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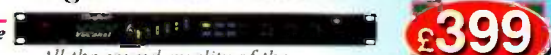
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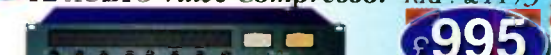
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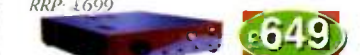
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TWIN Peaks?

Effects units continue to drop in price while offering more and more features. Digitech's new Studio Twin costs less than £250, but still offers a dual effects mode and MIDI patch control. PAUL WHITE is agog.

DIGITECH STUDIO TWIN DIGITAL MULTI-EFFECTS UNIT

Little over a decade ago, I recall being totally entranced by the whole idea of digital reverberation — the hardware cost an absolute fortune, but it didn't seem to matter — the magic was worth it. When prices started to fall, it was a dream come true; in my opinion, the availability of affordable quality studio reverb stands alongside MIDI as one of the main enabling technologies that made serious home recording a reality.

Back in the mid-'80s, any form of digital reverb under a grand was a bargain. Since then, prices have continued to fall, while the quality of the hardware itself has improved significantly; but now there are so many models to choose from that it's difficult to know which way to look. Walk into any serious music shop and you'll find shelves of effects units from a number of manufacturers, ranging in price from less than a couple of hundred pounds to upwards of a couple of thousand.

ENTER THE TWIN

The 1U Digitech Studio Twin sits close to the bottom end of the price scale, and in common with most budget effects boxes, it offers very limited user control. Even so, the effects engine is based on the same S-DISC processing chip used in top-end Digitech units, which means not only lots of processing power, but also a respectable audio bandwidth and a healthy signal-to-noise figure. In fact, the Studio Twin has a full 20Hz to 20kHz bandwidth with 18-bit oversampling analogue-to-digital and 20-bit digital-to-analogue converters, the latter running at the rather odd sampling frequency of 46.875kHz. This yields a signal-to-noise figure in excess of 90dB, which in

practical terms means that the Studio Twin shouldn't disgrace even digital recording setups. What's more, the unit is mains-powered — there's no fiddly power supply to worry about.

Whereas the technology is leading-edge stuff, the user interface has been pared down to a bare minimum; all the patches are based on presets which can be edited in a limited way by the user. A nice touch for a unit of this price is the adoption of discrete knobs as a means of parameter control, rather than the less friendly buttons; the Studio Twin utilises three knobs which can be switched to address either three of the key effects parameters or to act as a single-band, parametric EQ. What the key effects parameters are depends on the type of effect or combination you're editing.

Each of the 99 factory patches can be customised by changing the available effects and EQ parameters, then storing the modified version into the correspondingly numbered user memory. You can't store edited patches into different numbered memory locations, and there's no facility to create a patch assignment table, but you can use MIDI Program Changes 0 to 99 to select user patches remotely via the solitary MIDI In socket. Patch 00 operates as a bypass, but there's no discrete Bypass switch or footswitch option.

EDITING

The input can be either mono or stereo, and is monitored by twin, peak-reading, 4-section LED ladder meters. The output is also stereo, but one of the biggest surprises is that both the ins and outs are balanced at a nominal +4dBu. Patches can only be selected by number, not by name, but there is a list of the effects groups and their

pros & cons

DIGITECH STUDIO TWIN £250

pros

- Disarmingly simple to use.
- Very polished-sounding effects, especially the reverb.
- MIDI patch selection and built-in noise gate.
- Editing using real knobs.
- Dual effect mode allows each input to be treated with a different effect.

cons

- Limited user control, especially over the modulation effect parameters.
- Patches can only be stored to the same number user memory location.
- No bypass button or footswitch jack — you have to dial up patch 00.

summary

Despite its inevitable limitations, the Studio Twin is a professional-sounding effects unit able to provide all the usual bread-and-butter studio effects to a very high standard, and with the minimum of effort on behalf of the user.

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- ▶ corresponding patch numbers printed to the right of the numeric window. All three of the parameter knobs, Pre-delay, Decay and Level are conventional pots (not continuous shaft-encoders of the type normally used for data entry wheels), and each has an associated LED which comes on only when you move the knob through the position of the previously stored value. Until the LED comes on, turning the knob has no effect.

To select patches, it's only necessary to turn the large program wheel — there's no Load button — and if you press Store, any edits made will be stored to the user patch of the same number; a small dot comes on in the display to show that you're in the user bank. To exit the user bank, you have to use the program wheel to spin back into factory preset land, but this takes virtually no time at all. Two further program wheel settings take you into MIDI channel setting territory, and also allow you to adjust the threshold of an internal noise gate. In both cases, the Level Parameter knob LED lights up to remind you that it's the one you need to turn to make your changes. Whenever a parameter is changed, its numeric value is shown in the window for a few seconds before the display automatically reverts back to the current patch number.

Pressing the EQ button switches the parameter knobs to their secondary function: controlling the Frequency, Bandwidth and Gain of the single-band parametric EQ. When you're dealing with what are essentially presets, this provides quite a lot of scope for rounding out a half sound, or putting a little edge on a plate reverb. That leaves only the Mix knob, which sets the relative balance of the dry and effected sound, and the Input Level knob, which is used in conjunction with the meters to optimise the input signal level.

VERDICT

Despite the restrictions placed on patch editing, the Studio Twin actually sounds very classy, and the reverbs in particular are very smooth and well-

behaved (see the 'Effects' box for more on the different types offered by the Twin). My own view is that just a little more control over the modulation effects would have been helpful, and I still feel that units like the Alesis Midiverb 4 and the Lexicon LXP15 provide the best compromise in terms of user interface between ease of use and adequate control — but when you consider the

"The Studio Twin offers stupendously good value. Ten years ago, you'd have paid £1200 for something this good."

price of the Studio Twin, it offers stupendously good value. Ten years ago you'd have paid £1200 for something this good, and you'd still think you'd got a bargain. Perhaps more of a limitation than the simplified controls is that you can only store effects back to the same number user memory, which precludes you making 20 slightly different versions of your favourite patch and then storing them elsewhere. In effect, you can only create one alternative to each patch, but as the operating system is so simple, I'd probably edit patches as and when I needed them anyway.

The Studio Twin isn't without competition, and its obvious rivals are the Lexicon Alex and the Alesis Microverb IV, but I think it puts in a good showing against both these rivals, and for a unit under £250, the inclusion of a true dual effects mode is great news for the home studio owner who can only afford one effects box. Conversely, the high technical spec plus the use of balanced, +4dBu audio connections mean that even the relatively advanced user could benefit from using a Studio Twin as a second reverb unit. What's more, you get MIDI patch selection, which is normally omitted on such low-cost units.

Digitech have always created fine-sounding effects boxes, but there have been occasions when I've felt they haven't made the operating system straightforward enough; and that's a criticism that certainly can't be levelled at the Studio Twin. I have a feeling that this could rapidly become one of Digitech's best sellers.

SOS

THE EFFECTS

Though the Studio Twin's effects are based around presets, the quality and musical usability is impressive; there's a full selection of Hall, Cathedral, Plate, Chamber, Room and Gate reverb types to choose from, and in subjective terms, they stand up well alongside most of the better mid-price reverb units. Decay, pre-delay and level can be adjusted for all the reverb programs using the rotary controls, and the noise gate provided works very smoothly.

The delay menu provides for Stereo and Ping Pong variants with continuously variable delay time (640ms max), and

feedback (using the Pre-delay and Decay knobs), after which we move into a whole range of combination effects. Only two effects are available at a time, but these are offered in both series (where the output of one effect feeds the input of the next) and parallel combinations, where each input is treated with a different effect. For example, Dual Delay & Reverb has the left input feeding the delay while the right input feeds the reverb. Dual Mod/Reverb and Mod/Delay options work the same way. The series assortment combines modulation with delay or reverb, and the modulation effects

include chorus, flanging and tremolo. As you can imagine, this provides quite a lot of scope, and if the Studio Twin is your only effects unit, you can feed it from two aux sends to double your firepower using the Dual effects modes.

The three parameter knobs shift function depending on the effects type you call up, but in all cases, you get access to the most important parameters. To give an example; in Mod/Reverb mode, you get to twiddle with the mod effect speed, the reverb decay and the mix between the two effects. In all cases, the EQ processes just the effects, not the dry signal, and its settings are stored whenever a patch is edited.

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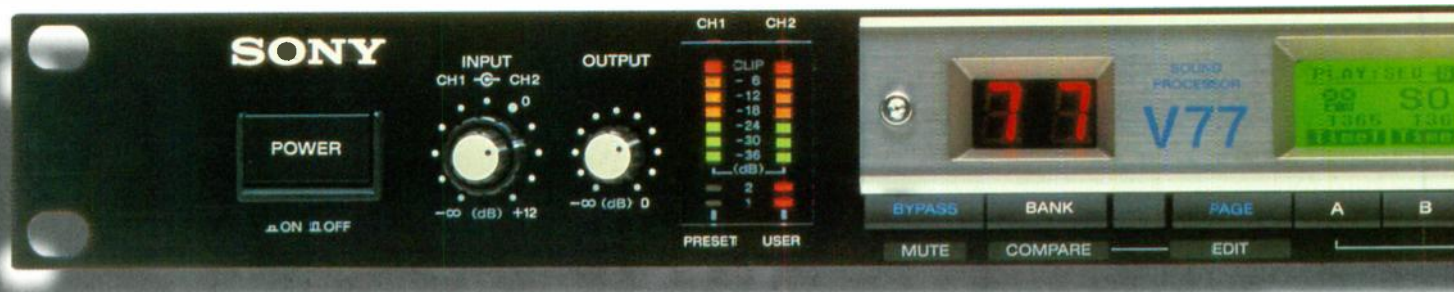


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NOW THAT'S WHAT I CALL EFFECTS



SONY DPSV77 MULTI-EFFECTS PROCESSOR

Sony's DPSV77 is like a 'best of' compilation of all the company's dedicated single effects units, with the addition of a simplified user interface and a digital I/O. Is it a smash success or a one-hit wonder?

NICK MAGNUS goes for gold...

THE PHYSICAL THING

The front panel layout is standard for present-day units, with centre stage being occupied by a high-resolution liquid crystal display. A lot of information can be shown here, and navigation of this information is facilitated by six soft keys beneath the display labelled A-F. In addition to the LCD, there's a 2-digit LED readout showing the current patch number. Other controls include: a dual-concentric knob for the analogue inputs, with level meters for left and right signals (this is a true stereo unit); an output control; a 10-key pad for inputting values directly; dedicated buttons for system setup and patch saving; and a few dual-function buttons to edit/change page, mute/bypass, shift/exit, and bank select/compare. At the right of the unit is a data dial with a spring-loaded outer collar for accelerating the scrolling rate of parameter values.

On the rear panel, both XLR connectors and balanced/unbalanced jack sockets are catered for, so there's no need to scorch your cardie soldering up new leads before the V77 can be put to use. The inputs and outputs can be switched individually between +4 and -20dB levels, and the digital I/O is Sony's 8-pin mini connector, as found on their portable DATs (oops, mind that cardie!). Two assignable pedal jacks, MIDI In and Out/Thru, and an IEC mains socket complete the picture.

BASIC STRUCTURE

The V77 has 198 preset patches, plus 198 user-programmable memories — a fairly respectable number. These are divided into two banks each of preset and user memories. Many of the presets come with a certain amount of dry signal mixed in (for straight-through applications) so if you're using the V77 on a mixer's aux send, you'll want to set the unit to globally remove any dry signal (more on this later). This is done in the Setup menu, and it is here that you can set various useful defaults (including a clock,

pros & cons

SONY DPSV77 £1404

pros

- Vast range of effects.
- Clear, transparent sound.
- Reverb attaches itself naturally to the sound.
- Friendly user interface.

cons

- Having to check that no dry signal is present when used on aux sends.
- Uneven stereo output on review unit.
- Finicky input-level sensitivity.

summary

A classy-sounding machine, equally at home with the bizarre as with standard fare, and well worth investigation for those considering a purchase in this price bracket.

SOUND ON SOUND

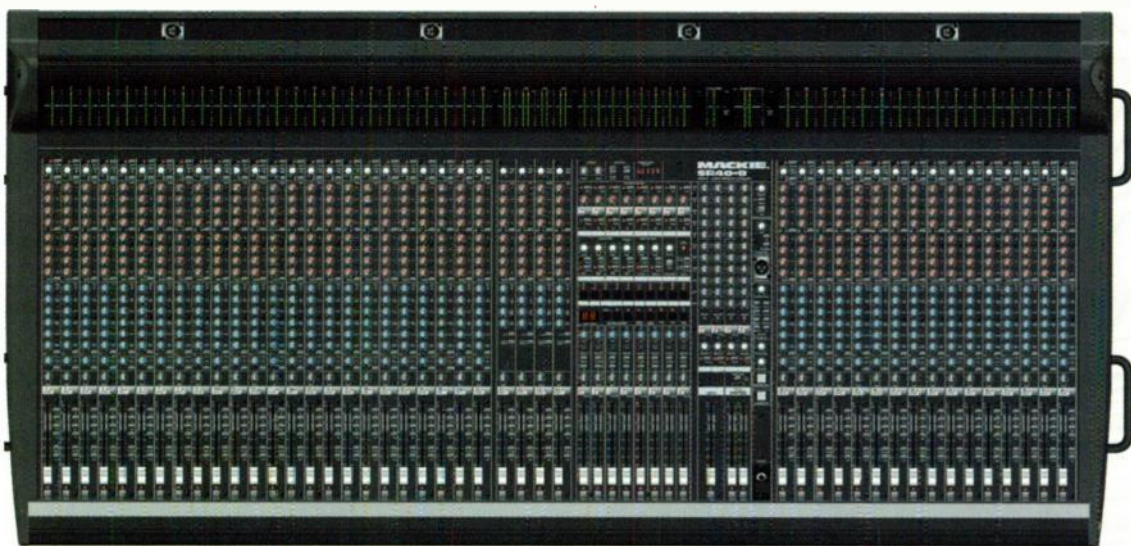
Having made a name for themselves in the world of music technology with the acclaimed D7, R7, M7 and F7 single-effect units, Sony are making another foray into the world of studio outboard gear with the DPSV77 multi-effects processor. The R7 and D7 were dedicated to reverb and delay respectively, the M7 dealt primarily with modulation effects, and the F7 majored in digital filters and EQ. The V77 is a distillation of all these units in a new, accessible package.

Digital recording is becoming more and more prevalent, and Sony provide for this: in common with processors such as the Alesis Quadraverb 2 and the Kawai RV4, the V77 offers the choice of digital and analogue inputs/outputs, including the option to run both simultaneously, thus allowing the user to mix and merge different digital and analogue sources into one digital (or analogue) result.



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- power pan control, mute switch + LED, Submix 1-8 assign switches, L/R/center assign switches, 100mm log-taper fader, solo switch + LED indicators
- 4 extra stereo line channel strips for aux returns, which include: 4-band equalization with 12kHz Hi shelving EQ, 3.5kHz Hi Mid EQ, 800Hz Lo Mid EQ and 80Hz shelving EQ, plus 150Hz fixed Low Cut (high pass) filter at 18dB/octave, Low Cut In/Out switch, other features same as mono channels
- Flip switch for stage monitor applications: Exchanges the master control of any selected aux send with the corresponding subgroup fader routing the aux send to the sub insert jacks, slide master fader, air EQ, and balanced output connectors
- UltraMute section has 99 mute groups and 99 snapshot capability, mute select switch + LED indicators, Store/Preview/Snapshot/Clear/Enable switches + LEDs, 10-unit snapshot indicator, group indicator, Mode/Up/Down switches
- Talkback section includes talkback mic input (phantom powered), assign switches for Matrices A-B-C-D/Aux 1-4/Aux 5-8/Ext./L-R, talkback level control, solo level control, program level control, talk button, recessed phones jack (there's one on the rear panel too) 400 Hz/pink noise source with separate level control (uses talkback routing switches)

- The non-optional Meter bridge includes individual 12 segment bargraph displays for each channel, dual bargraphs for the stereo channels, eight additional bargraphs for the subgroups, and three more for Left/Right/Center outputs. The input meters may be globally switched to read prefader or postfader, and so may the output meters. The meters are dimmable
- Rear panel includes RS232 data port & MIDI In and Out jacks, L&R outputs, L&R monitor outputs (engineer's wedge), L/R/center XLR outputs, talkback output, XLR Matrix A-B-C-D & sub outputs, Aux Return B inputs (4 stereo pairs), Tape A & B inputs & outputs, main L & R inserts, Center insert, subgroup inserts, Clear-Com input, & main power supply input
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SONY DPSV77



“Large, cheery icons pop out of the screen at every opportunity, pointing the way through the editing process.”

