrummer.

The original virus killing program by George Woodside (written in May '89 and able to cope with almost all viruses currently in circulation). Also includes demos of **TDM Prodigy** (reviewed MT, April '89) and **Mididrummer** (reviewed MT, June '89) with only save routines disabled.

DISK 2

Flu, Hybrid Arts Ludwig.

Flu (written by George Woodside) is a simple program which demonstrates some of the less-harmful screen symptoms of viruses currently circulating. **Ludwig** (reviewed MT, April '89) is Hybrid Arts' powerful algorithmic composition program.

DISK 3

Gajits Sequencer One, Keynote Chameleon, Dr T's Proteus Editor.

All recent software: **Sequencer One** (reviewed MT, March '90) is a comprehensive entry-level sequencer, **Chameleon** (reviewed MT, Dec '89) is a new-style generic patch librarian that will run as a desktop accessory and **Proteus Editor** (reviewed MT, March '89) is Dr T's editor for E-mu's popular sample reader.

DISK 4

Intelligent Music Realtime, Dr T's X-Or.

IM's **Realtime** (reviewed MT, April '89) is an "artificially intelligent" sequencing program which is designed to encourage the gentle art of experimentation; **X-Or** (reviewed MT, November '89) is Dr T's powerful generic patch editor.

DISK 5

Hybrid Arts EZ Track Plus, Quinsoft Trax studio accessories.

EZ Track Plus (reviewed MT, Dec '88) is a budget sequencer which retains the feel of Hybrid's upmarket Edit and SMPTE Track packages; **Trax** is a new nest of studio management programs: track sheet, cuesheet, cassette labelling, address book (including industry contacts), invoicing forms. . .

DISK 6

Hollis Trackman, Quinsoft FB01 & 4-Op FM librarians.

Trackman (reviewed MT, March & Dec '89) is Hollis Research's friendly, cost-effective 32-track sequencer (demo includes fully-working D50 librarian and 500 6-Op FM patches). **Quinsoft's Price is Right** librarians for Yamaha FB01 and 4-Op FM synths (reviewed MT, Feb & March '90 respectively) includes fully-working MIDI channel and controller accessory.

DISK 7

Penicillin, Passport Mastertracks Junior.

Penicillin is a virus killing utility written by George Woodside - it specialises in cleaning the boot sector of infected disks - use with care! **Mastertracks Junior** (reviewed MT, June '88) is a 64-track budget sequencer which retains many Pro features.

Disks cost £5 each (please add a further £1.50 if you want software supplied on two single-sided disks).

NB: This is the library available at the time of writing. More disks will be added to the list as soon as they are ready. This service is for you, to help you try out software before you buy - we will continue to run it as long as the interest is there to support it. This is not a profit-making venture on behalf of MT.



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Furthering the success of their Proteus sample players and Proformance piano modules, E-mu hope to strike gold with their Procussion drum module.



While Cheetah's analogue MS800 synth expander awaited its final touches, their Master Series 770's weighted keyboard won the caress of thousands of fingers.

from the edge

INDUSTRY IN AN ANNUAL PILGRIMAGE TO HUGE EXHIBITION HALLS TO CATCH YOURS. FULL REPORT NEXT MONTH. TEXT AND PHOTOGRAPHY TIM GOODYER



Counterpoint: a mock-up of Korg's new Digital Audio Production system shared a display case with their 1968 "Traveler Orgel" organ.



Oberheim are set to renew their acquaintance with panels full of inviting knobs - the awesome-looking OB-MX analogue expander module makes its debut.

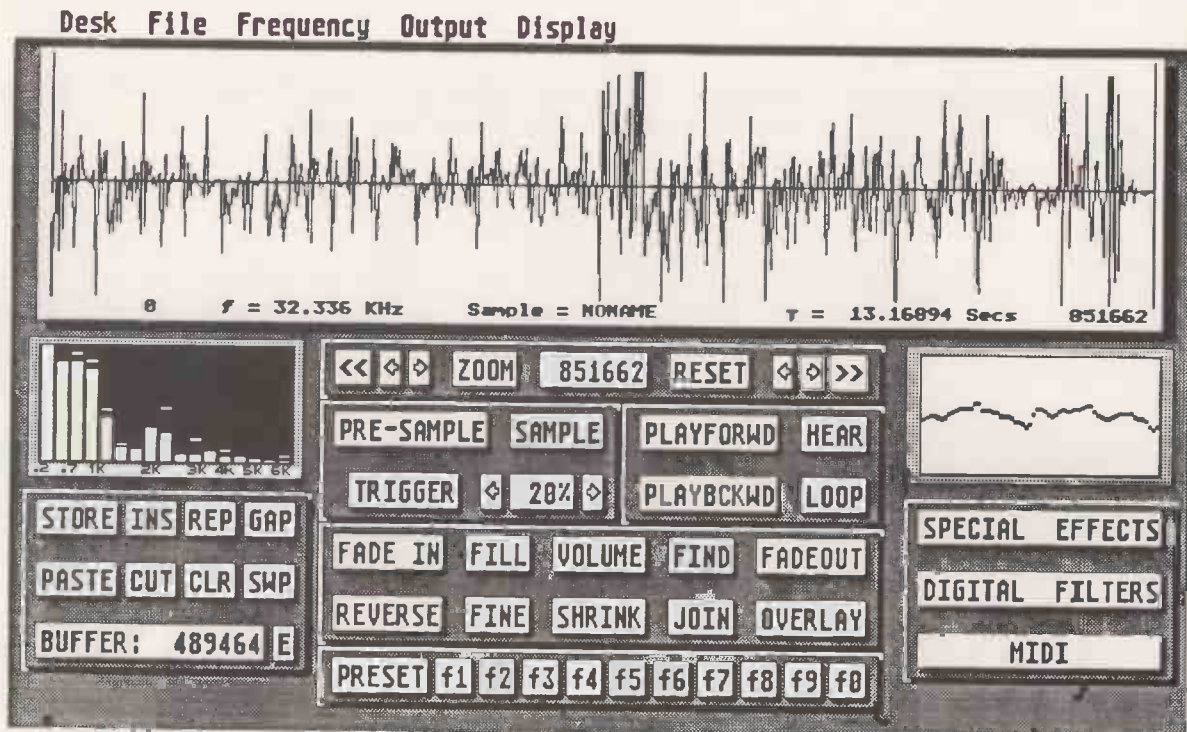


Just one of three new keyboards about to join the popular Ensoniq range is the SQ2 - it's so new that almost no information was available at the time of the fair.



Another sound module with roots in analogue synthesis is Akai's EWI 3000m - designed for use with EWI/EVI controllers and the new X335i breath controller.

PRO-SERIES 12



Digital sampling is all about storing sounds in computer memory and using software to manipulate them - so what could be more logical than using your computer as a sampler? Review by Vic Lennard.

AFFORDABLE SAMPLERS HAVE come a long way from the humble Akai S612 and Ensoniq Mirage. These days state-of-the-art units such as the Roland S770 and Akai S1100 offer CD-quality sound, digital signal processing, seemingly endless sample time and so on. However, there is still a place in the market for the budget sampler - Cheetah's SX16 is a perfect example of a company responding to public demand and there is a thriving secondhand market in "yesterday's" samplers.

One alternative approach is to run a sampler on a computer. And as there's little to match the Atari ST for cheapness and popularity within musicians' circles, the door is wide open for a well-researched Atari-based sampler. With their eight-bit ST Replay (not really even a semi-pro unit) selling in excess of 15,000 units, Audio Visual Research have launched the Pro-Series 12 into the gap. . .

Pro-Series 12 consists of three programs and a hardware interface. The latter plugs into the ST cartridge port but derives its power from a separate PSU. The audio input and output sockets are phonos and the only other control is an input sensitivity trimpot. The hardware incorporates anti-aliasing filters on both input and output, and utilises a 12-bit

analogue-to-digital converter on input and a 14-bit D/A version on the output.

To best utilise the computer RAM, the suite of three programs deal with different aspects of the sampler's operation. Editor handles the sampling, editing and processing, Drumbeat gives you the facilities of a sampling drum machine while Midiplay gives you the ability to control samples via a MIDI keyboard.

RECORDING

THE ACTUAL PROGRAM size of the Editor is small, resulting in nearly 12 seconds of sampling space in a standard 1 Megabyte Atari when sampling at 32kHz. This increases to just over one minute with 4Meg of memory. AVR have kindly used a fast-loading disk format so boot-up time is short.

The screen layout is clear, with the main sample display at the top of the screen. Beneath this are two smaller windows: to the right is the Oscilloscope, which monitors the input and shows you whether the incoming level is too low or high. Adjustments are made either from the sound source or the input sensitivity control on the hardware interface. To the left is the Spectrum Analyser, which also scans the

input and shows the frequency content between 200Hz and 6kHz. This gives a rough idea of the sampling rate you should use for recording - the greater the high-frequency content, the higher the sampling frequency (although 6kHz is a little low for such an analyser). Only problem with either of these small windows is that if you drop the cursor into them, the graphics break up, but they reform within a few seconds.

There are eight options for the sampling rate of a recording: 5.5kHz, 8kHz, 11kHz, 16kHz, 22kHz (default), 32kHz, 44kHz and 48kHz. All eight options can be used if monitoring is via the interface output while only the first six are available from the Atari-monitor speaker.

Having connected a sound source to the input phono, clicking on the Hear button lets you monitor that source. A useful facility is that you hear the sound via filters which synthesise the sampling rate. If you have selected 5.5kHz, your sample is likely to sound like something out of *Star Trek*, but as you increase the sampling rate, the fidelity improves. The payoff is a reduction in sampling time. The audio bandwidth is a little less than half of the sampling rate, although there is a hardware limitation of 12kHz. Still, the sound quality is acceptable at 22kHz and pretty accurate at 32kHz - it will take a good pair of ears to tell the difference from the original at the latter rate. The input level has to be high otherwise any noise at the input becomes over-emphasised.

At the bottom of the sample display window, the available time for sampling is displayed along with the current sampling rate. You can either use all available sample time for a sample or else type in a sample size which can either be in bytes, Kbytes (K) or in seconds (S). You can start a recording by clicking on Sample, which can be used in conjunction with the Trigger option. This requires the input to pass a threshold, given as a percentage of the maximum input level. Using the sample button has the disadvantage of not allowing you to hear the sound before you start recording. To get around this, AVR allow you to go straight from Hear to Sample by pressing the S key on the ST. The alternative is to use the Pre-sample option which continuously samples the input and stops only when you press the escape key on the computer.

At this point, the sample is drawn in the sample display window and can immediately be played forwards or backwards by clicking on the relevant button. The start and end of the sample are indicated by solid, vertical lines, while if you stop a sample in mid-play, a dashed, vertical line appears as a "ghost" cursor to mark the position. The single arrows underneath the display window are used to move the relevant cursor while the double arrows move the sample in either direction by 10% of the current width of the sample display. Zoom relocates the upper and lower cursor to either side of the sample window and you can always get back to the original cursor positions by using Reset. The Loop facility only replays the sample from start to end repetitively - proper looping occurs within the MIDI option (more later).

Beneath the Spectrum Analyser is the Paste Buffer control panel. Allowing for sufficient computer memory, Store places the portion of the sample between the two cursors into a buffer so that you can edit without destroying the original. Insert places the contents of the buffer at the lower cursor position while shifting the rest of the sample to the right. There are going to be situations where you will have part of a sample saved in the buffer but need to copy part of the screen sample elsewhere within the sample display. To help in this, Repeat pastes the portion of the sample between the two cursors to the point after the upper cursor. Gap creates a space between the cursors by moving the sample beyond the upper cursor, Paste overwrites the sample window with the contents of the buffer, and Cut erases the portion between the two cursors. Finally, Swap switches the positions of the upper and ghost cursors. The bottom of the panel shows the current paste buffer size and whether it is full (F) or empty (E). You should be able to carry out most popular "cut and shut" jobs to samples with these functions.

The main editing facilities are contained in the panel to the left of the paste buffer. Most of these are useful - Fade In/out creates a fading envelope to the part of the sample between the two cursors, Volume increases or decreases the amplitude by about 12% per use, and Reverse creates a backwards sample. Fine gives you a magnified screen around either the start or end point and lets you home in on the precise position for the cursors. Shrink halves the bandwidth - if you feel that the 22kHz option is acceptable, you end up with a better result by sampling at 44kHz and then shrinking the sample, due to the way that the anti-aliasing filters work.

The final option here is Join. One of the main reasons why looping is such a difficult task is the inability to see the end point butted up to the start. The Join function converts the sample display into a split screen, with the area immediately before the upper cursor to the left and the area after the lower cursor to the right. You can then micro adjust the position of the cursors, although it is the actual sample that moves, allowing you to see the waveform at the loop point. This is similar to the method used on most visual editors for samplers, but the speed of movement of the sample on-screen is impressive. The other facility here is to Screen Draw - if you can't find a perfect loop point, you can alter the waveform slightly. It's a shame that AVR haven't implemented cross-fade looping for smoother loops but at least the Join facility gives you a visual edge in the Battle for the Perfect Loop.

Pro-Series 12 can name and hold up to a maximum of ten samples in memory, which can be recalled by pressing the Atari function keys. This brings us to the MIDI option which allows you to loop a sample in the conventional way - with loop start and end points not necessarily being the upper and lower cursor. Any of the samples stored in memory can be recalled, >

"Pro-Series 12 isn't intended to be regarded as a professional unit - yet it has facilities which put certain 'pro' samplers to shame."

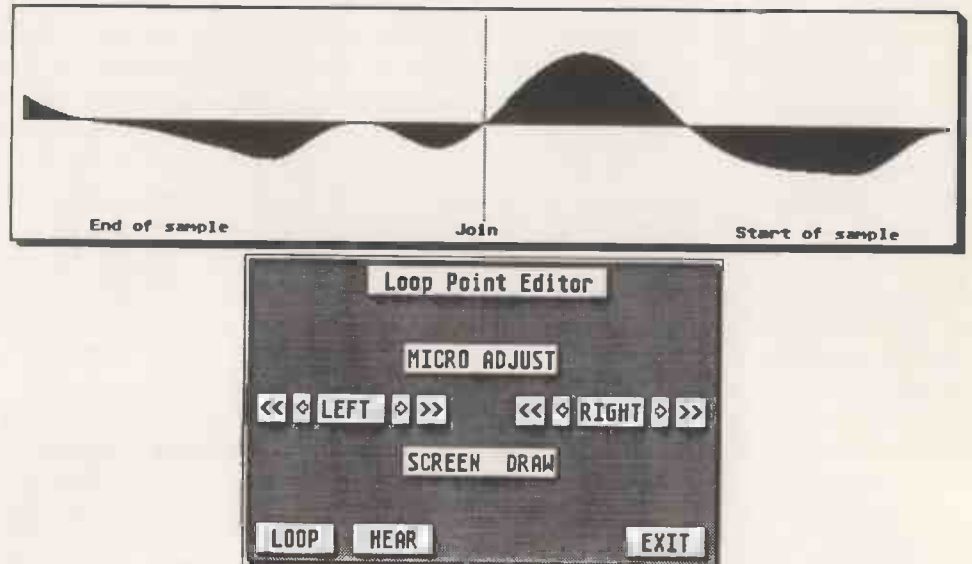
renamed and have a loop set. You can also assign a MIDI note to each sample, a global MIDI channel and then play back either from a connected MIDI keyboard or via the Test key. If you use a keyboard there are two modes: Trigger plays the sample assigned to the pressed key, while Keyboard plays the current sample at the pitch of the incoming MIDI note. You only get a single loop, and no alternating loop for string samples and the like. Also, there is no autoloop algorithm which you tend to find on many hardware samplers.

The Pro-Series' MIDI option is intended to help in

say that if you're not using the editor for working with a sample you could use it as an extra effects unit, but the flange effect is certainly good enough to be used on, say, vocals on a demo. It all depends on what else you have available.