► to time/date stamp your patch creations) which customise the V77 to your own way of working.

Being a stereo device, the V77 is structured as two separate effect blocks. Each block contains a single or combination effect (you choose from the huge list) and each block has its own EQ section which can be placed pre or post the effect block (to EQ the effect, or to effect the EQ). The effect blocks can also be run in series, parallel, or dual configurations (ie. block A feeds block B (and vice versa); block A is summed with block B; or A & B become two distinct effects applied to left and right outputs independently). Not content with this, the V77 has one other structural trick up its silicon sleeve: morphing. More accurately described as cross-fading, this allows seamless changes from one patch to another, with a morphing time which can be set, in tenth-of-a-second increments, anywhere between 0 and 10 seconds. The trade-off is that the ‘morphed’ patches can only use one effect block at a time, since one block is crossfaded with the other.

Given the huge variety of effects available to a block, this is unlikely to upset anyone other than psychotic sonic mutilators (see ‘Effect Algorithms’ box). The V77 can be configured in true stereo, where the left and right inputs and effect blocks are independent, or more conventionally, so that any signal arriving at the left or right jacks is fed equally to the two effect blocks.

GETTING TO GRIPS

If there was any criticism to make of the previous Sony effect units, it was that they were almost too complicated. Sony have responded to this by making the V77’s displays as friendly as possible. Large, cheery icons pop out of the screen at every opportunity, pointing the way through the editing process. All that’s missing is a kettle icon to remind you to take a break! Ease of use is further aided by the ‘Active Parameters’ on the Play page. Whenever a patch is selected, the six most often-used edit parameters appear on the screen above the six soft keys, allowing you to change them without having to go into edit mode. Simply press the relevant soft key, and turn the dial. Better yet, you can decide for yourself what those parameters should be, thus customising the V77 to your own tastes. If you always want to have access to the HF rolloff of a reverb, for example, you just assign it to one of the soft keys — nice.

Additional live manipulation is available via real-time control. Parameter access via MIDI is now *de rigeur* on all but the most budget units, and the V77 is no exception. For each patch, up to six MIDI control sources can be assigned to affect the parameters of your choosing. This includes MIDI Clock as an option, so delays and modulated effects can be slaved to the tempo of your track (see ‘MIDI Control Sources’ box).

With the sheer amount of editing potential on board, one could easily become fairly bewildered at the choices on offer. Fortunately, the two manuals are very clearly presented. The first explains the operational basics and architecture of the V77, whilst the second explains every parameter in detail, usually explaining what they do, how they do it, and in many cases why you would *want* to do it. Why can’t all manuals be as helpful? Good on you, Sony! However, missing from the production version of the manual is a full list of all patches, an explanation of what each one is doing, and a suggested suitable application for each. This is a shame, as it was included with the preliminary version which I originally received with the unit. Nevertheless, there are plenty of suggestions for experimentation (here, try this...!) the end result being that you don’t feel you’ve been abandoned in charge of some horrific, unfathomable megalith that’s relentlessly fuelling a growing inadequacy complex.

PATCH ORGANISATION

To assist in the process of assembling the patches you’ve created, the V77 is capable of copying, moving, erasing and swapping patches around in its user memory. To make the purpose of patches clear, the main Play page accompanies the patch name with an appropriate cute icon (a tiny drum kit, a man or a woman singing, and so on) which can be selected from a list that covers practically any situation. There’s even a ‘hairy muso’ icon! Patch organisation needs to be taken into account in the case of morphing patches, unless you’re changing patches by MIDI Program Change messages, or directly typing in the relevant patch number on the keypad. Otherwise, patches for morphing would have to live next door to each other in memory for the effect to take place.

IN USE

The V77 offers a vast range of effects, from gorgeous, shimmering ambiances and delays, all the way through to some of the wackiest noises I’ve heard coming from a box that wasn’t a synth. The zanier sounds are rather more likely to have uses contrived for them than being the ‘ideal’ effect you’ve been seeking for ages (and there’s nothing wrong with that), but the regular effects

MIDI CONTROL SOURCES	
C0-C31	MIDI Control Change number
C64-C120	MIDI Control Change number
Note N	Note number
Note V	Note velocity
PBNDR	Pitch Wheel
CH-PR	Channel Aftertouch
M.CLK	MIDI Clock, tempo range 30-250
PEDL 1	Foot pedal 1
PEDL 2	Foot Pedal 2
Min/Max	Sets min/max range for each controller

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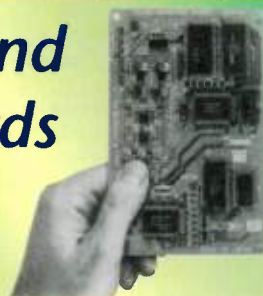
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• Shelving	• Deca
	• Stereo
REVERBS	• Ensemble
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• Room	FLANGER
• Plate	• Stereo
• Gating	• Band
• Ducking	• Step
• Spacious	• Triggered
• Ambience	
DELAYS	PHASER
• Stereo	• Stereo
• Double	• Triggered
• Multitap	
• Tempo	PANNING
• Long	• Stereo
• Mono	• Haas
• Modulating	• Triggered
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• Dimension	• Multi Shifter
	• Intelligent Shifter
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• DAL1000	• Doppler
• Limiter	• Ring Modulator
• Driver	• Vocoder
	• Pitch Breaker
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• Wah	• Voice Cancellor
• Dynamic Filter	• Freeze
• Amp Simulator	• Vibrato/Tremolo
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• Generator	COMBINATIONS
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• Ambliencer	• Chorus + Delay
	• Chorus +
GATES	• Reverb
• Gate	• Pitch + Delay
• Slow Attacker	• Pitch + Chorus

▶ are fine examples of their type. The reverb algorithms all have distinctly different characteristics, and are extremely clear and precise. The plate algorithm, in particular, has a very musical tonality, whilst adding a real sense of size, and in common with the other reverb algorithms, doesn't sound detached from the original sound, as can be the case with some units. Worthy of special mention is the Spacious Ambience algorithm, whose function is to simulate distance placement of a sound within a room. As well as left/right placement, you can also set the near/far position, together with the reflection/absorption nature of the virtual walls. Splendid for 'miking up' those DI'd samples.

In fact, on that note, I conducted a small experiment: whilst laying down some tracks of sampled percussion to my Akai DR8 for subsequent mixing elsewhere, I sent them through the Spacious Ambience program, and took the signal from only one V77 output to a track on the DR8. Unlike the other reverb devices in my rack, which somehow sound 'incomplete' from just one output, the V77 sounded uncannily real. There was just sufficient effect applied to simulate a distance between a mic and the sound source, such that when it was removed, you really felt something was missing. I tried this with other sounds, including an upright bass sample, with great success.

Even the overdrive programs acquitted themselves well, turning an average Stratocaster sample into a steaming multi-stacked monster! Various amp simulations and mic positions are provided, allowing for an enormous range of tone colours from one original sound.

Striking, too, were the Haas Panner (like auto-panning but with a much greater sense of space), Deca Chorus (up to 10 choruses — chori? — going at once), Pitch Breaker (applies pitch-shift only to the mid band, to create unusual chorus or ring mod effects), and a quite respectable Leslie/overdrive simulation. To go through the list would take up the rest of this issue, so you'll have to take it from me that there's plenty to interest everyone.

Niggles do exist amongst the eulogies, and as hinted in an earlier paragraph, the first is to do with dry signal levels. Even if you set the dry signal to 'off' globally, certain programs still have a wet/dry balance, and dry signal is still to be heard. Maybe it's plain pilot error on my part, but I'd have thought it would be removed. The problem with this (when using aux sends — the most likely scenario) is that any dry signal coming from the V77 is slightly delayed from the dry desk signal, creating a flabby, out-of-phase sound. You have to make sure the effect balance within a patch is always set to fully 'wet' to avoid this.

Niggle number two concerns the overall stereo balance — the unit I had was heavily biased to one channel, requiring a hefty pan offset on the desk's

aux return — presumably an aberration on the demo model?

My last whinge concerns the input and output level matching switches. Using a -10dB desk, the -20dB input setting was a little over-sensitive, and distortion did occur from time to time. Running at +4dB meant I had to chuck a hell of a lot at the V77 to get the meters high enough. In the case of the output level, it had to be run in the +4dB position if anything was to be heard at all. This wouldn't be an issue using the digital I/O, but many people would be using this with analogue signals on -10dB equipment. None of my other switchable gear suffers this problem.

VERDICT

As I may have opined in the past, effects are a personal taste. Different brands have their own sound and their own devotees, and some devices may be considered better at certain jobs than others. Pricewise, at around £1400 the V77 falls into the same bracket as the venerable Lexicon PCM70. One of the covetable features of the PCM70 and its kin is its ability to make the reverb applied to a sound seem a natural part of it, without any sense of detachment. As mentioned above, I felt the V77 also has this characteristic,

"The reverb algorithms all have distinctly different characteristics, and are extremely clear and precise."

together with a sparkling transparency. My overriding impression of the DPSV77 is that whatever it's doing, it's doing it well. And it does a considerable amount into the bargain. There's enough tweaking potential and algorithms to keep you happy for quite some time — and its basic level of operation shouldn't intimidate anybody. It's perhaps understandable that many people would go straight for the PCM70 at around this price, but for the quality and range of effects, the V77 is definitely worth a listen. If you can, get down to a decent studio supplier and check one out on some good monitors.

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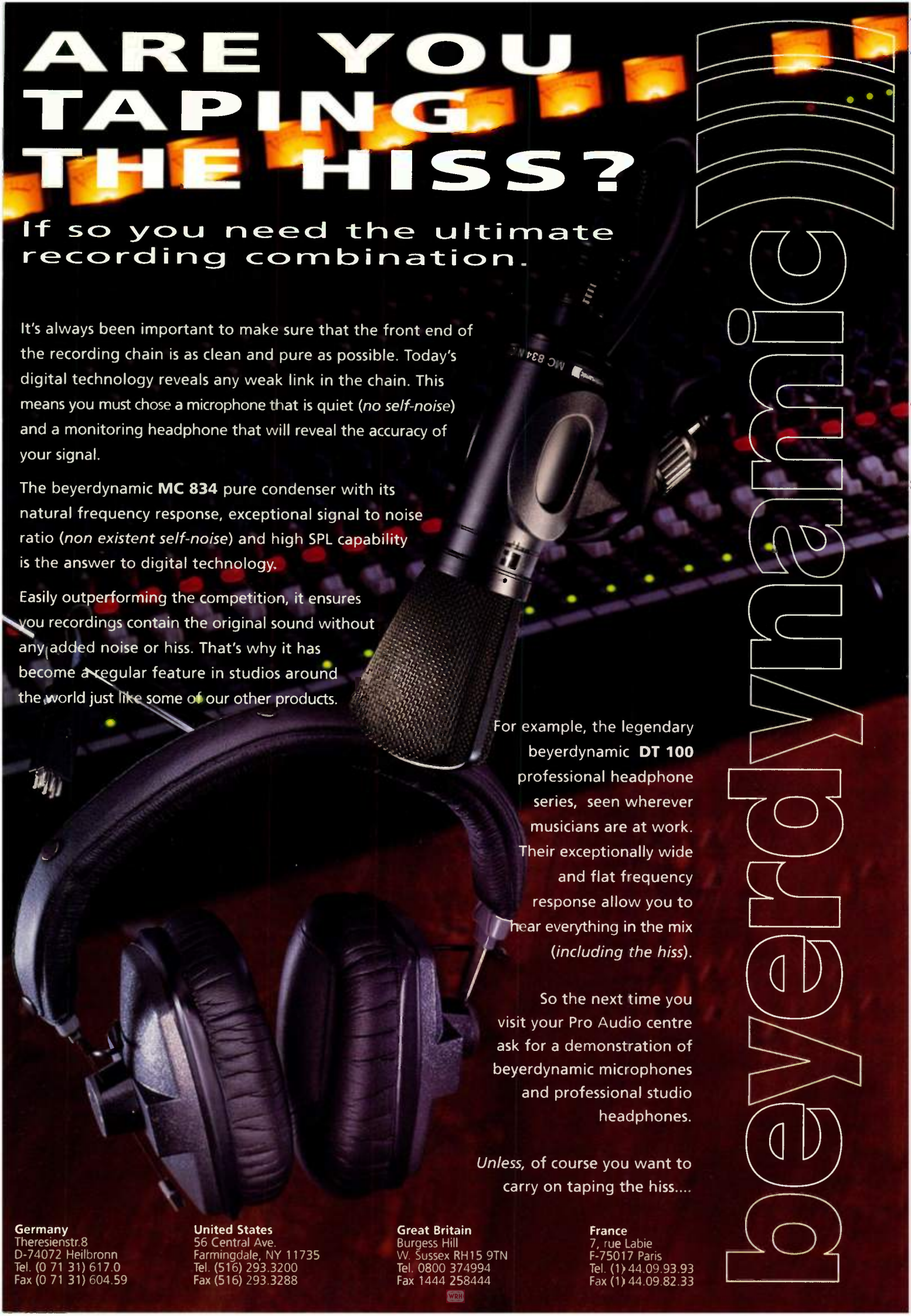
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- Effects fully editable.
- True stereo, with Dual capability.
- Sensible MIDI spec.
- Easy to use, with a nice sound.
- Excellent value for money.

cons

- Modulation effects could be more exciting.
- No decent EQ.
- Unhelpful manual.

summary

A flexible, versatile stereo unit, with way more facilities than you'd expect for the money, and a pleasing sound. There's little else to touch it for price vs. performance ratio at the moment.

SOUND ON SOUND

Despite having a name that most British people associate with small, round chocolate biscuits, Viscount are gaining a reputation for affordable MIDI hardware — and the EFX10 could be their best value effects processor to date. DEREK JOHNSON & DEBBIE POYSER develop a taste for it.

When Italian manufacturer Viscount burst onto the UK hi-tech scene in 1993 with two multi-effects processors, the budget EFX1 and the super-budget EFX2, the press and public reception was favourable. For the price, the £239

EFX1 was a good deal, though it was criticised for a poor MIDI implementation, a tendency to input overloading, a limited number of effects algorithms, and a hissy output. Three years on, Viscount seem to have addressed all the criticisms levelled at the EFX1, in the new EFX10. And despite having benefited from considerable improvements over the earlier model, the EFX10 has a retail

price of just £10 more, at £249.

OUTSIDE IN

Physically, the EFX10 takes its cue from Boss's now-discontinued SE70, packaged in a similar half-rack box with an almost identical array of



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Viscount EFX10

► front panel controls: from the left, there's an input level rotary knob; a 2-line x 16 character backlit LCD; a large data dial used for scrolling through effects Programs and parameters; six small buttons used in Program selection and editing; a power switch; and a headphone socket. The unit can be racked with an optional adaptor.