FILTERING

FILTERING IS ONE area where software samplers often score over their hardware counterparts. Sampling often generates extraneous noise which can be cleaned up by the removal of unwanted high



the editing of samples, which can be saved with their MIDI note and loop points in AVR's custom format. For performance aspects, you would use the Midiplay program.

Samples assigned to the ST's Function keys can be saved as a "set" of samples with their individual MIDI notes, loop points and Function key assignment.

SPECIAL FX

CREATING EFFECTS ALGORITHMS is a tricky business. This is especially true when it comes to reverb, although modulation effects such as delay, chorus or flange are easier to simulate.

Pro-Series 12 has its own range of effects, some of which are primarily presets. The Hall and Room reverbs are more like multiple echos, but quite usable. Flange, with editable speed and depth, is er, effective, while Ramp turns out to be a vibrato simulation with control over the speed. Other effects have depth and volume control; Echo and Reverb are two such effects, while Shift increments the pitch of each echo. Finally, Multi has two sets of depth and volume controls, one of which is for the feedback loop.

The effects can be used to alter a sample in memory or to act directly on the sound at the input in real-time. The idea of using the software as an effects processor is rather interesting but has the drawback that you can't alter any of the settings while listening to the effect. I wouldn't go as far as to

(hiss) and low (rumble) frequencies. Alternatively you can use filtering to create special effects, like reducing the 200Hz frequency content to make a sample sound like it's coming from a transistor radio.

Pro-Series 12 gives you two filtering options: Slow and Fast. Slow offers low-pass, high-pass, band-pass and notch filters with two frequencies being available for the last two to set the range over which the filters work. Fast gives you a wider selection, with the above four and additionally boost, no dc, bass and treble. The difference is that you only have control over the centre frequency where a range can be used, the rest of the parameters being preset. Low- and high-pass also have a different curve gradient. Slow gives you more accurate filtering than Fast, but takes longer to achieve results. In fact, notching a frequency on a ten-second sample using the slow filters took over ten minutes. Needless to say, this is something we want to get right first time. To this end, there is the Response option which draws a graph showing the effect that the chosen filter will have, and the FFT - Fast Fourier Transform. This draws a three-dimensional graph showing the frequency content against time for either the entire sample or the portion between the cursors. Unfortunately, there is no vertical axis or ability to zoom in but the graph shows approximately where a nuisance frequency exists.

The only other problem is that once you set the filtering into motion, there is no way to abort apart from turning the computer off.

CHANGE OF PROGRAM

HAVING EDITED SAMPLES and saved them via the Editor, you can load them into Midiplay for playing via a MIDI keyboard. This program holds up to 128 samples in the ST's memory and uses four-note polyphony, with the option of running four voices monophonically. Samples are mapped to groups of keys on a MIDI keyboard, up to four maps can be stored in memory along with the ability to switch between them. Volume and tuning can be set for individual samples but the entire map can only be assigned to a single MIDI channel. If you find that the MIDI loop points set within the Editor are incorrect, you can re-edit those here. Polyphonic playback is of a lower quality than monophonic, but that is to be expected. Very basic, but adequate.

Drumbeat is effectively a sampling drum machine. Only 22kHz samples can be used, so sampling at 44kHz and "shrinking" is the order of the day. Up to 15 samples can be used within the 50 patterns and you can have a maximum of 100 steps per song. The pattern layout is clear and easy to use (a bit similar to the MIDIDrummer ST program). Each sample can have a MIDI note, channel and velocity setting which can be saved as a "kit", and the numeric keypad to the right of the ST can be used to play and record the samples in real time. MIDI Start, Stop and Clock are supported, and you can trigger samples from an external MIDI source (keyboard or MIDI pads) - three different samples can be triggered by a note,

depending on the velocity. The polyphony is again restricted to four notes.

VERDICT

IN SPITE OF its name, Pro-Series 12 is not really intended to be regarded as a professional unit. It has, however, facilities which put certain "pro" hardware samplers to shame - the real-time effects and digital filtering, for example. Sound quality is good - certainly on a par with most cheap samplers if used for a single sample.

For someone who already has an Atari ST and simply wants to delve into making good-quality samples, Pro-Series 12 is tailor-made. Yes, there are cheaper, eight-bit samplers, but their lack of quality limits their potential uses. When used in tandem with Drumbeat, you have the makings of a simple, but powerful, drum machine. It's a shame that you're limited to four voice polyphony, but you can't have it all. . .

Whether any semi-professionals would consider using a 4Meg ST with Pro-Series 12 purely for spinning in long vocal sections is doubtful, but look at it this way: a system bought specifically for this purpose would cost around £800; where can you buy a sampler which will give you 60 seconds of sampling at 32kHz for a similar amount? ■

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FRONTAL LOBE & PCM CHANNEL



The success of Korg's M1 now places it alongside the DX7 and D50 in terms of popularity. And like the DX7 and D50, the M1 could benefit from an enhancement system - like the Frontal Lobe.
 Review by
 Gordon Reid.

TECHNOLOGY MARCHES INEXORABLY forward. The M1, which was the peak of synthesiser development in 1988, combining chic design with bright, modern sounds, drumkit, and sequencer, has been superseded by Korg's own T-series workstations, which feature larger PCM ROMs and much larger sequencer memories. So where does this leave the 'umble M1, with its huge following of enthusiastic users? Like the DX7 and the D50 before it, the M1 has formed the foundation of a whole "support" industry - M1 editors, librarians, voice and PCM cards. And as the DX and the D50 saw upgrades in the form of the E! and the MEX boards, the M1 could clearly benefit from a device that updates its voice and sequencing capabilities. But what's needed is something more than just another set of clever voices, or yet another editor/librarian. What's needed is a unit that addresses the real shortcomings of the M1 in 1990. Perhaps what's needed is the Frontal Lobe and PCM Channel from Cannon Research Corporation.

By today's standards, the M1's sequencer, with

its 4,400- or 7,700-note capacity, doesn't give you many notes for your (pound) notes. It's limited by lack of memory, lack of tracks, and a sound to track assignment which doesn't match the flexibility of the M1 itself. Although this is mitigated to some extent by the pattern recording mode, and the flexibility of copying, bouncing, and looping, few users treat their M1 sequencer as much more than a scratchpad. The Frontal Lobe addresses one of the above limitations in full - the lack of memory - and also attempts to improve matters in the area of assigning and modifying sounds within tracks. However, the Lobe cannot improve the total number of tracks available because it isn't a true sequencer. It has no ability to record directly and no note editing capabilities. Let's think of it as a cross between a sequence librarian and a MIDI Disk Recorder.

THE SCORE

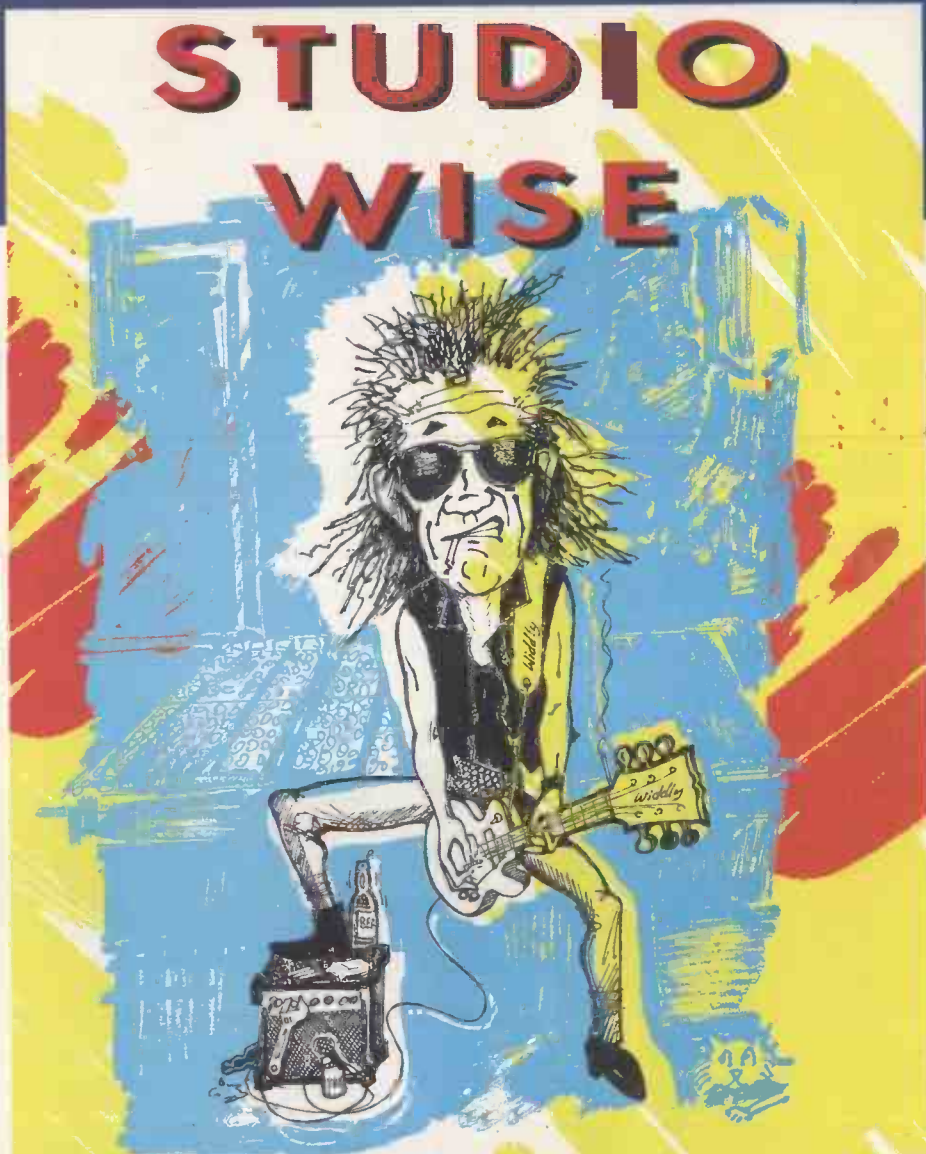
THE FRONTAL LOBE is an add-on computer for the M1, based around a 12MHz processor, and featuring a 1.44Mb high-density 3.5" floppy disk

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“The PCM Channel enables 8.3 seconds of 16-bit sounds to be loaded into the M1 from library disks, and enables you to play your own PCMs from 16-bit or 12-bit sample data.”

➤ drive, two MIDI ports, and an RS232 port. There are two versions - 64Kb or 256Kb of sequencer RAM, holding 13,000 or 62,000 events respectively. The PCM Channel contains a 20MHz processor and 512Kb RAM. Both devices are compatible with all M- and

T-series synths as well as the S3 and WS instruments, and a number of Lobes can be connected together to further expand the synths. Power to both the Lobe and the Channel is provided by a single 12v external power supply.

Although the v1 Frontal Lobe has been available in the States for about a year, no UK distributor has yet been appointed (although Korg themselves are currently evaluating the unit). The latest update of the Lobe's disk-based operating system, and the one supplied for review, is v2 which, in addition to supporting the PCM Channel, offers improved Menu commands and File capabilities over the earlier version. If you've acquired a v1 Frontal Lobe from the US, updates are available directly from Cannon Research.

The devices come in two small cardboard boxes. These contain a small black box (the Frontal Lobe), a very small black box (the PCM Channel), a 90-page manual, and a demonstration disk. The manual seems clearly written and well laid out, but this is a false impression. The information is muddled, chapters and sub-sections are in the wrong order, and you have to skip forwards and backwards to make sense of things. The Lobe is a complex as well as a powerful device and requires more explanation, greater clarity, and much better tutorials. On a positive note, there is a full command chart and MIDI implementation at the back, along with a helpful set of menu flow-charts. But despite all this, the manual gets a firm thumbs-down, if only because it made this (experienced) user feel unwelcome and confused. Heaven help a novice.

The Frontal Lobe is a compact package about 4" x 6" x 2", which has been designed to sit on top of your M1 or M1R. Indeed, the specially-designed MIDI cable supplied doesn't allow more remote operation. The Lobe connects to the MIDI In and Out of the synth, and any previous MIDI Ins or Outs can be plugged into the extender sockets provided on the back of the Frontal Lobe cable. If you're connecting to an M1R or M3R module controlled by a master keyboard, the Lobe performs MIDI merging between its own data and incoming data over MIDI.

The demo disk contains four songs and a group of PCM/Program files. These demonstrate the following capabilities of the Lobe and PCM Channel: creation of a longer song than the M1 can hold on its own, the use of a cue list, real-time panning via embedded control commands, and the inclusion of new PCMs. Use of the Lobe may overwrite your M1 memory, so the disk also contains all the factory presets for the M- and T-series machines. Obviously, if your synth has been edited, you will need to back up your own programs before proceeding any further.

All aspects of the operation of the Frontal Lobe centre around its 16 x 1 backlit LCD screen and the eight buttons, which are all the controls available to

you. These are split into two groups; the three Mode buttons (which start and stop the sequencer, control loops and song sections), and five Edit buttons which move you from screen to screen, increment and decrement values, and execute commands. In addition to the Play screen (the uppermost level of the operating system) there are five master menus which give access to the other functions of the Lobe. These are Load, Dump, Global Command, Global Edit, and Disk Command. The menu system is hierarchical, and moving between menus is trivial. All in all, the principles (if not the practicalities) of operation of the Lobe are a doddle.

SEQUENCING

BECAUSE THE FRONTAL Lobe has no actual sequencing capabilities, songs are still created in the normal fashion within the M1 and, following that, dumped to the Lobe. If a composition is longer than the M1 memory can hold (that is, after all, what the Frontal Lobe is about) the piece is recorded in sections and then downloaded to disk a bit at a time. A new song file must be created for each section that is saved but, if the file number is incremented by one each time, the Lobe will automatically chain the files together on replay. If a song is particularly long, and has repeated sections (verse and chorus) you can specify a cue list which, on playback, recalls a given section from disk, plays it the desired number of times, loads another, plays, returns to the original, goes somewhere else, back to the beginning, and so on. This is also an efficient way of managing memory. In addition, Auto File Load enables you to create a list of up to 100 songs which will load from disk one at a time, play, and then move on to the next in the list. A single disk will hold up to 127 files (each of which can have an exclusive ten-character name) and total disk capacity (if used for sequence data only) is 300,000 events.

Playing Frontal Lobe sequences places the M1 in Combination mode. There are a number of ways to select the right combination for the right song, but the simplest works as follows: change the M1's Next parameter to C8 and, on starting the sequence, the Lobe will select the M1 combination that matches the Frontal Lobe song number. Of course, the appropriate combination must already exist within the synth, but the method has the advantage of real simplicity of use. If the synth's internal memory is unprotected, combinations created within the Lobe can also be downloaded into the M1 along with the sequence data. Since the Frontal Lobe plays the M1 in Combination mode, entering Combination Edit allows you to experiment with different voices, volumes, pannings, transpositions, and effect parameters while the sequence is running. These changes can then be incorporated into the sequence. Usefully, song sections can be looped while you experiment with individual patch parameters. Sequences can also contain control events which may, for example, be used to modify combination or program parameters, vary EQs and effects, or make tempo changes. MIDI SysEx messages may also be embedded as such

“The Lobe will not only save all the song in your live set, but control your synths, drum machines and effects, modify the mix and control your lighting rig.”

- Channel. This is fine while the power is switched on, but pray that there are no power cuts or surges during the gig/session because, each time that the gear is switched off, the data must be re-loaded from disk and dumped to the Channel. Given the slow loading speed, this is almost enough to send you diving for your library of PCM ROM cards.

SOUND FILING

ONCE YOUR SYNTH'S internal memories are filled there are two ways to store patches - ROM/RAM cards and computer librarians. The first of these options is expensive, the second clumsy (especially if you need to move your gear around). Korg voice cards cost up to £100, and hold a fraction of the data of a single floppy disk. Consequently, a number of companies (such as Prosonus and Technosis) are now producing patch libraries on Frontal Lobe disks. Sounds already available include pianos, strings, orchestral percussion, sound effects, vocal samples, classic synth timbres, drum machines, guitars and brass. In the States these disks retail for \$49, and at that price you don't need to buy many disks to cover the cost of the Frontal Lobe and PCM Channel just from the price differential between disks and ROM cards. Having said that, many patch libraries are now available on self-loading disks as well as on cards, and these disks can cost as little as £10. On reflection, the librarian aspect of the Lobe (bearing in mind that it has no ability to arrange patches into banks or libraries) is an added bonus, not a *raison d'être*.