The rear panel hosts a standard selection of connectors: Left and Right inputs with accompanying switch to select between -20dBm (for guitar or mic input, for example) and +4dBm (for mixer effects send or keyboard) operation; Left and Right outputs; two footswitch sockets, one for stepping through effects Programs, and one which is user-

definable (this could function as a Bypass switch, as a Hold switch for delay effects, or to select between slow and fast speeds when using the Rotary effect); MIDI In, Out/Thru sockets; and a power supply socket. The latter item is furnished with a small plastic cleat, around which you wrap the power supply cord to prevent it from accidentally detaching — just like on the Boss SE70! In all, it's a lightweight but perfectly sturdy and well-appointed package.

Inside the box is a true stereo processor offering a comprehensive range of standard studio and guitar effects (see box for listing of algorithms), arranged in single and Multi configurations. Although Viscount state a maximum of six simultaneous effects, plus a Noise Suppressor, this number is only found in the Guitar Multi. Other Multis are made up from between two and five effects each. Unsurprisingly at this price, you can't chain your own effects together or dictate their order in a Multi. You can, however, turn off individual effects within a Multi, giving a certain amount of user control. There is also a good amount of editability of individual effects: for example, the Large and Medium Hall reverbs offer no less than 12 user-modifiable parameters each, including Size; Reverb Time (0.1s to 20s, in 100ms steps); Pre-Delay (up to 500ms, in 1ms steps); Reverb Tone (which, according to the manual "equalises the reverberation colour with various shadings". In practice, this amounts to a very subtle rolling-off of the top-end at its highest setting); Early Reflection (0-500ms, in 1ms steps); Early Reflection Tone (Flat, Low, Mid or High); H/F Gate (like high-frequency damping, to cut off high frequencies over a preset time); and Reverb Attack. It's difficult to know what the latter parameter actually does, as there's nothing in the manual to explain it, but at higher settings it adds a perceptible 'bite' to the reverb. Note also that the Size parameter has a range of 1-8, but there's no way of knowing how these numbers relate to the real world, except for the common-sense assumption that '1' would indicate the smallest hall and '8' the largest!

"The Rotary treatment deserves special mention for its 'in your face' quality and edgy grittiness."

SPECIFICATION

A/D & D/A Conversion:	18-bit linear
Sampling Frequency:	44.1kHz
Frequency Response:	10Hz-20kHz
Nominal Input Level:	-20/+4dBm
Input Impedance:	20 kOhm
Output Impedance:	600 kOhm
Connectors:	L&R inputs; L&R outputs (jacks); MIDI In, Out, Thru; Programmable & Program Advance Footswitch sockets
Power Supply:	External, 10.5V

As mentioned earlier, the EFX10 is a true stereo processor, which enables it to offer a very useful Dual effect capability. Three Dual algorithms (Reverb + Chorus, Reverb + Delay, and Chorus + Delay) allow you to independently process two separate signals. With the Reverb + Chorus algorithm, for example, you could process a vocal with reverb and a guitar with chorus. This also means that you could use the EFX10 with two aux sends on your mixer. By the way, if you treat a single source with a Dual effect, it will be processed by both parts of the algorithm.

EDITING & UTILITIES

The six buttons on the EFX10's front panel enable you to navigate the unit's operating modes, choose Programs, parameters and their values, save edited Programs, and Bypass the unit's effects. Let's take a closer look at what these buttons do:

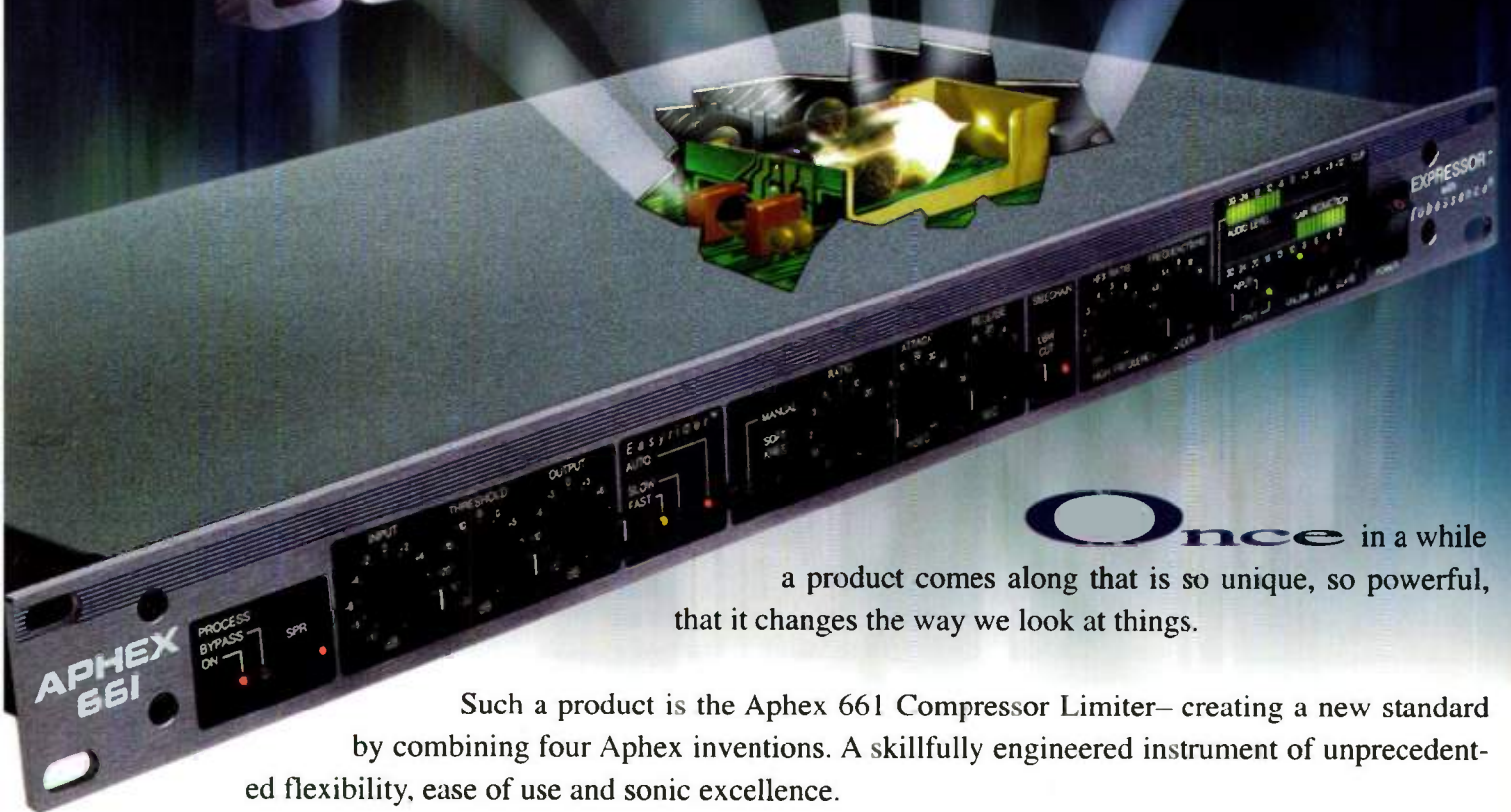
- PROGRAM: the EFX10 powers up in this mode, where you'll spend most of your time, selecting between the 128 on-board effect Programs with the large rotary data encoder.
- PARAMETER: pressing this button takes you into Edit mode; using the data encoder then scrolls you through the available editing parameters for the currently selected effect.
- VALUE: press this button when you want to edit a parameter. In this mode, the data encoder changes the value of the currently selected parameter. To select a different parameter, you simply press the Parameter button again.
- WRITE: when you've finished customising your effect Program, press this button and a cursor flashes under the Program number on the LCD display. Use the data wheel to choose a memory location for your edited Program, then press Write one more time and it's saved.
- UTILITY: this button accesses a variety of global functions, including the MIDI Program Change map, MIDI bulk dumping and loading, altering footswitch settings, changing display contrast, and naming your custom Programs. It's a bit of a pain that Program naming is hidden in the Utility mode, since this means that you have to exit Program mode and enter Utility mode before you can name your edit.
- BYPASS: simply mutes the current effect.

The EFX10's user interface is perfectly ►

EFFECT ALGORITHMS

<ul style="list-style-type: none"> • REVERBS Large Hall Medium Hall Large Room Medium Room Small Room Early Reflections Gated Plate Ambience 	<ul style="list-style-type: none"> • DUAL EFFECTS Reverb + Chorus Reverb + Delay Chorus + Delay
<ul style="list-style-type: none"> • DELAYS Mono Multi Multi-Tap Stereo 	<ul style="list-style-type: none"> • MULTI TREATMENTS Keyboard Multi 1 (Flanger, Delay, Chorus, Panning, Reverb) Keyboard Multi 2 (Phaser, Noise Suppressor, Chorus) Guitar Multi (Compressor, Wah, Distortion, Noise Suppressor, Delay, Flanger or Chorus, Reverb)
<ul style="list-style-type: none"> • MODULATION EFFECTS Space Chorus Multi-Chorus Stereo Pitch Shifter Stereo Flanger Stereo Phaser Rotary 	<ul style="list-style-type: none"> • PROCESSORS Hum Canceller Vocal Canceller

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Viscount EFX10

- comprehensible; anyone familiar with the Boss SE50 or SE70 will be flying around it in no time, and even newcomers shouldn't need more than a couple of hours to become familiar with how it works.

MAINLY MIDI

MIDI functions on the EFX10 are comprehensive without being over the top. Two parameters per effect can be controlled over MIDI, using Pitch Bend or a handful of Control Change messages, and you can choose which two parameters you want to control. This is a big improvement over Viscount's EFX1 (reviewed *SOS* November 1993), which only allowed MIDI control of one parameter per effect, and even that was pre-selected for you. The EFX10 offers a full SysEx implementation, and a chart in the back of the manual gives all the information you would need to set up a MIDI

EFX10 FEATURES

- Half-rack module format (rack adaptor available).
- Up to seven simultaneous effects (including Noise Suppressor).
- True stereo operation.
- Dual processing facility.
- MIDI patch changing and parameter control.
- 22 ROM Presets/106 user memories.
- 2-line x 16-character backlit LCD.

coming through if you're using the EFX10 with a mixer's effect sends.

As a provider of staple studio effects, the EFX10 performs well. The reverbs, while not especially smooth, have a pleasant character and seem to sit well in a mix. The good range of tweakable parameters helps ensure that you can tailor a reverb sound to fit your track exactly. Delays offer lengthy maximum delay times (up to a generous three seconds), and choruses are OK, if not quite as exciting or sparkly as they could be. Flanges, too, could be rather more extreme, though naturally you can edit them to your own taste. The Rotary treatment deserves special mention for its 'in your face' quality and edgy grittiness. It can dramatically change the character of synth pads — not just organs — and is surprisingly quirky and effective on guitar. The two studio processors, the Hum Cancellor and the Vocal Cancellor, are not 100%

editor in a sequencer program like *Cubase*. Usefully, you can dump the EFX10's whole memory (or just parts of it) to a suitable storage device or computer over MIDI; bulk dumping is initiated in Utility mode.

THE FULL EFFECT

All 128 of the EFX10's memories have factory Programs saved in them; the first 27 contain the ROM algorithms and are non-erasable, but the remainder can be overwritten with your own edits. The manual actually states that the EFX10 is primarily intended for guitar use, and more than half of the factory settings are guitar-orientated (but strangely, there's no front panel guitar input, as you might expect). There are lots of serviceable distortion presets, of various types, including a 'User' distortion, which can be very comprehensively customised. The Guitar Multi Program can also be flexibly tweaked to provide a variety of nice guitar treatments. The manual does concede that the EFX10 is ideal for studio use, but when you're using it with the effects sends of a mixer, you'll soon notice that the Direct (dry signal) level of all the factory Programs is turned up to maximum — as would be appropriate for use with a guitar. Therefore, you'll need to go in and turn all the Direct levels down and re-save the Programs, as you won't want any dry signal at all

effective as they stand, but have potential. The Hum Cancellor certainly cuts out hum completely, and since it also includes a noise gate, really does silence noisy gaps on tape. However, if you want to leave it switched in during a whole track, careful adjustment is required to avoid level 'pumping'. The Vocal Cancellor, again, certainly cuts the vocal in a track, leaving it a shadow of its former self, but it also has an adverse effect on the frequency content of the rest of the track. Some tweaking is required to achieve a compromise between completely nuking the vocal and completely nuking the backing track. You could easily use the Vocal Cancellor as a creative effect in its own right.

One final feature worthy of mention concerns algorithms which contain delays — the programmable footswitch input allows you to create real-time loops: play a riff, press an attached (normally open) footswitch, and the EFX10 captures the performance and loops it. Accurate capture takes practice, however, and the audio signal fades after several loops rather than looping infinitely, but it is still a fun feature to have.

At normal listening levels, the EFX10 doesn't seem any noisier in use than any other low- to mid-priced effects unit. If you plug it into a mixer's aux return and really crank up the level, you do hear digital grunge, but it's fair to say that this isn't really detectable during normal operation.



MANUALE OPERATIVO

The EFX10's slim manual is divided into Italian and English sections, making the English section even slimmer! The information is pretty basic, though the straightforward nature of the EFX10 means that this shouldn't be too much of a problem. Where it really falls down is in explaining what the various user-editable parameters actually do — for example, in Keyboard Multi 2, the Phaser Step parameter apparently "makes the modulation discontinuous, generating interesting effects of sub-sampling of the modulant." Er... right. There's also regular and rather endearing use of the word "concatenation" whenever the translator means "combination". Oh well...

Viscount appear to have cured their processors of the tendency to input overloading exhibited by the earlier EFX1: the new EFX10's input is actually very forgiving.

ITALIANATE MASTERPIECE?

When we first encountered the EFX10, we had a wild, unreasonable hope that its physical and operating system resemblances to the Boss SE50 and SE70 (still our favourite effects processors), might betoken more fundamental similarities. An SE70 for £249? Too much to hope for, surely... Not surprisingly, it was. After all, the SE70 is a highly sophisticated processor offering such exotica as vocoding, ring modulation, pitch-tracking bass and guitar synths, plus top-quality reverb, delay and modulation effects. It also cost £650 on its release over two years ago. It's much fairer to compare the Viscount EFX10 to preset units like the Zoom 1202 or the ART FXR, which are non-editable and cost very little less. This comparison serves to highlight what excellent value for money the EFX10 represents, with its true stereo operation, useful Dual effects for processing two sources independently, good range of effect-editing parameters, sensible MIDI spec, and pleasing sound quality.

Nothing made by man is perfect, however, and there are one or two features which would have

been nice to have on the EFX10. Firstly, there's no decent EQ in any of the EFX10's Multi effects algorithms, which can be so useful for tailoring off-the-wall treatments. Some kind of tap delay tempo setting via a footswitch would have been welcome, and would have allowed the user to take full advantage of that on-the-fly looping ability mentioned earlier; ideally, delays would have been MIDI-clockable. Lastly, it's strange that there's no amp or speaker simulation available when Viscount are pitching the EFX10 as the ideal guitar effects processor.

Notwithstanding these gripes, however, we'd still have no hesitation in recommending the EFX10 as an ideal general-purpose effects processor for anyone on a budget, or indeed for anyone who doesn't see why they should pay more than absolutely necessary for decent multi-effects.

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MAKING THE MOST OF YOUR MIXER

PAUL WHITE reveals a few of the less well-trodden paths hidden within your mixer's routing system.



Mixing consoles are invariably fitted with both pre-fade and post-fade Aux sends, ostensibly with the intention of allowing the user to set up foldback mixes or add effects from external effects units. These are the typical applications described in most mixer manuals and textbooks, but by applying just a little lateral thinking, you can find numerous novel uses for the Aux busses that are rarely documented. This article outlines the more conventional uses of the Aux busses, followed by some useful and less obvious tricks.