DATA FILING

THE FRONTAL LOBE drive not only stores songs, programs, and combinations, but also SysEx dumps consisting of patch, timbre, sample, or system data from any devices hooked into your MIDI rig. Rather than read the SysEx data into RAM and then use a disk utility to store it, the Lobe captures dumps without buffering. Consequently, the dump size is limited only by the disk capacity (1.3Mb formatted), not by the RAM size - a facility that the Frontal Lobe shares with dedicated filers such as the Elka CR99. Therefore, the Lobe will not only save all the songs in your set, but also control your synths, drum machines and effects, modify the mix and control your lighting rig - all without the need for cards, computers, or sweaty roadies. MIDI SysEx dumps can be named and also chained together, and may be accessed from the M1 MIDI Thru port as well as directly from the Lobe itself. Unfortunately there are no MIDI filtering capabilities, so disk space will often be consumed more quickly than is absolutely necessary.

VERDICT

DESPITE TWO YEARS of T-series and WS development from Korg, and in the face of fierce competition from Roland, Yamaha, and Ensoniq, the M1 is still the most sought-after synth in its price bracket. Nevertheless, it has shortcomings. These are, to a great extent, addressed by the Frontal

Lobe and PCM Channel, so why are they so unconvincing? After all, they have many positive features, and are certainly more mobile than an Atari or Macintosh.

Consider the shortcomings: if you're looking for a dedicated sequencer, you must compare the Frontal Lobe to the Roland MC500 II, or the eminently affordable Alesis MMT8 (£200-ish), and Korg SQD8 (£299). These are no more awkward to connect, and offer advanced features at a fraction of the cost. Although the Lobe and PCM Channel are more convenient than a computer, they still clutter your rig with extra boxes and trailing cables. They can't be mounted inside the M1 because you have to be able to access the disk drive, but because of their shapes you can't fix them to the side or top of the instrument either. In truth, the only genuine advantage in using a Frontal Lobe as a sequencer is to avoid learning a different operating system - perhaps that will be enough for some people.

Other gripes? The Lobe doesn't automatically detect a change of disk and is liable to trash your data if you change without using one of the Insert Disk commands; the PCM Channel fouls the M1R volume control; the Lobe can't be used remotely without having to buy a special extension cable from Cannon; the song loading time is poor, and the manual dreadful.

However, even these criticisms are pale when you consider the likely U.K price of the Lobe: £800 is more than enough to purchase an Atari 1040ST plus a powerful software sequencer - and have enough change left to buy the whole band a decent dinner. Add the prospective cost of the PCM Channel (£400), and the whole idea of the Lobe and Channel breaks down. After all, you could pick up a secondhand S900 as well for that sort of money. Korg UK have also expressed serious misgivings about the pricing and have indicated that, as a consequence, they may turn down the distribution in the UK.

So where does that leave us? The Frontal Lobe and the PCM Channel together occupy a niche not addressed by any other units. They have their faults, and some omissions, but they expand the sequencing and data filing options of the M1 and offer the unique (but under-exploited) PCM creation capability. But the prospective cost must price them out of most buyers' reach. Almost every facility offered can be obtained elsewhere - cheaper sequencers, cheaper data filers, even cheaper T-series synths (!). Only the most dedicated users who have already invested considerable time and effort perfecting their M1 technique will be tempted by the Frontal Lobe and PCM Channel. Then, and only then, will £1200 cease to be an obstacle. If the price was lower, and some of the more serious flaws overcome - well, that could be another story, another review. . . ■

Price Frontal Lobe 64kB, \$799; PCM Channel, \$399. More From Cannon Research Corporation, 11470 Butler Road, Grass Valley, California 95945. Tel: 0101-916 272 8692.

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KEYBOARDS

AKAI MX73 MIDI mother keyboard, immac cond, £240. Jason Hayward, Tel: (0273) 684673.

CASIO CZ1, home use only, with patch books and manuals etc, £360; Roland TB303 bassline, £50; Roland JX3P, £120, swap the lot for Roland D5. Steve, Tel: 051-521 2405.

CASIO CZ101, inc RAM card, £105. Tel: (0761) 221632.

CASIO CZ1000, Atari editor, Allen & Heath 8:4 desk, needs cleaning, 3-head SCT31 cassette machine, Pioneer tuner amp, separate mic input/volume control, Yamaha KX5 controller keyboard, other items, offers/swaps - music, computing/outboard. Levy, Tel: Romford (04023) 42415.

CASIO CZ1000, with flightcase, psu, manuals, books, £150; Casio MT240, with case, psu, £50; Boss DR550 drum machine, brand new, never used, £130. Dave, Tel: 081-661 1057.

CASIO CZ1000, cartridge, excellent cond, £110 ono. Jon Groves, Tel: (0926) 422066.

CASIO CZ3000 digital synth, plus flash stand, all manuals, data sheets, brilliant sounds from chunky bass to deep pans, MIDI compatible, £200. Chris, Tel: 061-928 4538.

CASIO CZ5000, with 8-track sequencer, excellent cond, flightcased, volume pedals, keyboard stand, manuals and leads included, £190. Tel: 021-350 0695, eves.

CASIO VZ10M synth, £150. Paul, Tel: (0207) 580754.

CHEETAH MK7VA master keyboard, £150; Cheetah MS6 multi-sound module, £175. Richard, Tel: 081-560 4715.

ENSONIQ ESQ1, £500 ono. Tel: (0742) 750419.

ENSONIQ SQ80, immac cond, home use only, inc flightcase and stand, £750. Tel: (0954) 30886, after 6pm.

HAMMOND X5 organ, Leslie 825 solid state speakers; bass foot pedal, connecting cables, unused for 2 yrs, all perfect cond, £350; Yamaha DX7, boxed, 2 ROMs, manual, perfect cond, £435. Ben, Tel: 021-350 2274.

KAWAI K1 keyboard, RAM sound card, carrying case, £400. David Roberts, Tel: Burgess Hill (0444) 244817.

KAWAI K1 MkII, RAM card, 2 Atari voice disks, 6 months old, fully boxed, with manuals, home use only, absolutely mint cond, £400. Sean, Tel: (0782) 625513.

KAWAI K1M, excellent cond, sound cards plus editor, £200 ono. Jon Groves, Tel: (0926) 422066.

KAWAI K4, big sound, £535; Atari 520STFM, plus Panasonic KXP1081 printer, £220. Tim, Tel: (0737) 812411.

KAWAI K5, perfect, never left home, inc 2 RAM cards, £600 ono. Tel: Southampton (0703) 221876.

KORG 707, £220 or swap for Matrix 1000 plus cash. Jason, Tel: (0252) 725272.

KORG DW8000, manuals, £450; Juno 106, manuals and pedal, £350. Nigel, Tel: (0249) 891216.

KORG M1, £850 ono; Cheetah MQ8 sequencer, £150 ono. Tel: Devon (0803) 864602.

KORG M1, as new, with manuals, boxed etc, £850. Tel: (0983) 294517.

KORG M1, mint, boxed, swap for M1R or sell, Yamaha V50, excellent cond, boxed, £695; Yamaha SY77, mint cond, boxed, £1295, all home use only; Roland TR505, £100.

Andy, Tel: (03727) 20323, days.

KORG M1REX, excellent cond, eight months warranty left, 2 sound cards, C-Lab editor, £1150 ono. Jon Groves, Tel: (0926) 422066.

KORG MONOPOLY, Roland SH101, Boss 220A, Roland TR505, all reasonable offers. Gary, Tel: (0277) 218217, after 6pm.

KORG POLYSIX analogue synth, with case and manuals, home use only, excellent cond, £220. Paul, Tel: Leeds (0532) 865197.

MAKE ME AN OFFER: Korg MS10, Korg Poly800, Casio FZ1, all excellent cond. Tel: Weymouth (0305) 777061.

MINIMOOG, £450. Tel: (0227) 763322.

BERHEIM OBXa, 1982, MIDI retrofit, p/x OB8 or Prophet t8. Guy, Tel: (0246) 452184.

ORLA STAGE 76 digital piano, weighted keyboard, MIDI, built-in flightcase, hardly used, still under guarantee, £450. Steve, Tel: (0753) 40243.

OSCAR MIDI synth, latest spec, perfect, manual, data cassette, lined flightcase, £250. Write: Stuart Ledson, 48 Jameson Drive, Corbridge, Northumberland NE45 5EX (moving to Liverpool shortly).

PROPHET VS, bitimbral, digital analogue synth, £950; Linn 9000, disk drive, SMPTE, separate sync, £900; Kawai K5M, £360; Yamaha CS80, £300. Tel: 081-675 8115.

RHODES 660 keyboard, £600 ono; Carlsbro keyboard amp, £175 ono. Tel: (0252) 542099.

RHODES MK80 piano, home use only, immac, only 4 months old, bargain, £1250 ono. Tel: (0388) 745473.

ROLAND D10, MT32, plus Atari 1040 computer, C-Lab Notator software, complete system, £1200 the lot. Tel: (0203) 410366.

ROLAND D10 synth, £495; Roland U110 module, £395; Talk mixer amplifier, built-in reverb, plus pair of Soundtech speakers, £250, all immac, never gigged. Phil, Tel: (0702) 510274.

ROLAND D20, manuals, plus ROM, great workstation, only £750. Tel: (0353) 666756.

ROLAND D50, perfect cond, boxed, plus manuals, classic synth, £650. Graham, Tel: Luton (0582) 451260.

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ROLAND D50, 4 cards, £750; Korg Poly800II, £175; Kawai R100 drum machine + spare chip, £300; ART Proverb, £150; Casio RZ1 drum/sampling, £120; Toa 50W, 4-input amp, £80; Tascam Porta 01, 4-track, £295; 3-level stand, black aluminium, £30, home use only. £1750 the lot. Phil, Tel: (0483) 504213.

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ROLAND D550, PG1000, 600 sounds on disk, vgc, £800; 2x G707 guitar controllers, £200 the

pair, will split. Steve, Tel: 021-472 6378.

ROLAND JUNO 6, Yamaha DD5 drum machine, £200 the two. Tel: Coventry (0203) 675747.

ROLAND JUNO 60 synth, £200. John, Tel: (0942) 37095.

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ROLAND JX3P, great bass machine, house classic, good cond, £275 ono. Steve, Tel: (0782) 660969.

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ROLAND SH101, classic analogue synth, excellent cond, as used dance records, nice fat basses, £130, no offers. Tel: 071-511 1120, 24 hrs answerphone.

ROLAND SH101, boxed, manual, excellent cond, £100; TB303, boxed, manual, excellent cond, £100. Gary, Tel: 081-542 7277, days; 081-543 4859, after 6pm.

ROLAND U20 sample playback keyboard, £695; Nomad sync, £80; Steinberg Emax editor, £35. Tel: (0248) 713763.

ROLAND U20 RS-PCM keyboard, £625. Tel: (0794) 512164.

ROLAND U110 and rock drum card, £350 ono; Kawai K1 and RAM card,

£350 ono. Raymond, Tel: 081-450 6821.

TECHNICS KM600PCM, complete with stand, SYT12 amp, 110W, plus extras, asking price, £500. Tel: (0442) 245756.

YAMAHA DX7, with ROMs and hard case, this classic synth in immac cond, £500. Marcel, Tel: (0635) 32646 X316, days; (0635) 27681, eves.

YAMAHA DX7, home use only, £450 ono. Ian, Tel: 081-556 7888.

YAMAHA DX7, plus five ROMs, perfect cond, classic synth, flightcase, £350. Graham, Tel: Luton (0582) 451260.

YAMAHA DX7 Centenary, only 100 ever made, 6-octave, disk drive, flightcase, gold wheels and buttons, house classic, £900 ono. Steve, Tel: (0782) 660969.

IS THIS SOME new usage of the word "classic" of which I'm not aware? Ed

YAMAHA DX7, studio use only, good cond, only £425; CX5, with DX7 editor, composer and FM editor, £150. Tel: (0353) 666756.

YAMAHA DX7IID, £650; Yamaha PF70 electric piano, £500; Roland TR505 drum machine, £95; EM101 sound expander, £85. Tel: (0803) 294009.

YAMAHA DX7IISD, RAM and ROM cartridges, with disks, 1000s of voices, home use only, £750. Dave Anderson, Tel: (0502) 513124.

YAMAHA DX11, vgc, £320 ono. John, Tel: Luton (0582) 508254, after 6pm.

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YAMAHA FB01 FM expander, 256 sounds, as new, £95. Tel: 061-301 1853.

YAMAHA KX88, £900 ono. Tel: (0324) 612990.

YAMAHA PSS680, FM synth, many features, psu, sequencer, £60. Alan, Tel: Merseyside 051-677 8696.

YAMAHA QX5 digital sequencer, £150. Mark King, Tel: (0209) 718149.

YAMAHA SY77, as new, limited home use, selling due to financial difficulties, bargain, £1250. Tel: 081-941 1536.

YAMAHA TX7, £160; PG1000, £160; PLI 45Meg disk cartridge,

£50; Kawai R100, £160; Carlsbro PA, £180; Fender James bass, £280; D110, £300; two SPM8:2 mixers, £160 each. Tony, Tel: 081-441 1792.

YAMAHA TX802, £600; Steinberg editor for TX802, £80; Yamaha EMT10, £170; Yamaha SPX90, £230; Fostex M20 two-track tape recorder, £750. Guy, Tel: 081-360 0412.

YAMAHA TX816, 8 DX7s in a box, never used, immac, £750. Tel: (0532) 745026.

YAMAHA YS200, £250. Bruce, Tel: 061-257 3768.

SAMPLING

AKAI S612, £190; Yamaha FB01, £99; 8-channel mixer, stereo fx, £99; de-esser, £70. Tel: (0279) 431337.

AKAI S900 plus sample library and Atari editing software, good cond, recently serviced by Akai, £750. Tel: (03543) 5239.

AKAI S950 sampler, with double memory, manuals and disks, perfect cond, 8 months old, hardly used, £1195. Tel: (0353) 666756.

AKAI X7000, 2Meg expansion fitted, output splitter lead, 50 disks, excellent cond, £500 ono. Jon Groves, Tel: (0926) 422066.

CASIO FZ1 sampling synth, disks, tables, boxed, excellent cond, £675 ono. Ralph, Tel: (0903) 812227.

CASIO SK100 sampling keyboard, bargain at £60. Tel: (04024) 44910.

E-MU PROTEUS, perfect, boxed, £450. Graham, Tel: (0698) 358408.

EMULATOR II+, with CD-ROM and CDs, flightcase, offers around £2100; Alesis MMT8, offers. Ian, Tel: 071-237 1738.

ENSONIQ MIRAGE keyboard, £400 or offers. Graham, Tel: 071-631 5345.

ROLAND S10 sampling keyboard, with flightcase and disks, £375 ono. Paul, Tel: (0903) 715341.

ROLAND S220, 19" rack sampler, as new, with disks, possible delivery, £500 ono. Pete, Tel: (0705) 698572.

ROLAND S550 sampler, with monitor, 45 Roland library disks, £1199 ono. Tel: (0773) 823220.

ROLAND W30, plus disks, excellent cond, boxed, as new, hardly used, £985. James, Tel: (0689) 23373.

ROLAND W30, 2 months old, hardly used, £1100. Jared, Tel: Bournemouth (0202) 422042, eves only.

ROLAND W30 workstation, sample keyboard, built-in 16-track sequencer, fully MIDI compatible, comes

complete with over 50 sound and song disks. Dave, Tel: 081-656 2087.

SEQUENCERS

ALESIS MMT8, £100. Chris, Tel: (0483) 714746.