PRE-FADE CONVENTIONS

When overdubbing, a cue or foldback mix is generally needed so that the performers can hear any tracks already recorded. This is set up using a pre-fade send control, a knob found in the mixer's channel strip which feeds some of the channel signal onto a mono mix buss running the length of the mixer and out via an Aux master level control. The output from Aux 1, for example, feeds onto the Aux 1 buss and then to the Aux 1 output socket, via the Aux 1 master output level control. Foldback or cue signals are referred to as 'pre-fade' because they are picked up *before* they reach the channel fader. The significance of this is that, once set, the level of the Aux 1 signal doesn't change if the channel fader setting is varied.

It follows that an independent mono mix of all your channels can be set up using the Aux 1 controls, and this will appear at the Aux 1 output where it may be fed to a headphone amplifier or other monitoring system. If your mixer has more than one pre-fade send, you can set up a number of different monitor mixes to satisfy the requirements of each musician, providing you have access to a multi-channel headphone amplifier system. A typical situation is where the backing vocalists want a lot of lead vocal in the cans, whereas the drummer and bass player want to hear primarily each other.

Many of you will already be intimately familiar with this conventional use of pre-fade sends, but later in this article I will be exploring a few alternative uses for this versatile control.



POST-FADE CONVENTIONS

Post-fade Aux send controls pick up their signal feed *after* the channel fader, so any change to the channel fader position will also affect the Aux send level. This is exactly what we need if the Aux send is being used to feed an effects device, such as a reverb or echo — as the channel fader setting is modified during the course of a mix, the amount of effect needs to change by the same amount to maintain the correct proportion of effect to dry signal. By using different settings of the post-fade send control on each mixer channel, it is possible to send different amounts of each channel's signal to the same effects unit.

Utilising the Aux send system has the advantage that different amounts of the same effect can be added to different instruments in a mix. A typical example might be where one reverb unit is used to provide a rich reverberation treatment for the vocals, less reverb for the drums, and little or none for the guitars and bass.

It is important to remember that any effects unit used in conjunction with a channel Aux send should be set up so that it produces *only the effected sound* and none of the original (dry) source. This is usually achieved using the unit's mix control, which is either in the form of a physical knob or a mix parameter accessed via the effects unit's editing software. In either case, the mix should be set to 100% effect, 0% dry. This ensures that the amount of effect added to any channel signal is determined solely by the setting of the pre-fade Aux send control.

The output of the effects unit may be fed back

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Magic Bus

► into the mixing desk via spare input channels or via dedicated effects return inputs, often known as Aux returns. These Aux returns are electrically similar to the input channels but usually offer far fewer facilities (limited EQ, for instance). If a spare input channel (or channels) is used for an effects return, ensure that the Aux send control on those channels is turned fully down to prevent feedback. To keep the effect in stereo, the two Aux returns or channels must be panned hard left and right.

Also note that although most stereo reverb units have two input jacks, the reverb itself is generated from a sum of the left and right input signals, so you only need to tie up one Aux send. Usually, one of the effect input sockets will be labelled 'Mono', indicating that you should send the input to that jack for mono in/stereo out operation.

EFFECTS & INSERT POINTS

An Insert point is simply a connector that allows the normal signal path to be interrupted and re-routed through an external device. Insert points usually take the form of stereo jack sockets wired to carry both



Typical rear panel of a mixing desk showing Aux returns and channel Insert points.

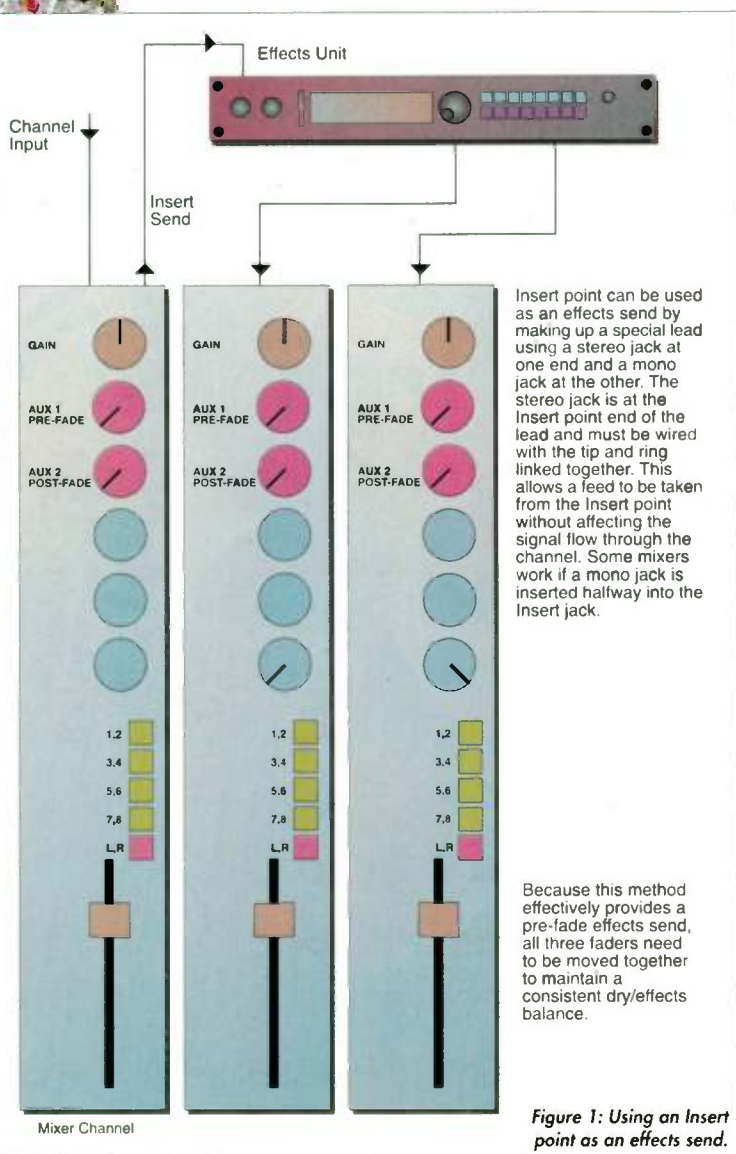
the send and return signal, and if you don't have a patchbay, you'll need a 'Y' splitter lead with a stereo jack plug on one end and two mono jacks on the other. Inserts are normally fitted to all mixer channels that have mic inputs, and often to the group outputs and main stereo outputs too. If soldering up Y-leads is not your forte (though you'll save a lot of money if you learn), you can buy stereo to dual mono jack adaptors or ready-made Y-leads [see *Hosa cables info in the SOS Mail Order pages of this magazine*].

You can connect either an effects unit (eg. a delay or reverb) or a signal processor (eg. compressor or gate) to a mixer via an insert point, and in situations where an effect is required only on a single mixer channel, then connecting it via the insert point will provide a cleaner signal path than going via the Aux sends. That's because you will avoid picking up mix buss noise from all the other channels that are also connected to the Aux send buss. It will also avoid tying up Aux sends unnecessarily. Note that when an effects device is connected in this way, via an insert, then the dry/effect balance must be set on the effects unit itself.

INSERTS AS AUX SENDS

Stereo effects can be fed from an insert send and the effect outputs brought back into a pair of spare channels or a stereo effect return as normal. The effects mix should be set at 100% wet (effect) in this case and the effects return channel controls used to set the effect level. Note that since the insert point comes before the channel fader, the effect level will remain constant even if the channel fader is moved. If there is ever a need to adjust the channel fader during the mix, it helps to return the effects to two adjacent channels so that all three faders can be moved together. If you don't have your mixer insert points wired to a patchbay, you may have to make up a special lead to allow you to take a feed from the insert point without interrupting the signal flow through the channel. Some mixers, such as Mackie models, allow you to take a direct feed from the insert point by using a mono jack and only pushing it half-way into the socket.

You can also use this method for providing a direct channel feed to a multitrack recorder input. In this case, turn the channel fader right down, and/or ensure that all routing buttons are in their 'off' position, then use the input gain Trim control on the channel strip to set the recording level going to tape. Figure 1 shows how this is connected. ►



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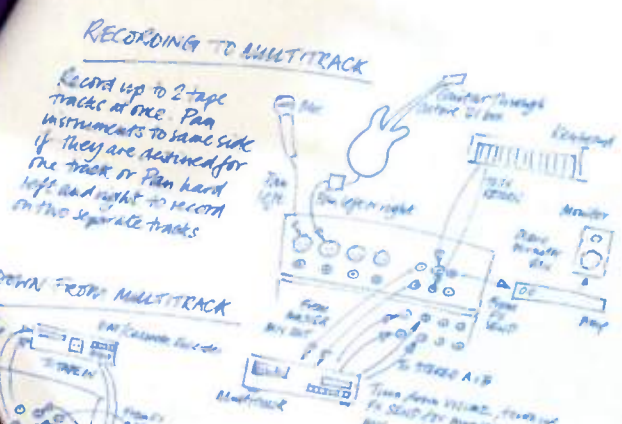
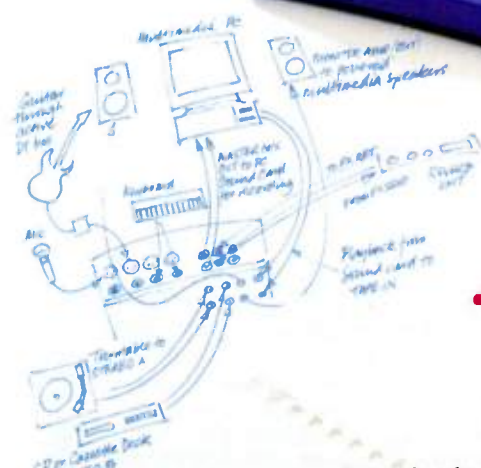
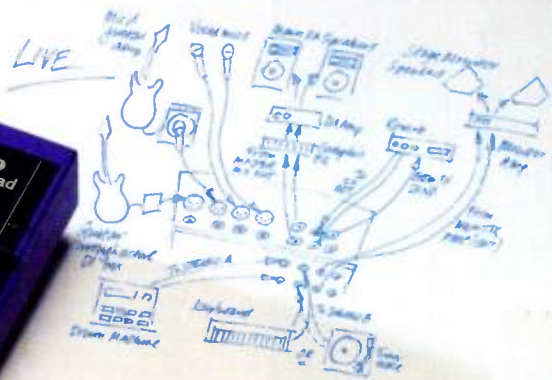
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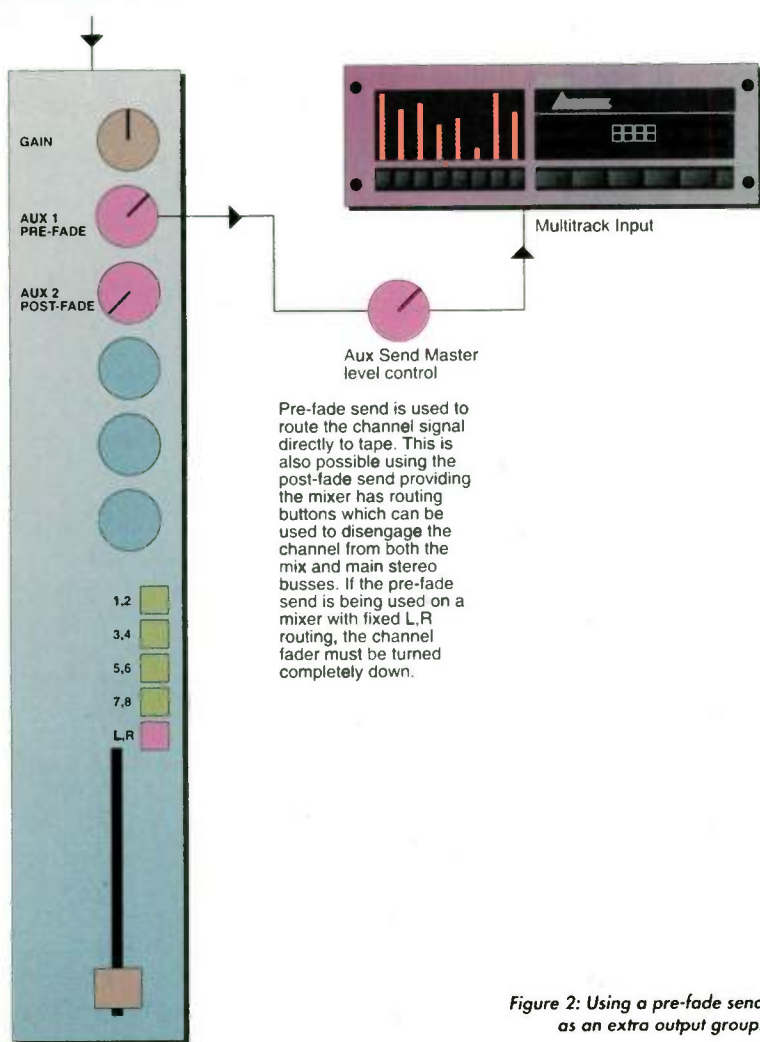


Figure 2: Using a pre-fade send as an extra output group.

SENDS AS TAPE OUTS

A pre-fade send is simply an independent mono mix based on the channel pre-fade send control settings, so even if the main channel faders are turned down you can still create a pre-fade mix. This is potentially useful in a mixer that has fewer output groups than you might like, because you can use any pre-fade send output to feed a multitrack recorder input. In other words, you're using the pre-fade send as an additional output group. You have to control levels using knobs rather than faders, but in all other respects the result is exactly the same. For example, if you have a couple of microphones on mixer channels 1 and 2 that you want to mix together and record on tape track 6, all you have to do is turn the faders on channels 1 and 2 right down, turn the pre-fade sends up, and route the corresponding pre-fade send output to tape input 6. The send master level control may then be used to set the correct signal level to tape, as shown in Figure 2.

Post-fade sends may also be used as tape outputs, providing your mixer has routing buttons. This is vital, because you don't want the channel

"The labels associated with mixer inputs and outputs relate to their most common use, but that's not to say you have to use them solely for that purpose."

signal going anywhere else other than to the Aux sends, so it's important to ensure that any group and L/R routing buttons are turned off. If you have the facility to do this, then using the post-fade sends instead of the pre-fade sends means you can use the channel faders to adjust the signal level going to tape, which may be far more convenient.

SENDS & PROCESSORS

Conventional wisdom tells us not to connect signal processors via the Aux sends, but what if you have a mixer or cassette multitracker with no

EFFECTS PATCHING

Before you can work out the best place to patch in your outboard equipment you need to know what counts as an 'effect' and what does not. I tend to define the various bits of outboard equipment as either *effects* or *processors*, according to what they do and how they do it. The main reason for this is that there are certain restrictions on how processors can be connected, while effects enjoy a little more flexibility. (I've covered this before in *SOS*, so if you're already happy with the distinction, feel free to skip back to the main text.)

Processors are boxes that modify a signal, whereas an effect is a device that leaves the original signal intact and adds something else to it. Processors include EQ, compressor/limiters, expander/gates, panners and single-ended noise reduction units. If you have a box that modifies either the gain of a sound or filters it in some way, it's a reasonably safe bet that it is a signal processor. Echo units, delay lines, reverbs, chorus/flangers, pitch-shifters, phasers and suchlike are effects, and all effects should have some means of balancing the original (dry) and effected (wet) signal. Effects may be connected either via mixing desk insert points or via the Aux sends, but processors can normally only be used at insert points or connected between two pieces of equipment. However, there are exceptions, hence the need for this article.

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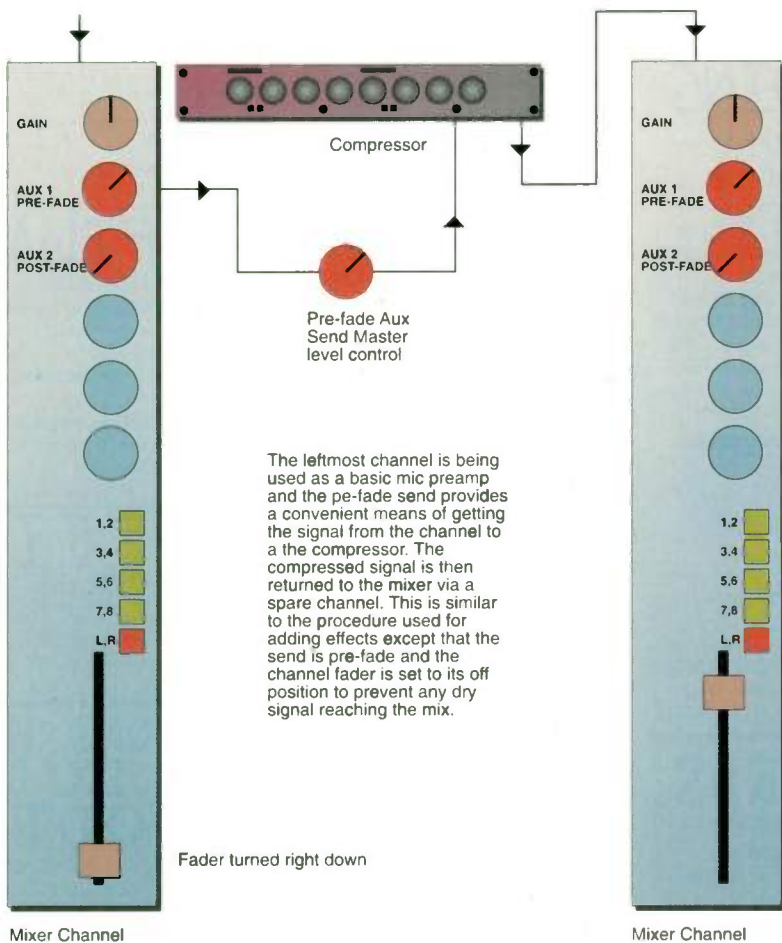


Figure 3: Connecting a compressor via a pre-fade send.

► insert points? In this case the pre-fade Aux sends can provide a solution, and the required patching for a compressor is shown in Figure 3. Here, the channel to be compressed is channel 1 and the channel fader must be set fully down. The pre-fade send, *on that channel only*, is then turned up and the compressor connected to the pre-fade send output as shown. The output from the compressor can then be fed into a spare mixer channel and the signal routed normally. If you study this patch, you'll see that because the fader is down on channel 1, the dry signal isn't routed anywhere; the only signal you use is the output from the compressor. In essence, channel 1 has been used as a mic preamp with the signal being tapped off via the pre-fade send for convenience.

SUMMARY

When I was first introduced to mixers, I found pre-fade and post-fade sends quite confusing, and it was only after studying the block diagram of the mixer that I realised how simple they

POST-FADE SENDS & SUBGROUPS

When you come to mix down, you might create subgroups for things like drums, backing vocals or keyboards, so as to reduce the number of mixer faders you have to worry about during the mix. However, if your effects returns come back straight into the main stereo mix, they'll stubbornly refuse to change in level, no matter how far you move the group faders.

The answer is to route the effects used within the subgroup back to the same numbered groups, so that when the group fader is turned down the effect level goes down with it. The only time a problem arises is when the same effect is used in two different subgroups or in both a subgroup and in channels routed directly to the stereo mix. There's no easy solution to this, and in extreme cases you might have to patch in a second effects unit to get around the problem.

really were. Once you grasp that the Aux send busses are much like the main group busses, you can use them in any way you wish. Both pre- and post-fade sends may be used to create new tape feeds, and with a 4-buss mixer this can make all the difference between 4-track and 8-track recording. Cassette multitracker owners can use pre-fade sends to patch in compressors or equalisers where there are no insert points, and on more than one occasion I have used the pre-fade foldback sends on a cassette multitracker to create additional tape outs for remixing. It's often useful to remix a 4-track cassette via a more serious mixer, but on cheaper machines you don't have separate tape outputs. In such instances, I've used the left and right outputs to carry a mix of three of the tracks and a pre-fade send to carry the remaining track, and though three sources may not seem like a lot, it's often enough to make a big difference to the final mix. On a machine with two pre-fade sends, you can separate out all four tracks — which is the ideal situation.

I haven't even mentioned the PFL (Pre-Fade Listen) buss in the course of this article, but that can provide yet another way out of the mix — if you PFL solo one channel while its fader is down, its signal will appear at the headphone and monitor outputs while the remaining channels will be routed to the main and output groups as normal. With just a little imagination, a 12:2 mixer can be used to handle 4-track recording, a 16:4 PA mixer can function well for serious 8-track recording, and the limitations you thought your cassette multitracker had can be turned on their head.

What I have written has by no means exhausted the less obvious uses of pre- and post-fade sends, but I hope that by pointing out some of the possibilities, it'll help you think of your own ways to use and abuse your equipment to get the most out of it. The labels associated with mixer inputs and outputs relate to their most common use, but that's not to say you have to use them solely for that purpose. Quite often, the only way around a sticky problem is to use your mixer in an unorthodox way, and the more you think about it, the more ways there are.

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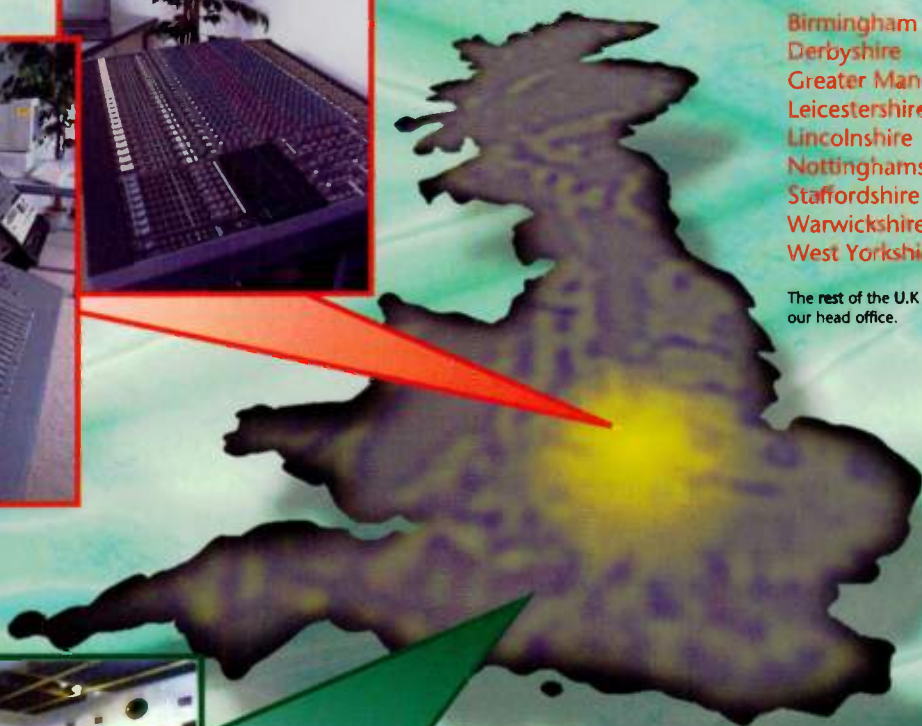
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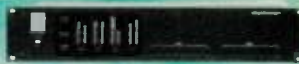


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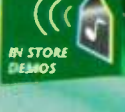


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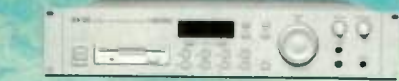
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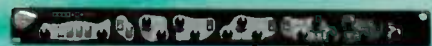
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With album sales at over the two million mark. The Prodigy (Liam Howlett, Maxim Reality, Keith Flint, and Leeroy Thornhill) have reached heights unscaled by many other artists making out-and-out '90s dance music. Remarkably, the group has achieved its success

without becoming enmeshed in the trappings of stardom, or having to devise an image suitable for the teenage music press. Despite their increasingly uncompromising take on dance music, the band continue to enjoy both critical acclaim and popular success — and all without losing the respect of their hardcore underground following, too. I tracked down The Prodigy's musical mastermind, Liam Howlett, at his home studio in darkest Essex to see how the band create their music, and to discuss their new musical style, which is continuing to develop as Liam works on the forthcoming, as-yet-untitled Prodigy album.

ESSEX LIVES OF THE RICH AND FAMOUS

Liam Howlett's Earthbound Studios is an impressive sight. The initial impression is of a Mayan temple populated with hi-tech keyboards

and samplers — and then you notice some of the other, somewhat incongruous decor: the spiral staircase, the enormous TV, and the full-sized Dalek, seemingly awaiting revenge on the evil Americans who reduced Doctor Who to a bit player in a soap...

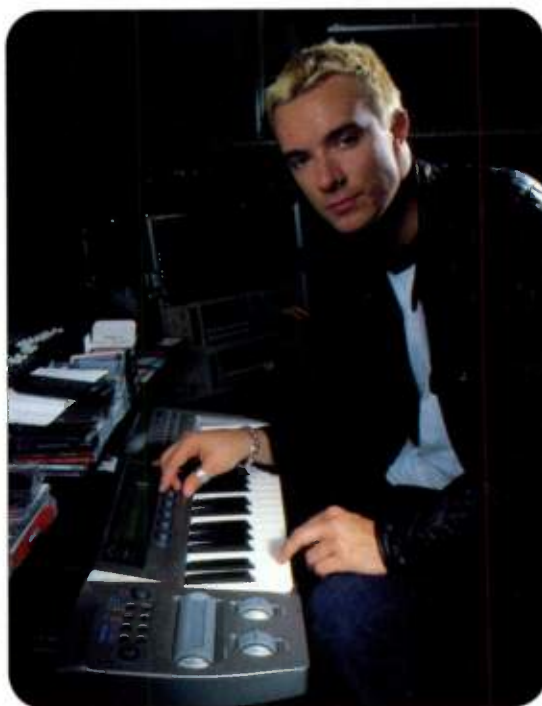
Once I had got used to my surroundings, I resisted an urge to start the interview with questions about The Prodigy's 1991 hit 'Charly' — after all, times have changed considerably since The Prodigy were seen as the head of a brief musical fad by the name of 'cartoon techno' for sampling phrases from a British 1970s child awareness cartoon and layering them over a techno backing. When the band's single 'Firestarter' hit the number one spot recently, with its stark video and hard sound, it seemed that a very different chapter was beginning in The Prodigy's career.

I began by asking Liam to elaborate on the reasons for the group's progression from their early, commercial-sounding techno style to something altogether grittier: "When I started on *Music For The Jilted Generation* [*The Prodigy's* 1994 album — *Ed*], I found a new vibe with the alternative dance scene. Alternative music as a whole, really, incorporating rock, hip-hop, and the more dirty side of dance music — not clean stuff. We started as a rave act, because that's what we were into then, but as time passed, the rave scene went under, and we got bored with the whole thing. It became a bit of a joke to us, and then, one night in Scotland, on

**Essex dance outfit
The Prodigy have
long outgrown their
pure rave beginnings,
and their recent
number one single,
'Firestarter' points the
way to a new, even
harder sound.
PAUL NAGLE tackles
some burning topics
of modern music-
making with the
group's aural architect
Liam Howlett...**

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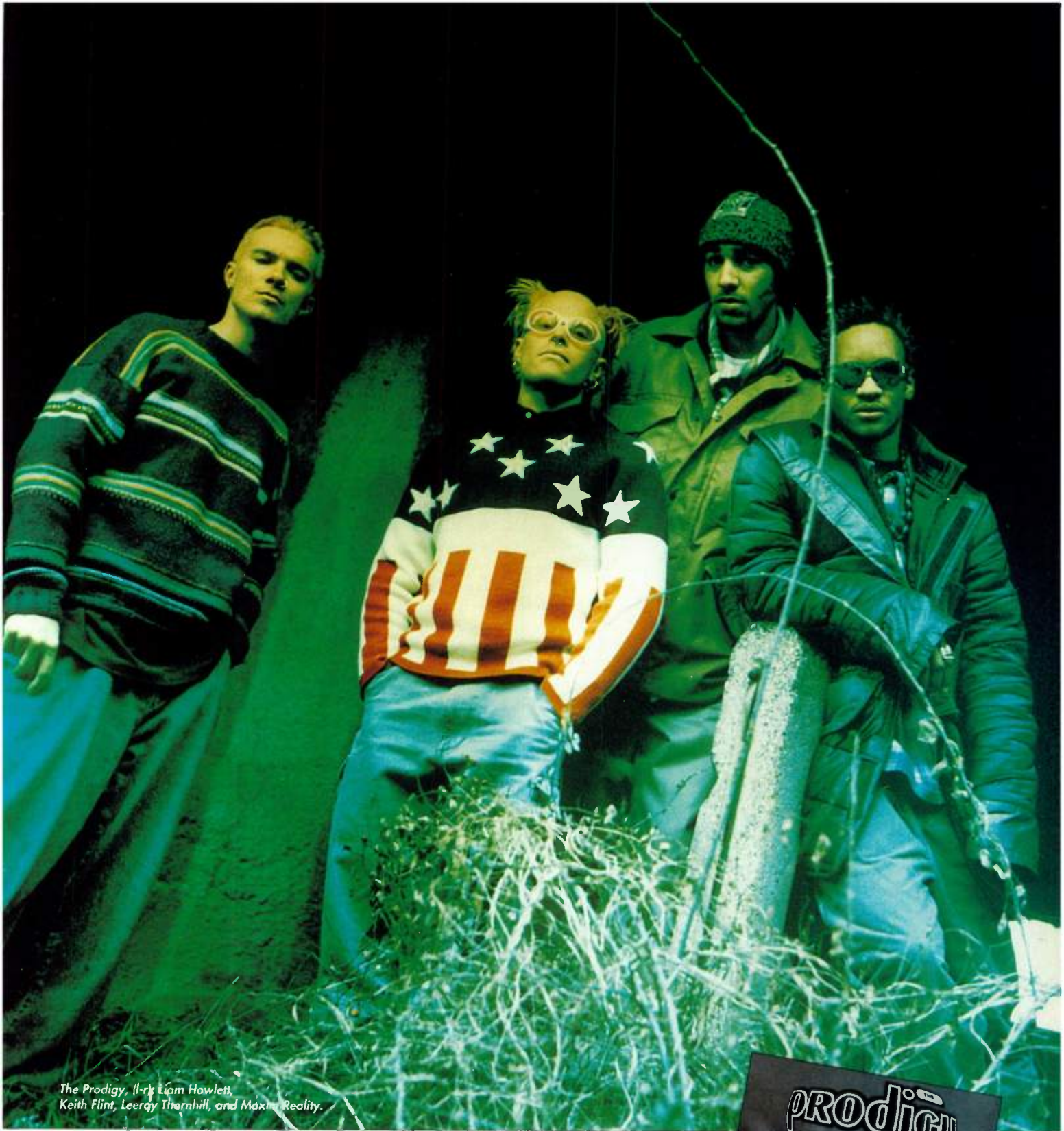
stage, in front of about six thousand lunatics with white gloves on, I found myself thinking, 'What am I doing here? I'm not into this'.

"I hoped that people would accept *Jilted Generation*, as half of it was quite safe, but the other side, the unsafe part, was the better side: 'Poison'; 'Their Law'; the really dirty stuff. After I'd finished writing *Jilted*, I basically reassessed the whole thing, and thought 'yeah, that's the more credible side' and ditched the corny rave thing. The new direction is a whole mixture of good street alternative dance music."

Given that The Prodigy's new material is, by Liam's own admission, less overtly commercial than their first offerings, I wondered if he and the band had been surprised by the runaway success of 'Firestarter'?

"I was very surprised, but I was more surprised that more people *didn't* comment on how we'd gone away from what we were doing before. A lot of people thought it was the best thing we've done, especially people at Radio One, who did support it quite a lot — maybe to show that they were more in touch with youth culture."