ALESIS MMT8, £160; Yamaha MDF1, £160; disks for MDF1, DX7S sounds, £50. Tel: (0942) 727363.

CHEETAH MQ8, 8-track MIDI sequencer, as new, boxed, with manual, £100. Tel: 021-358 7612.

KORG SQD sequencer, with disk drive, box of quick disks, £250 ono. Eddie, Tel: 051-355 1593.

ROLAND MC300, as new, hardly used, manuals, boxed, original cost £500, best offer around £350. Michelle, Tel: Nottingham (0602) 847903.

ROLAND MC500II, any serious offers. Alan, Tel: 071-263 4004.

ROLAND MC500II, boxed, with manual, £450. Nick, Tel: (0705) 375163.

ROLAND PR100, £250 ono. Jack, Tel: (0371) 820804.

ROLAND PR100, quick-disk, 4-track, MIDI, £180. Richard, Tel: 081-560 4715.

YAMAHA QX5, boxed, as new, manuals, £130 ono. Mark, Tel: 081-660 5803.

YAMAHA QX7 MIDI sequencer, multitrack, immac, manuals, leads etc, bargain, £70. Paul, Tel: 091-389 3026.

YAMAHA QX21 sequencer, £80. Jon Groves, Tel: (0926) 422066.

DRUMS

ALESIS HR16 drum machine, mint cond, £200 ono. Tel: 051-339 5129, eves.

CASIO RZ1, sampling drum machine, good cond, £130. Tel: (0625) 574211.

CHEETAH MD8 drum machine, boxed, manual, many accessories, hardly used, £65. Tel: (0633) 282811.

KAWAI R100 MIDI digital drum machine. Tim Spencer, Tel: 081-801 8148.

KORG DDD1, £125; Sequential Circuits Drumtrax, £100. Tel: (0532) 745026.

KORG DDM20, latin percussion drum machine, good cond, £75. Mark, Tel: 071-730 8070, 9am-5pm.

ROLAND CR1000 preset drum machine, £75. Greg, Tel: 081-340

2414.

ROLAND TR505 digital drums, pedal, psu, manual, all boxed, £150. Nigel, Tel: (0249) 891216.

ROLAND TR505, boxed, as new, manuals, psu, £90. Mark, Tel: 081-660 5803.

ROLAND TR505 drum machine, mint cond, boxed, with manual, must sell, bargain at £80 ono. Dale, Tel: 061-220 9617.

ROLAND TR808, with full MIDI retrofit, £350. Tel: (0442) 862373.

SEQUENTIAL CIRCUITS Drumtraks drum machine, sampled sounds, MIDI, 6 output channels, £100. Tel: 071-582 5219.

SIMMONS SDS5. Gethyn, Tel: (0286) 831111.

SIMMONS SDS1000M drum voice console, with MIDI, £150 ono. John, Tel: (0527) 22562.

YAMAHA RX5, power supply, manual, £325. Mark Johnson, Tel: 081-398 9901.

YAMAHA RX7, excellent bargain, digital drum machine, 100 sampled sounds, excellent cond, £200. Tel: (09274) 26784.

YAMAHA RX15, £150. Tel: (0773) 823224.

YAMAHA RX17 drum machine, mint cond, £100. Jon Groves, Tel: (0926) 422066.

COMPUTING

AMIGA 500, inc sampling and MIDI interface, serious sampling sequencing MIDI software, games, £320. Jason, Tel: (0273) 684673.

AMIGA MUSIC X sequencer, £50. George, Tel: (0794) 512164.

APPLE IIE, plus monitor, plus disk drive, manuals etc, ideal for Greengate sampler, £150. Pete, Tel: (0705) 698572.

ATARI 1040, with second disk drive, 8833 colour monitor, 1 year old, offers. Don, Tel: Cambridge (0223) 334394 or 860580, eves.

ATARI 1040ST, SM124 hi-res monitor, Steinberg Pro24, manual, dongle, K1, TX81Z, 200 sounds, £490 ono the lot. Nick, Tel: Glasgow 041-946 1664.

ATARI 1040ST, plus monitor, plus mouse, some software, as new, boxed, possible delivery, bargain, £425. Pete, Tel: (0705) 698572.

ATARI 1040STE, SM124 monitor, Dr T's Tiger Cub software, Band In A Box software, DX100 synth, guaranteed, immac cond, £490. Marnie, Tel: (0304) 215078.

ATARI 1040STF, plus monitor, Pro24 v3, £470 or p/x Roland Pro-E20;

Boss DR550 drum machine, £150; Korg DDM110 drum machine, £75; Roland MC202, £90. Tel: (0983) 613843.

REPLAY PROFESSIONAL sound samplers for Atari ST, plus 10 TDK disks free, £65. Tel: (0920) 464079.

SPECTRUM PLUS, XRI Micon MIDI interface, micro drive, real- and step-time sequencing, CZ editor/librarian plus over 1000 CZ voices, offers. Tel: (0272) 891011.

STEINBERG CUBASE, v2, 64-track sequencer for Atari ST, £200; SMP24, 19" rackmount professional sync, gives up to 80 MIDI channels when used with Cubase, £600, or both for £550, no offers. Tel: 071-511 1120, 24 hrs answerphone.

STEINBERG CUBASE - exchange for U110, D110, MT32, MIDI mix/merge and thru box, £49. Tel: (0405) 768391.

STEINBERG PRO24, with key and manual, £40. Tel: (0532) 745026.

STEINBERG SMP24 sync, £695; Elka CR99 MIDI disk recorder, £225, both perfect. Tel: (0442) 862373.

RECORDING

AIWA ADF270, Dolby B and C, 15 hrs use, quantity: six, ideal for cassette duplication, £65 each. Tel: (0761) 221632.

ALESIS MICROVERB III, 16-bit, digital reverb and delay, 256 programs, £145. George, Tel: (0794) 512164.

BEYBOSS RCL10 comp/lim, with power supply, as new, £60. Tel: (0367) 240732.

EQUALISE YOUR ROOM! Maplin 12-band stereo graphic/Spectrum analyzer, pink noise, auto EQ, 4 memories, hardly used, £150. Piers, Tel: (0707) 271641.

FOSTEX 260, 4-track, 6 inputs, immac cond, offers. Paul, Tel: 081-960 5458, days only.

FOSTEX M80, 8-track recorder. Graham, Tel: 071-631 5345.

FOSTEX X15, with MN15 mini mixer and case, £180; XRI Systems XR03, MTC and SMPTE-to-MIDI sync box, £150; MM12:2 mixing desk, £150; Roland SPA240 stereo power amp, £200; MM EP122 stereo two-way active crossover, £80; Yamaha MMC1 MIDI foot controller, £70. All ono. Tel: 081-675 8696.

FOSTEX X30, 4-track recorder, excellent cond, £140 ono. Dave, Tel: 081-656 2087.

KORG SDD1000, digital delay/effects processor, 19" rackmount, manual. Tel: 081-645

0933, eves.

MCI JH110B stereo tape machine, ¼", absolute bargain, £495; Dolby A360 noise reduction, two, £95 each; Yamaha SPX90 fx unit, £250. Tel: (0442) 862373.

QU-DOS 16:2 mixer, 3-band EQ, 2 effects sends, £300 ono; Yamaha KM802, 3 aux loops, £150 ono. Lee, Tel: (0926) 832250.

REVOX A77, open-reel stereo tape machine, ¼", excellent cond, £250 ono; XRI300 tape-to-MIDI sync, with MTC upgrade, excellent cond, hardly used, £200. Tel: 071-511 1120, 24 hrs answerphone.

ROLAND DEP5, £200; Yamaha MSS1 sync, £100. Tel: 081-290 1468.

SIMMONS SPM8:2 MIDI mixer, immac cond, £175 ono. Ian, Tel: 081-556 7888.

SOUNDCRAFT 1", 16-track recorder, Bel dbx noise reduction, remote control, auto drop-in facility, recent heads and service, good cond, £2250. Tel: Bristol (0272) 514035.

SOUNDCRAFT 800, 32:8:2, well maintained, inc flightcase and psu, £3800; Scintillator, £100; Orban co-operator, £380. Gethyn, Tel: (0248) 364040.