Of course, many bands progress musically, only to find with dismay that their changing style alienates their original fans. However, this problem



The Prodigy, (l-r) Liam Howlett, Keith Flint, Leery Thornhill, and Maxim Reality.

just doesn't seem to have affected The Prodigy. I wondered if Liam had any ideas why this hadn't happened to them: "We never look for success, but I'd say we're at a level now where we've got a following, and people respect what we're doing. The records don't *have* to be really commercial every time, as long as they follow the Prodigy rules — that they're hard and 'in your face'. That's what The Prodigy's music is about, whether it's got guitars on it, or whether it's industrial, techno, or whatever. For an album, I guess, you might have the odd track where it's a bit more soundtrack-based, a bit more string-orientated, or more ambient, but with singles, it's pretty in-your-face stuff."

GETTING IN GEAR

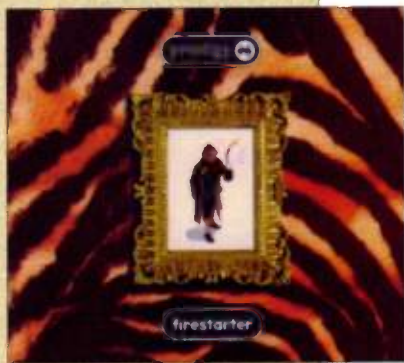
Like many successful techno artists who have appeared in *SOS*, Liam is actually less bothered about owning the newest studio technology than you might expect from the hi-tech sound of his music. It would seem that keeping up with the latest developments *is* important to him (see the 'Reluctantly Upgrading' box), but so is keeping everything in perspective, remembering just what all the gear is for, and who's in charge of it. "I've never got *too* much into the technology. I try and keep the studio quite basic, you know. I was scared of going too much into



LIAM HOWLETT ♦ THE PRODIGY

'FIRESTARTER': NOW WITH ADDED VOCALS...

Although Prodigy tracks have included vocals before, the 'Firestarter' single featured lyrics written by Liam and Keith, which Keith then added to Liam's backing track. Liam: "With 'Firestarter', me and Keith wrote the lyrics together. I'd done the track and played it to him, and he said he'd really like to get some lyrics on it. I was quite surprised, because he's never done it before."



"He came round a few days later, sat down and we eventually got over the embarrassing situation where everything you say with the lyrics sounds terrible. Once it's on record, it doesn't matter what you say [laughs]. On other tracks, I come up with lyrics, then I might get Maxim to come over. Maxim writes a lot of his own lyrics as well — like the new single 'Minefield' — he did the vocals on that."

► hard disk recording and editing, and all that. Mind you, Maxim tried to sell me his ADAT the other day, because he's just bought a Roland VS880, which he says is *really* cool. I *might* think about getting one of those..."

Despite Liam's slight reluctance to deal with hard disk recording, sampling plays a crucial role in the creation of The Prodigy's music: Sharp-eared listeners will already have spotted the Art Of Noise and Breeders samples that feature in the 'Firestarter' single, to take just one example. In fact, Liam's favourite kind of studio gear becomes very clear during the interview: "The samplers. They are the most important thing to me — I'm really creative with them. My modules are more just for filling in after I've already got something going on the samplers, to thicken things up and so on; I never go to a module to start a song off. I try and get some loops in the sampler first, get something strange happening, and build up a track from that. I can pull samples out of any records and twist them round to make them fit into my music: at the moment, I've got this thing about '70s rare groove and funk for drum and bass guitar loops. I just love the natural feeling. On the new album, there's loads of things like that which are not obvious funk, just loops in the background that give it a natural feel. I'm not into the heavily-programmed, typical techno sound, with bass drum and clean hi-hat; it's got to be slightly screwed up for me, really..."

Although he uses many common synths and sound modules, Liam always strives to broaden his sonic palette by applying heavy effects processing to the basic sounds he uses, in keeping with the 'screwed-up' approach: "That's the key. I love my Boss SE70s. I did have an Yamaha SPX1000, an ART Multiverb and an Alesis Quadraverb, but because you can get awesome distortion sounds from the SE70. I sold all the others. The SPX1000 is just a crap industry-standard thing, with no special effects whatsoever, so I got rid of that. A grand for just a reverb unit and delay is a bit of a waste of money really... So, I've got four SE70s, and I programme the hell out of them. I've really gone mad with them"



A rack at Liam's Earthbound Studios containing several synths and samplers, including (top-bottom): the Roland JD990, Emu Proteus 3 World and Vintage Keys, Roland U220, and Akai S1100 (on loan only) and S3200XL samplers. There is also a SyQuest EZ135 hard drive, a TL Audio valve EQ, the newly-added Emu Orbit (at the bottom), and a Philips CD player (right at the top)

KICK OUT THE SYNTHS

Liam also declares himself a cautious fan of analogue synths, but not to an obsessive level. Furthermore, he did not hold them in particularly high regard until recently, with irritating consequences, as he explains: "I'm not a real 'analogue head', but I know now that there is no substitute for analogue sounds. I did something really silly about a year ago — I had loads of analogue gear: Roland Jupiter 8 and 6s, and a Minimoog... and I got rid of them all! The Jupiter 8 had been superb, but it started to break down. I played a JD800 in a shop, and thought it was pretty cool; it seemed to have the analogue feel. So I thought I could get all the analogue sounds on other equipment — and the old stuff did seem to be sitting there not being used a lot. As soon as it went out of the door, I wanted it back again; when I got the JD800 home, I knew within a week I wasn't happy

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- Drawmer LX20 compressor (x3)
- dbx compressor (x4)
- JVC hi-fi amplifier
- Mackie 8-buss 32-channel mixer
- Morley Wah pedal
- Roland E660 digital EQ
- Sony DTC1000 DAT
- Squier Fender bass guitar
- Tascam DA20 DAT

- Technics SL1200 turntable

- TLA Audio Valve EQ

Sampling

- Akai CD3000
- Akai S3200 (x2)
- Roland W30 sampling workstation

Synths

- Clavia Nord Lead
- Emu Orbit
- Emu Proteus World
- Emu Vintage Keys
- Korg Prophecy

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E U R O D E S K

LIAM HOWLETT ♦ THE PRODIGY

▶ with it. I'm definitely getting the Minimoog back!". To complete the changes to his musical gear, Liam ejected the unsatisfactory JD800 shortly afterwards as well, although a year later, he did fall for the JD990 (see the 'Liam On Selected Equipment' box).

As for the direction in which technology is taking music, Liam doesn't necessarily see every new development as being a step forward: "I definitely think it's getting too easy to write music these days. Take this new thing, the Quasimidi Raven. I tried it and just couldn't believe it — I thought it was a stupid machine, personally. Some of the sounds were good, but in about 30 seconds. I'd written a Euro song. I just couldn't believe that you can have a complete song in such a short time. I'd never buy anything like that; I'm a sampler man, and that's where the interest is for me, not in these pieces of equipment. The more gear that comes out like that, the easier it becomes to write music — but the more difficult it becomes to write good music. There are even modules where you don't need to process any of the drums; they're all there and ready to go. That does annoy me slightly, because it devalues a lot of the work that you put into it. For me,

to move slightly away from that sound is better: I'll try to find another sound, by going deeper into

the dirty side of it, so that people can't just buy equipment and have our sounds ready to go".

WORKING FROM HOME?

I asked Liam if there was any need to go to other, larger studios, or if it was possible to create tracks entirely at Earthbound that were suitable for commercial release. "Each track differs really. With 'Firestarter', for example, I did the entire mix of the backing track here, but without the vocals (see the 'Now With Added Vocals' box for more on the genesis of the 'Firestarter' vocals) — I couldn't get a good result with the vocals here. So, I ended up taking my DAT into the Strongroom [London-based studio], where I work with a guy called Neil McLennan — he's the only person I can work with as far as mixing goes, because he really understands what I'm on about, and he's got some wild ideas himself. So we put the vocal down, and maybe only needed to EQ the DAT very slightly. We recorded the vocal there, and added the mad backward sound effects, and then we just EQ'd the track a bit more in the cutting room". Liam goes on to explain that some of the material for the new Prodigy album has been done in its entirety at Earthbound. "We've just done a hip-hop track with full vocals on. It's up on the desk at the moment — it sounds finished, and I've done it all here. Sometimes you can get a good sound here, sometimes you can't."

LIVE FIRE

The Prodigy have remained committed to live playing over the years, and have established a reputation second to none for high-energy action. Liam has no illusions about the value of performing: ▶



The recording rack, including: Roland E660 digital EQ, Sony DTC1000 DAT, a Tascam DA20 DAT sandwiched between two Boss SE70 effects processors, and two Drawmer LX20 compressors.

LIAM ON SELECTED EQUIPMENT

• KORG PROPHECY

"The Prophecy is one of the few things that produces big distortion as far as a ready-to-run synth goes. It's at its best on stage, though I've used it on just about every track on the new album so far. The programming is so open, it's great for resonant sweeps, and the ribbon is quite handy. You can also record filter changes over MIDI onto the Mac. There are so many different things you can do with it. It's not the type of keyboard I'd go to to start a song with — it's better for distortion and feedback sounds. It's a shame it's only monophonic — it's got some good string sounds."

• EMU ORBIT

"I've only had this about three days... I must admit the drums are good — with most sound modules you never get good drums, do you? I haven't really got into programming it yet though."

• ROLAND U220

"I've had that years. That's one of my all-time favourites for strings; the strings on there are a Prodigy trademark! If anyone puts a bit of chorus on those strings, you get the sound from 'Out Of Space' straight away."

• EMU VINTAGE KEYS

"I'm not that impressed with this, really. I went through a stage of going into my local music shop, and every time they had a new bit of equipment, I convinced myself I needed it. I had to get out of that. I've used this a couple of times — on *Jitted Generation* I used it on about three tracks — but I'd sell it any day."

• ROLAND JD990

"A year after selling my JD800, I did buy the JD990, which I think is really good. I've got all the expansion boards for it, but I don't use many of the analogue sounds off the vintage board — it's mainly used for textures and strings. It's got a good distorted guitar, too."

• ROLAND VP330 VOCODER PLUS

"I've got this upstairs — I borrowed it from a friend to record some stuff for the new album. I think it's one of those things you can use a couple of times, and then throw in a cupboard. It's got some nice strings on it, but you can't get many sounds from the vocoder. The typical '80s electro voice, but not much else."

• EMU SP1200 DRUM MACHINE

"The original hip-hop drum machine. That is *fat!* I'm really into the hip-hop scene, and did a lot of research into the equipment they used to get that real heavy sound. A guy from our record company went to New York and got this for me for my birthday; it was a really good present. It's so nice, just for single drum hits."



The Prodigy's keyboard arsenal (top-bottom): a Roland Juno 106, Clavia Nord Lead, Roland W30 sampling workstation, and the Korg Prophecy.

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A new upgrade for WaveConvert (Macintosh/PowerMac 1.6, Windows 1.2) is now available. New features for the Macintosh include: audio conversion from within Quicktime, pre-processing for Real Audio encoding, custom Creator ID's, improved dithering, preservation of all regions, markers and loops in conversion (SDII, AIFF), and more. New features for Windows include: AIFF support, unlimited number of files, quantisation noise gate, arbitrary sample conversion rates, special dither for speech files, improved file naming conventions, Maximiser and audio quality. WaveConvert was used to prepare Real Audio files for the Metallica website (www.metelub.com) and by the band Nine Inch Nails for converting all the music and sound for the new video game Quake (the successor to Doom from ID software)

Waves' Audiotrack and L1 Ultramaximizer plug-ins are now available for Sonic Soudry's Sound Forge 3.0.

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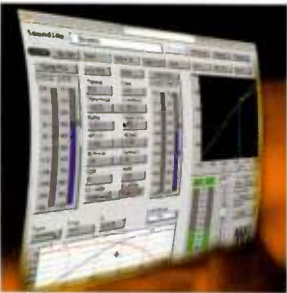


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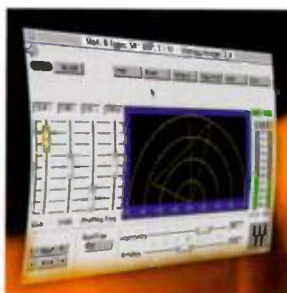
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LIAM HOWLETT ♦ THE PRODIGY

RELUCTANTLY UPGRADING: SAMPLING, SEQUENCING AND COMPUTERS

After many years using a Roland W30 workstation for all his sampling, Liam has recently obtained an Akai S3200 and CD3000. "I've had the W30 for three and a half years or so, but I still use it. The sampling has a nice raw quality about it — the Akais are sometimes a bit too clean. I've got an S1100 on loan at the moment, as my CD3000 is in for repair."

The W30 also used to perform all of Liam's sequencing duties, but here, too, the Roland has yielded to newer technology, namely *Cubase* on an Apple Power Mac: "I did *Jilted Generation* with the W30 sequencer, but afterwards, I thought I could do with getting a few more tracks. *Cubase* has helped my writing quite a bit. I was so stuck with the W30 I never really thought I'd need more than 16 tracks. Also, I was worried I'd change the way I wrote. Now, I try and write the same way I used to on the W30; for example, I try not to copy too many things. I might write something and do an 8-bar section instead of one bar repeated, which is what most people in dance music do. The worst thing is getting stuck in an 8-bar loop — you stick Cycle on, come up with something good, and it goes round and round. Then you get stuck into a groove, and it takes you ages to actually write the song. I try not to use Cycle too much — just until I get a few ideas, then I turn it off."

For Liam, the choice of *Cubase* and the Mac was refreshingly uncomplicated: "*Cubase* was the obvious choice — just because it's the most widely-used program. It wasn't out of any need to try and be clever — I don't think it's the program you use that counts, it's what you've got in your head. Leeroy bought the colour version, but I'm not really into that — although maybe I just didn't like the look of it because he's got a smaller monitor".

Liam's choice of computer platform was made in a similarly simple way, although he did have strong opinions on the Atari ST: "I didn't want an Atari — it's crap! I did buy an Atari, plugged it in once and thought it was just too slow and dated. A friend suggested the Mac; I got that and thought it was much better. The art packages on the Mac are great, too. I haven't got any yet, but I plan to work on my own sleeves eventually."

▶ "Next to the studio, it's the most important thing. Our music is music to perform live to; when I'm writing, that's what I'm thinking about every time. When people think of the band The Prodigy, they don't think of me in the studio, they think of the whole thing on stage. The live side has been especially important over the last three years; I think we've really developed into a better live act than we were. As far as doing shows in America is concerned, if you're a band, you have to play live if you want to sell records".

Liam reveals that producing the Prodigy sound live presents interesting challenges. As with much of his studio work, he relies on his samplers — he has both an Akai and his Roland W30 on stage. "Some of the tracks are very complicated, and you couldn't have all the equipment on stage to run them live — so when I've finished a full mix of the song, I strip down elements — for example, in 'Firestarter', I take the guitar out, because we've got a live guitarist who plays off the backing. I've got all the other samples on the keyboard, and Keith is doing the vocals. 'Poison' is done in a completely different way: I've sampled about 10 different 8-bar sections from the record, then I literally play it in live. I don't know anyone else who does that. It's probably a crude way of doing it, but it's so cool, because you can change things really quickly, and it's how good I am at playing it that makes it work. A couple of times my fingers have slipped off the keys — that's all part of the fun of being live!

"Some bands' music is fairly simple — Orbital, for example. They probably think as they're writing, 'here's our equipment, and we've got to do all this live' — so maybe they're slightly limited. For me, the main thing is just to get out there and do a good show, not to worry about, say, doing a certain bass drum live. That's not the important thing.

"I could never mime to a DAT, though — we've turned shows down where you're not allowed to run up a whole live section, and you've just got to stand there. We have to feel like we're actually producing music there and then on stage, so it can be different every time."

LOOKING TO THE FUTURE

At only 24, Liam has accomplished much, with no sign of letting up yet. Work is progressing on the untitled new album, with five or six tracks pretty much finished, and work on the others underway. I asked about the future, and if Liam has many unfulfilled ambitions. "Once the band finishes, I've always said I'd like to get into soundtracks. I'm starting to make my way in there now. One of my friends, who edits our videos, is doing a film, which Keith's going to be in too, so it should be quite cool." As my tape wound perilously close to the end, I asked if Liam had any useful advice for struggling musicians out there. After a moment's pause, he grinned. "Keith always says: 'You can never have too many SE70s'. That's a good final quote."


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When we think of the great musical technology landmarks of modern times, the humble analogue cassette multitracker is something of an unsung hero, given the ease with which the format has become an integral part of musical life. Over the years the multitrack cassette format has been continually refined, such that today's models are capable of producing truly excellent results. But with that slightly 'squashed' sound, and the limited number of bounces possible before tape hiss becomes a real problem, the cassette was always going to struggle against the new breed of digital formats.

MD DATA

It was therefore only a matter of time before manufacturers found a way to deliver digital sound in a 'cassette multitracker' package. Fostex's DMT8 and Roland's VS880 chose the integral hard disk

INST

route, while Yamaha's new MD4 and Tascam's 564 have both adopted a new digital multitrack format that records onto low-cost removable MD Data disks.

The MD4 manual takes pains to point out that an 'MD Data disk' is *not* the same as a 'MiniDisc'. Currently, the former is primarily used for computer data storage applications, whereas MiniDiscs are used for 'home' music systems. Although the MD4 will happily play back material recorded on a MiniDisc, it cannot record on it. Both disk types come in playback-only and recordable versions, although it should go without saying that you will need recordable MD Data disks to produce any home-grown results from your MD4.

FAMILIAR PACKAGE

Anyone reasonably familiar with any cassette multitracker should quickly feel comfortable with the layout of the MD4. To the left of the control surface are four mixer channels, switchable between the mic/line inputs and track playback. The Mic/Line input sockets are of the standard quarter-inch jack type, as are the footswitch input and the headphone output located on the front edge of the casing. Each channel control layout follows a fairly usual pattern — Gain at the top, followed by the EQ section, the Group Assign switches, the Pan control, the Mic/Line switch and, finally, the channel fader. I might have hoped for a Mute switch, but then these didn't find their way onto many cassette multitrackers either!

The MD4's EQ is typically basic, with 12dB of cut or boost from the shelving 'High' (12kHz) and 'Low' (80Hz) controls, and the peak 'Mid' (1kHz). A sweepable Mid would have made for a more satisfying range of control, but as it stands, the character of the EQ as a whole seems to work well for subtle tonal balancing.

One auxiliary send is provided, operating post-EQ and post-fader, and emerging from the MD4 via another quarter-inch jack socket. I would like to have seen a second auxiliary send, but the added flexibility of the separate track outputs mitigates this to a large extent (see later).

The pair of Group Assign switches follow familiar principles. These allow the source input to be routed to either the track 1/2 buss or the track

Using MD Data disks to deliver superb quality digital sound in a familiar package, does Yamaha's digital 4-track finally sound the death knell for the humble cassette multitracker? PAUL WARD spins the wheel of fortune...

The Sub input is ostensibly designated for the connection of an external submixer, although there is no reason why it should not also serve as an extra pair of EQ-less, line-level inputs. If we include the four Tape Cue controls, this brings the possible total of simultaneous audio signals to 12, which is not at all bad for such an unassuming device.

The monitor selector is friendly and flexible, enabling signals from the main stereo buss, both of the two stereo group busses and the cue buss, all to be switched in at once — if required. A dedicated control adjusts overall monitoring levels and the ganged stereo master fader completes the Master section.

ACTION STATION

To the right of the control surface things require a little more thought for those used to cassette-format recorders. Towards the back is the door, with attendant Eject button, wherein the MD Data disk is slotted before pushing the door back down. Beneath the large, clear LED screen (how pleasant to type those words...) are the main controls. Some are familiar enough; nearest the front edge are the transport keys (although the Fast-Forward and Rewind controls need a little explanation — more later), and it's easy to make out the Track Record Select buttons. With little more than this level of understanding it would be perfectly possible to bluff your way through a basic recording session on the MD4 — and, indeed, I managed to do just that.

To record a take, merely set the channel Group routing, press one of the four Track Select buttons, press Record, adjust the recording level, and finally press Play. Before entering record mode, the MD4 display shows a red flashing ring around the track to warn that the track is armed, changing to a steady red ring as recording commences. Nothing too scary there...

Punch-ins may be made by setting the desired Track Select button, pressing Play, and then hitting the Record button at the appropriate moment. Alternatively, the Record button may be pressed first (which begins playback), followed by a Track Select button. For the player whose hands are busy

ANT REPLAY

YAMAHA MD4 DIGITAL MULTITRACKER

3/4 buss, with the Pan control positioning the signal to odd (pan left) or even (pan right) tracks as required. At mixdown, the Pan control takes on its conventional role of positioning sounds across the master stereo left/right outputs.

The MD4 is generous in its provision of signal inputs. Over in the Master section, we find a level control and grouping switches for both the stereo auxiliary input and a stereo 'Sub' in. The auxiliary returns are again in the form of quarter-inch jacks, whilst the Sub inputs employ phono connectors.

with other things, a footswitch (not supplied) will start playback at the first press, drop in at the second, drop out at the third press, and go into pause mode on the fourth. When in normal playback mode, the footswitch toggles between playback and pause — a useful facility for the control of backing tracks during a live performance.

INSTANT SEARCH & LOCATE

The first culture shock comes when pressing those 'FF Cue' and 'Review' buttons. It is so easy to ▶

pros & cons

YAMAHA MD4 £899

pros

- Excellent sound quality.
- Highly flexible, instant search and locate functions.
- Auto punch-in with rehearse and pre/post-roll.
- Separate track outputs.
- Very clear LED display.
- Cue List system.

cons

- No 'bounce forward' of tracks.
- No digital output.
- No MIDI Machine Control.
- Annoying TOC update system.

summary

A very appealing machine capable of results that belie its size and price. Excellent search and locate features and the powerful Cue Play system make the MD4 a very serious recording tool, while the separate track outputs enable the MD4 to fit into a larger system with ease. Smaller studio owners looking for a painless upgrade from cassette multitrackers will find the learning curve very gentle, whilst reaping the benefits of vastly superior sound quality and slicker operation.

SOUND ON SOUND

YAMAHA MD4

▶ believe you are working with a cassette-based system that, at first, it is tempting to hit the Rewind button to go back to the start of a recording. What these buttons do, in fact, is to cue through your recording at x2 (single press) or x4 (second press) speed. To get to the top of the section just recorded, you simply press the 'Last Rec In' button. No waiting for the tape to wind, no clunks or clicks as the transport does its stuff, and no tape slippage to mess up those cue points. Superb!



are adjustable in single frame steps up to five seconds either side of the mark point. When making such adjustments the MD4 plays back 1.5 seconds of audio before and after the mark point. Usefully, the volume of the two sections before and after the mark differ, and the user can select whether the pre-mark or post-mark signal is the louder. This is especially helpful when compiling markers to act as Cue List points (more later). When the ideal marker point is found, a press of the Enter button stores its new position. Markers are cleared by pressing — surprise, surprise — the Clear button.

Within minutes the technicalities of the search functions ceased to be of any real concern, and I found myself zipping around my recording with little regard for anything but the music I was making — which is certainly the way it should be.

More esoteric functions include the ability to repeat a song, repeat all songs, or repeat between mark-able A/B position pointers. The Program Play function allows you to compile a list of song numbers on disk for playback, with up to 32 steps. Although these features may have more in common with typical hi-fi components than typical pro audio — given the MD4's ability to replay pre-recorded MiniDiscs — they are welcome all the same.

Auto punch-in/out and rehearse features are made all the better for the accuracy of digital location. Punch-in/out points may be set on the fly or tied to the current time position. Once set, the drop-in may be rehearsed as many times as necessary, before committing a recording to disk, with the MD4 muting the record track at the correct point. I was a little bemused by having to set the punch-in point by way of the Rehearse

Locating specific points in a song is an important part of the multitracking process and it is here that digital recording can really score, with its fast, accurate cueing. Yamaha have obviously understood this advantage and endowed the MD4 with several search functions to make the recordist's life easier.

The start of individual songs is located by the Song Search buttons (Forward or Backward). When recording a new song, the Song Search Forward button is pressed to position the MD4 at the next available area of blank disk space, annotated in the display as 'Blank Top'. The Song Search Backward button may be pressed at any time during playback to locate to the beginning of the current song.

The aforementioned Last Rec In/Out buttons simply set the current position to the start or end of the last recorded take. These locate points are automatically updated and stored by the MD4 when any recording is made, but are unfortunately lost once a disk is ejected or the MD4 is powered down.

Up to eight markers may be set within a song, during playback or recording, simply by pressing the Mark button, and a pair of Mark Search buttons allow you to move forwards or backwards through these markers — all performed in an instant. The display always shows the markers used so far, and the nearest marker prior to the current song position flashes — a nice touch.

The Last Rec In/Out and the eight marker points

“The subjective sound quality is leagues ahead of any analogue cassette recording...”

button, whilst the punch-out point is set by the Play button! Wouldn't it have been much less confusing to use the Rehearse button in a similar way to the A/B repeat? Auto punch-in may also be initiated from a footswitch, with up to nine seconds of pre- and post-roll time available.

Track bounces are rehearsed in much the same way as punch-ins, with the usual facility to add extra live tracks via the mixer channels. Although the MD4 is a digital recorder, all bounces are passed through analogue circuitry, so the number is not infinite. I managed to bounce five or six times before I noticed the sound becoming

THAT SYNC'ING FEELING

On the rear of the unit, an intriguing 8-pin DIN MIDI Out socket (do Yamaha have plans for those other pins, I wonder?) carries MIDI Time Code for synchronisation to an external sequencer. No loss of a track to timecode here. Unusually, the MD4 transmits timecode at a fixed rate of 30 frames per second. This is a little inflexible, but most modern sequencers should be able to handle it — I'd suggest you check before you buy.

Equally puzzling is the fact that there is no MIDI Input — indeed there is no capability to accept any kind of sync signal from an external device. I would really have liked to see the MD4 respond to MIDI Machine Control signals at least. Although the review machine did not feature it, Yamaha assure us that MIDI Clock and Song Position Pointers will be implemented on production models, with the ability to define your own tempo maps.

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ALESIS

YAMAHA MD4



playback may not be continuous, but in my brief time with the machine it performed flawlessly. Once you are happy with your Cue List, it's a simple matter to copy the newly created song elsewhere on the MD Data disk (assuming you have free space) to save the fruits of your labours.

Both the disk and individual songs may be given titles which will appear in the display when loading up a disk or selecting a new song. I entered over 100 characters before I got bored — so maybe this could be the place to note down your lyrics! When first selecting a song, your complete title will scroll from right to left before settling on the first eight characters as a steady display. Talking of which, the time display is switchable between the time elapsed from the top of the song, time remaining for the current song, or the total elapsed time from the top of the disk.

Varispeed fans will be glad to learn that the pitch can either be fixed or is variable between -6.15% and +6.13% in roughly 0.15% steps.

QUALITY TIME

There is still controversy about the compressed digital data formats utilised in DCC and MiniDisc machines. The MD4 uses ATRAC (Adaptive Transform Acoustic Coding) compression, which basically compresses audio data to one fifth of its original size, using psychoacoustic masking principles to determine those areas of the audio spectrum that are least likely to be missed by the human ear. ATRAC permits an MD Data disk to hold up to 37 minutes of 4-track audio, rising to 74 minutes of stereo and 148 minutes of mono. The recording mode is set in the Utilities menu and recordings in any of these modes may share the same disk. I tried some stereo recordings of my CDs and, to be fair, I *could* hear a subtle difference when listening very closely — especially on some of the low-level reverb tails, but I certainly wouldn't get worried about it for multitrack work. The subjective sound quality is leagues ahead of any analogue cassette recording and the unwanted side-effects of dbx or Dolby noise reduction are much worse than anything I could detect from the ATRAC system used here.

There is one aspect of the MD4's operation that I take particular exception to — TOC updates. 'TOC' refers to the Table Of Contents area held on the MD Data disk. The TOC contains information about what is recorded on the disk, the disk title, song titles and so on. The TOC Edit indicator lights up when the TOC needs to be updated, usually after a new recording or edit. But it is left up to the user to update the TOC before ejecting a disk or powering down the MD4. Failure to do this can lead to lost data. Fortunately, the procedure for making the TOC updates is little more than pressing the Stop button while the machine is in a stopped state, but I find it a little galling to have to take care of such mundanities. To be fair, the MD4 refuses to eject a disk until the TOC update is made — but why can't it just make the update itself before ejecting the disk? Only once did I

► 'brittle', but in comparison with analogue cassette recordings the results were still excellent, with little or no discernible hiss being added for each pass.

One feature that I am particularly pleased to see is the Cue List. This allows the user to compile a list of edit points to create a new song, using the markers previously specified. I was quite unprepared for such an advanced digital editing feature on the MD4. Admittedly, there is a maximum of nine steps of up to nine repeats each, and Yamaha suggest that in rare circumstances

UTILITY FUNCTIONS

A press of the Utility button yields a menu of options and functions that are accessed by the Select left/right buttons and edited by the Data, Enter and Clear buttons. Here are the main ones:

- Individual tracks may be copied in the digital domain using the Off-line Punch function. The section to be copied is determined by the Last Rec in and out points. Sadly, there's no way to copy with a time offset, which would otherwise have permitted the repetition of chorus vocals

down a track, for instance.

- Whole songs or individual tracks may be erased and songs can be divided or combined, perhaps to enable discrete sections of a song to be worked on in isolation (this would effectively increase the number of marker points available for a single 'song').
- Whole songs can be copied to new song positions to allow a chain of backups, before bouncing or overdubs are performed.
- Sadly it's not possible to 'bounce forward' to a new song copy — this would have the huge advantage of freeing up tracks each time.

forget to update the TOC before switching off the power — and I won't be in a hurry to do that again!

There is no digital output on the MD4 and also no facility to make copies of songs other than to the same disk, though I doubt this will concern most potential users. However, the four separate track outputs are a delight to behold. By making use of these direct outputs and treating the MD4's mixer inputs as direct track inputs, the MD4 will integrate into a larger system as easily as it will function as a stand-alone mini-studio. For the MIDI musician who merely wants to add a few audio tracks to his compositions, this machine will do the job admirably (notwithstanding the fact that MIDI Machine Control would have made for better integration into a typical MIDI sequencing system).

“Although the MD4 is a digital recorder, all bounces are passed through analogue circuitry, so the number is not infinite.”

Although first off the mark with the MD4, Yamaha will soon be up against some stiff competition with the imminent release of Tascam's 564 MiniDisc Portastudio [previewed last month; *SOS* August 96]. This machine purports to include a digital output, bounce-forward, undo and MMC amongst its armoury, although it appears to lack some of the MD4's appealing instant search and locate functions. At the time of writing, however, Yamaha's recorder does seem to have the edge on price.

CONCLUSION

The MD4 has a lot going for it. The sound quality is obviously a big step up from analogue cassette, and the ease with which locate points and drop-ins can be manipulated is something of a revelation — and don't underestimate the advantages of a display that can be viewed from the opposite side of a room! It really is only a very short time before operation of the MD4 becomes second-nature and a return to the drudgery of tape-wind controls seems like trying to swim with lead flippers. The auto-punch and rehearse features make life about as easy as current technology will allow for the sole bedroom musician. Make no mistakes, though — the MD4 is perfectly capable of producing audio of commercially releasable quality, and will undoubtedly go on to do so.

Anyone currently contemplating a high-end, cassette-based 4-track machine would do themselves a serious disservice if they didn't at least consider the MD4. The extra outlay might just make the difference between producing rough demos or polished, edited masters. Aah, the wonders of progress...