SOUNDTRACS 16:8:16:2 mixer, home use only, £895; Biamp stereo reverb, with EQ, plus limiting, £75; Powertran Vocoder, £60; also cheap Turbo Martin PA rig. Will split. Tel: Leeds (0532) 742029.

STUDIOMASTER 16:4:8:2 Pro Line mixing desk, quiet, flexible machine, comprehensive EQ, inserts, phantom powering, four auxs, 8-track monitoring, 28 inputs on mixdown, facility to add MIDI muting. Only 18mths old, in perfect cond, reluctant sale at £900 ono. Tel: (03543) 5239.

TASCAM 8516 16-track, 1", tape, £2900; MT32, £175; Steinberg Timelock, £150; TEAC 32-2B, half-track, £300. Patrick, Tel: (0602) 653648.

TASCAM 38, plus noise reduction, remote, complete, £1000. Greg, Tel: 081-340 2414.

TASCAM 244, £200; Alesis MIDI-FX, £40. Tel: (0532) 745026.

TASCAM PORTA 05, £150; Yamaha RX21, £60, both excellent cond, boxed, with manuals and cable, can post if required. Jerry, Tel: (0491) 579272, work; (0491) 571779, home.

TAC SCORPION mixing desk, with 30 input channels, 4 separate aux returns, 8 busses, 16-channel

monitoring, and 8 aux sends, 3 months old, immac, £6000 ono. Ian, Tel: 081-556 7888.

TOA MR8T, 8-track cassette, with built-in mixer, £450; Drawmer M500 multi dynamics processor, £450. Michael, Tel: (0633) 32267, eves.

YAMAHA DMP7, two, with manuals and cascade leads, vgc, home use only, £1500 each; Hybrid Arts' Genpatch, genuine copy, £75 ono. Richard, Tel: 081-640 1826.

YAMAHA GC202BII comp/lim, £215; Behringer professional denoiser, £185, boxed, mint cond. Tel: (0789) 293285, days; (0789) 292368, eves.

YAMAHA MT2X, excellent cond, £300. Tel: (0942) 727363.

YAMAHA MT44D, 4-track tape recorder, with 6-track mixer, rack and patchbay, £420. Nigel, Tel: (0249) 891216.

YAMAHA MT100, 4-track, boxed, £240. Brian, Tel: Medway (0634) 716397, eves.

YAMAHA SPX50D, vgc, cost £300, sell for £150. Tel: (0795) 522883.

AMPS

CARLSBRO MARLIN 130W PA amp, 4 channels, built-in reverb, aux effects loop, very good cond, £150. Tel: (0353) 665577, ext 162.

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HH V500, £250. Gethyn, Tel: (0286) 831111.

MARLIN 60W combo, reverb, built-in chorus, brilliant sounds, excellent cond, never gigged, £125 ono. Rob, Tel: (0273) 452318, eves.

MOOG 400W keyboard stack, with 6 channels and EQ, £895. Write: John Mexon, 11 Acasia Drive, Townville, Castleford, West Yorks WF10 3PF.

MUSIC MAN 115RH, 65 cab. Gethyn, Tel: (0286) 831111.

PEAVEY KB300 keyboard amp, 3 channels, powerful amp, £285; Juno 106 analogue synth, with knobs, £300; Roland DEP3 reverb, £220; Fostex 160, 4-track portastudio, hi-speed recording, £350, all immac, with manuals, home use only, can deliver. Tel: (0642) 475299.

SESSION 75W guitar combo, inc footswitch, immac, £120. Jason, Tel: (0273) 684673.

PERSONNEL

CREATIVE keyboard player required for emotional electro-pop band. Nige, Tel: (0272) 891011.

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DUBLIN-BASED synthesist seeks vocalist/writer for gigging/partnership. Dave, Tel: Dublin 01-201779.

SAMPLER needs synthesist in Midlands area to do some up-front dance music. Influenced by 808 State, Orbital etc. Peter, Tel: (0527) 543452.

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VOCALIST urgently required for Manchester-based original pop-rock band. Neil, Tel: 061-366 6452.

WANTED: synth players. If you're not rich, ie have small amount of gear/keyboards, but want to form band with similar bloke into Erasure, Pet Shop Boys, Mode etc. Alan, Tel: Wirral 051-677 8696.

WORK WANTED. MIDI experience, audio repair - amps etc. Own van, will travel. Work anywhere, anytime. No ties. Can be based in London. Anything considered. Pete, Tel: (0705) 698572.

MISC

ANGLED RACK STAND, on wheels, suitable for recorder, plus amp etc, £50. Greg, Tel: 081-340 2414.

ELECTRONIC Music Network tapes. Send SAE to Penga, 85 Silver Street, Kings Heath, Birmingham B14 7QT. Tel: 021-444 0298.

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KORG DVP1 vocoder, £250. Tel: (0532) 745026.

KORG VC10 vocoder, perfect cond, with instruction manual, £250 ono. Kenny, Tel: 041-884 5798.

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AKAI XE8 drum module, rackmounted or similar. Levy, Tel: Romford (04023) 42415.

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CASIO FZ1 sampling keyboard, preferably with memory expansion, must be excellent cond, will pay £550. Tel: (0703) 220152.

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ROLAND JUNO 106, Atari 1040ST librarian program for Roland Juno 106. David, Tel: (0473) 227616, days.

ROLAND MC202 in good cond. Tel: Weymouth (0305) 777061.

ROLAND MKS50, Juno 2 module, £200+ depending on condition. Tel: (04024) 56467.

ROLAND MKS80, plus programmer, Moog Prodigy or other "techno synths". Nick Harvey, Tel: 071-370 7828.

ROLAND P330 piano module. Tel: 051-260 6675.

ROLAND RA50 real-time arranger, Pro-E or E30 keyboard, willing to trade other equipment. Tel: (0705) 376700.

ROLAND RD200 electronic piano, cash waiting. Tel: Cambridge (0223) 354302.

ROLAND TR808 rhythm composer wanted for £250. Tel: 071-435 7598.

ROLAND W30 wanted. Cash waiting for right price. Tel: (03543) 5239.

SIMMONS TMI or similar unit wanted for cash. Andy, Tel: 081-421 1735, after 6pm.

16:4:2 MIXER. Paul, Tel: 081-960 5458, days.

TASCAM MM1, 20-channel keyboard mixer wanted in good cond, complete, will pay £330. Laslow, Tel: 031-337 8121, after 6pm.

USER MANUAL for Oberheim Matrix 12, Oberheim OB8 or Sequential Prophet t8. Guy Mowbray, Tel: (0246) 452184.

WANTED: Aiwa WX110, any cond. Tel: (0761) 221632.

WANTED: Boss MA12 or MA15 monitor speakers. Tel: (0604) 843536.

WANTED: circuit diagram or info on an MPA200 trans kit, rated 200W or 100W, rackmounted amp, to enable repairs as some components are unrecognisable. Levy, Tel: Romford (04023) 42415.

WANTED: 500W speakers with or without cabinets, cash waiting for right price. Tel: (0604) 843536.

WANTED: Korg MS20, cheap for beginner. Write: Mr Dodson, 5 Cliff Road, Hornsea, North Humberside HU18 1LL.

WANTED: mixer, with MIDI and memories, along lines of Simmons SPM8:2 or Akai. Working or not. Tel: Leeds (0532) 742029.

WANTED: power amp, 450/500W per channel, must be stereo, cash waiting. Tel: (0604) 843536.

WANTED: Roland D110, will swap for Korg Poly800 or Roland JX3P plus cash difference. Jason, Tel: (0726) 66176.

WANTED: quality mics, stands, DI boxes, foldback speakers etc for PA system, cash waiting. Steve, Tel: (0533) 813355.

WANTED: Teac A2340 fx or A3340S, with running speed of 3 3/4 and 7 1/2, cond immaterial. Tel: (0252) 540678.

YAMAHA EMT10, cash waiting for right price. Tel: (03543) 5239.

YAMAHA EMT10, £100 maximum available. Simon, Tel: 081-771 3177.

YAMAHA SY77 sound disks, TX16W sample disks. Jason, Tel: (0252) 725272.

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