SOS

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Gold Plating

MARSHALL JFX1 DIGITAL EFFECTS UNIT



Axe devotees may be surprised to learn that Marshall released this little-known digital effects processor last year. PAUL WHITE gets in his annual half-hour's guitar practice, and finds an overlooked unit worthy of some consideration...

Marshall took their time getting into the digital effects market, but it's nevertheless a brave move considering that, to the best of my knowledge, no other British company has succeeded in building digital effects for the MI and project studio markets. A first glimpse at the JFX1 might lead you to believe that it is a rather tame affair — it offers reverb, chorus, delay, or a multi-effects combination of all three, but no pitch-shifting, Leslie effects, autopanning, enhancement, or any of the other esoterica that we've come to expect from the latest generation of studio effects units. Even so, to dismiss the JFX1 as being too little, too late would be to completely miss the point. The JFX1 is primarily designed to sound good and be easy to use — an important point if you happen to be a guitarist whose only previous experience has been with effects pedals. The included effects have been carefully chosen to work well with the guitar, although they are equally applicable to general studio use; for the more adventurous, up to four parameters per patch can be assigned to MIDI control.

Guitarists tend to be very fussy creatures, and the problem with most guitar amps is that the effects loop works more like an insert point, meaning that both your clean and effected signals go through the external unit. It would be unthinkable to send the dry part of a carefully-nurtured analogue guitar sound through a set of digital converters for no good reason, so Marshall have taken the wise step of keeping the dry signal path analogue and using a high-quality VCA to

handle any necessary gain changes. The 'dry signal path' problem doesn't usually arise in the studio, where you're using aux sends, because the dry sound is invariably turned off, but if you have to use the same effects box both on the road and in the studio, this could be an important consideration.

A BIT OF BACKGROUND

The JFX1 is a mono-in, stereo-out processor using a 16-bit, 64 times oversampling conversion system in conjunction with 24-bit internal processing. This translates to a 20Hz to 20kHz frequency response with a dynamic range of 94dB, which compares favourably with the better studio units around. There's a total of 127 patches to choose from, and the first 50 are preprogrammed with factory settings. These may be overwritten, but there is a routine that allows them to be restored without affecting

“Considering that Marshall set out to build a great-sounding, accessible effects box specifically intended for the guitar market, I can only conclude that they succeeded.”

the remaining user patches. One particularly useful feature as far as guitar players are concerned is the Remote jack, which can be used to channel-switch a conventional guitar amp; furthermore, the Remote status may be programmed as part of a patch.

The styling of this 1U processor is unmistakably Marshall, with traditional gold anodising and

pros & cons

MARSHALL JFX1 £399

pros

- Clean, musical effects.
- Extremely easy to use.
- Good at recreating vintage tape delay effects.

cons

- Competing units offer more flexibility for the same price or less.
- No reverse or gated reverb algorithms.

summary

A good choice for the musician who both gigs and records, especially the guitar player. More difficult to justify the cost for studio use only, unless you really need the vintage tape delay sounds.

SOUND ON SOUND

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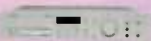
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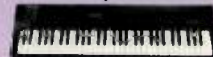
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Marshall JFX1

"The combination effects can get very close to an idealised tape echo, complete with spring reverb and analogue chorus..."

▶ distinctive logo, though I'm afraid they have succumbed to the temptation to use an external power supply. Unusually for a digital processor, the JFX1 has almost as many knobs as buttons — and from a simplicity point of view, there are refreshingly few of either. A 2-line, 16-character LCD window shows both patch names and edit data, and by pressing the nearby toggle switch, you can get a numerical display of the dry and effect output levels to quickly set up your dry/effect balance. The input level is set using a single rotary control, and a lone Peak LED flashes to tell you not to turn up any further! Three data knobs are used to interact with the displayed parameters, and in Meter mode, two of these are assigned to the direct and effect output levels. In Patch Edit mode, these three knobs allow the direct adjustment of three displayed parameters, but in normal Performance mode, they are disengaged.

No multi-effects unit would be complete without Up/Down buttons, but these are provided merely to help you scroll through the patches in Play mode, or to navigate various parameter options in Edit mode. The actual parameter tweaking is done using familiar knobs. To edit a patch, you simply hit Edit, and to get back to the patch you originally left, you push Quit. Where there's more than one page of parameters, pressing Edit again will step you through them.

The System key gives you access to the system parameters, such as the various MIDI options, remote jack operation, and so on, while Store allows you store an edited patch to a selected location. There's little more to the operation than that, and for anyone who has used any form of digital effects unit before, the JFX1 will hold no mysteries.

THE EFFECTS

The effects on offer are Chorus/Flange, Delay, and Reverb, or Multi-Effects. The last of these allows you to combine the previous three effects, albeit with fewer options.

• CHORUS/FLANGE

This actually comprises five different modes, which give mono or stereo chorus or flanging, plus a rich 6-voice chorus which works using six slightly different delay times. Subjectively, the chorus and flange effects work very well, and manage to remain rich and musical rather than simply overpowering you.

• DELAY

Multi-Tap mode combines a 6-point multi-tapped delay with chorus, and here you can adjust each delay tap individually up to a maximum of 730ms, then set how much chorus you'd like applied to each tap. You can also alter the stereo pan position of each tap, and there's separate control of overall feedback from the left and right outputs

back to the input, to create decaying repeats. This is probably the most time-consuming effect to set up, but you can get some very warm and dynamic sounds out of it.

The more basic delay effects offer the familiar mono, stereo and ping-pong modes, where the maximum delay time is 1660ms in mono or 830ms in either of the stereo configurations. Setting these up is fairly simple, and really only involves choosing a delay type, dialling in a delay time and then setting up the necessary amount of feedback to give the right number of decaying repeats.

• REVERB

Here, the traditional categories of Plate, Room, Hall and Large Hall are combined with the terms Dark, Warm, Standard and Bright to provide a good range of starting points. Once selected, you can alter the reverb decay and the HF decay characteristics, but there's no pre-delay, or any of the other fancy parameters you often find in modern studio reverb units. In spite of its apparent simplicity, the reverb section sounds very good, and works especially well with guitars.

• MULTI-EFFECTS

Good though the individual effects are, the most fun to be had is with the Multi-Effects, where chorus, reverb and delay are combined in parallel and summed to a stereo output. In this mode, the delay is also followed by a ducker circuit, which is very effective if you want the delay level to swell only during breaks in your playing. There are four ducker settings to choose from.

Some of the effects in this mode are pared down a little to share out the processing power and memory, but you still get a choice of four chorus types, the most complex of which has four taps rather than the six available in the main Chorus mode. The maximum delay time is now 739ms (still sufficiently long for most tasks), and you get to choose from three basic delay characters: Clean, Warm or Dark, which apply to both mono and stereo delays. Clean is basically a straight delay, while Warm includes some HF damping. Dark offers more damping to really soften the sound of the delays, but an unexpected bonus is that you can also select from four types of compression, which squeeze the delayed signal in a way that makes it sound very much like a vintage tape echo. Now, why aren't these options available in the *main* Delay algorithm?

The Reverb section suffers the most simplification in Multi-Effect mode, leaving you only with control over the decay time. What the maximum reverb decay time is isn't entirely clear, but it is adjustable up to several seconds. The relative levels of the chorus, reverb and delay contributions can be adjusted independently, and a finished patch can be given a name up to 12 characters in length.

MARSHALLING THE THOUGHTS

Admittedly, the effects options available on the JFX1 aren't as comprehensive as you'd find on a

MIDI & PATCHES

Patches may be called up using MIDI Program Change messages, and as seems to be standard practice, you can create an assignment table to map specific patches to specific Program Change numbers if you need to. Though the MIDI side of the operation is fairly simple, you can still opt to work on any MIDI channel or in Omni mode, and up to four parameters per patch can be selected from a list to be assigned to real-time MIDI control. Any MIDI Controller number between 0 and 121 can be assigned to these parameters, and the setup can be different for each patch.

Patches may be dumped or loaded via SysEx, and one sensible feature is that the Utility pages allow you to monitor the condition of the internal battery, which is necessary to retain the patch information when the unit is switched off.

typical studio processor (even one costing less) but despite this, the quality of the effects provided is surprisingly good, both artistically and technically. The main advantage of this unit is that it's very quick and easy to programme, largely because all irrelevant parameters have been omitted, and those remaining have been rationalised where possible. Perhaps the most successful effects are the multi-tapped chorus and the combination effects that can get very close to sounding like an idealised tape echo, complete with spring reverb and analogue chorus — but even the basic 'bread and butter' effects are clean, vice-free, and very musical. The inclusion of both a ducker and optional compression in the Multi-Effect delay algorithm is a big bonus in recreating classic sounds easily, and for guitarists using dual-channel amps, the ability to include channel switching as part of a patch is only to be welcomed.

No unit is perfect, and I can't help wondering why the ducker, delay filtering and compression aren't available in the delay-only mode; and when it comes to reverb, why no pre-delay or reverse/gated algorithms? I would also have liked to see better input metering, and knowing what kind of peak signals guitars can generate when pushed hard, some kind of analogue limiter on the input stage might also have been a good idea.

Having made that point, the JFX1 seems less prone to overload than many of the digital effects units I've tried — so maybe they've slipped something in and just not told us about it!

In the studio, the JFX1 is perfectly competent, but offers less scope in terms of the range of effects it can create than something like the Alesis Midiverb 4. Because of this, I wouldn't recommend the JFX1 as a first choice for exclusive studio use, but if you're a guitar player who wants something to use on gigs that's also up to scratch for studio use in terms of sound quality, the JFX1 starts to look like a much better proposition, and its supreme ease of use means that even total novices won't be intimidated by it. Considering that Marshall set out to build a great-sounding, accessible effects box specifically intended for the guitar market, I can only conclude that they succeeded.

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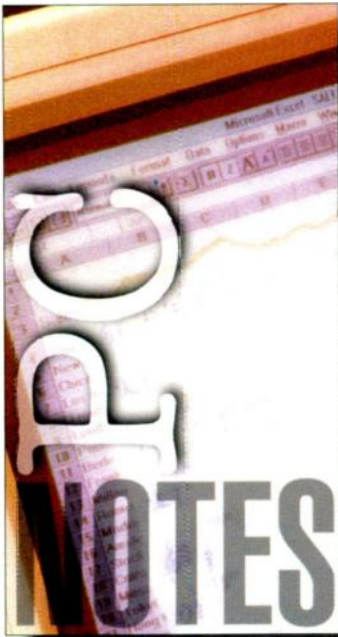
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The ability to make your own audio or data CDs with your PC can be enormously useful and is becoming cheaper all the time. But what exactly do you need to buy?

BRIAN HEYWOOD finds out.

Without trying to blow my own trumpet too loudly, the burgeoning of CD Recordable (CD-R) technology has been predicted by this column over the last couple of years. However, the revolution isn't over yet; this technology is so mind-bogglingly useful that I imagine that loads of new ways of using the ability to create your own CD-ROMs (and CDs) have yet to surface. For instance, I've heard that a device driver provided with the JVC ROMmaker system allows you to write to a CD-ROM as if it was a hard disk, allowing any PC application to create files on a CD-R — just think how useful this would be for backing up your data.

The road to CD-R heaven isn't entirely without its pitfalls, though: for instance, there's currently a worldwide shortage of CD-R blanks, which is pushing up prices at the moment. However, production problems like this tend to be short-lived, and no doubt another CD-R plant will come online and the prices will drop again. There are also potential problems with CD-R drives. I've been using Yamaha drives (the CDE100 and 102) which give excellent results with a wide variety of brands of gold disc blanks, but I've heard of other folk having problems with some of the cheap and cheerful drives now hitting the market. It seems that some drives are optimised for certain brands of CD-R blank. So sticking to well-regarded

brands of drive — like the Yamaha ones — can reduce the potential for media problems.

How can the PC musician take advantage of this developing technology? The most obvious application is creating a one-off audio CD for your demos, or delivering a finished product to your client or CD mastering plant. When mastering CDs, you can save money, since you

“Attaching a CD-R drive to your PC is by far the cheapest way of obtaining the facility to create audio CDs.”

can bypass the requirement for PQ encoding of your digital master and go straight to the glass mastering stage. Gold discs aren't the preferred format for CD mastering plants, since many have experienced quality problems with CD-R disc masters. But this 'unreliability' of the gold disc format can be reduced quite easily by being careful, both with quality of the blanks and with handling discs.

The quality of the gold disc blank is a very important factor in the reliability of the master.

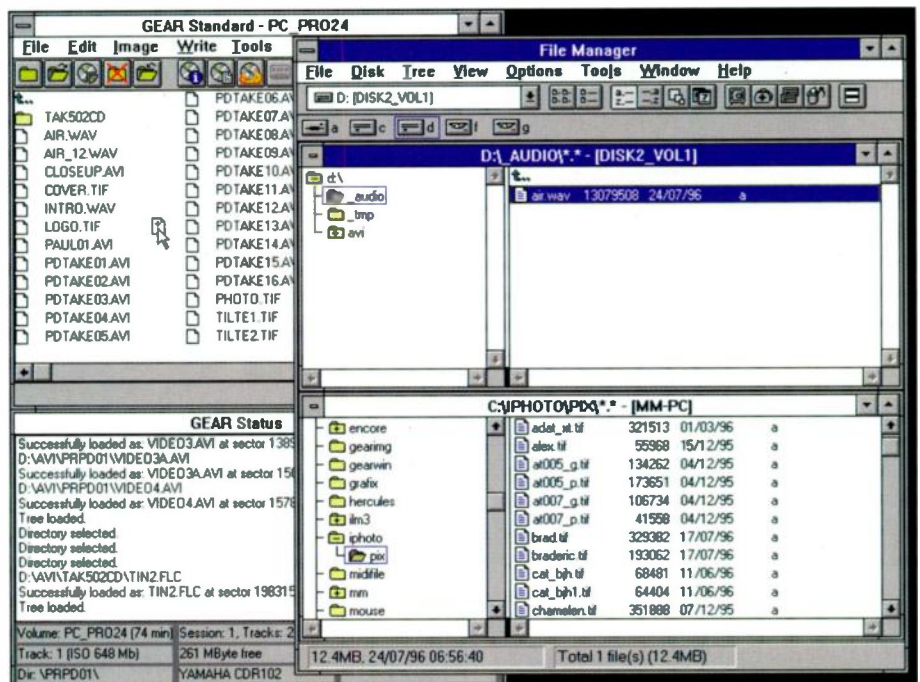
**THE GOLD STANDARD:
RECORDABLE CDS**

A CD-R drive uses special blank CD-ROMs that have a gold appearance, and are thus called gold discs. These discs are actually a sandwich of a gold film, an organic dye, and a clear protective lacquer. The CD-R drive's laser causes the dye to change its reflective properties, giving a similar effect to the microscopic 'pits' found on a mass-produced (silver) CD. The upshot of this is that a CD-R gold disc can be read by a standard CD-ROM drive or domestic CD player, making it an ideal medium for archiving, distributing large amounts of data, or creating one-off audio CDs.

Some gold discs are almost transparent, which means that the sensitive reader used in the CD plant for the mastering process picks up interference from the printing on the top surface of the CD. Another important factor affecting quality and reliability is the care taken in handling the finished gold disc. The mastering process involves reading the raw audio data off the master CD, and any dust or fingerprints will cause errors that will be transferred to the glass master. If too many errors are present, the plant will need to re-master the disc — and charge you for it, of course.

GETTING INTO GEAR

If you'd like to start creating discs on your PC, CD-ROMs are simple enough, since this is the most usual use for CD-R on a PC, and there are a number of low-cost CD-ROM mastering packages available for Windows. Creating audio or mixed mode (data + audio) CDs is a different matter, and you usually have to go



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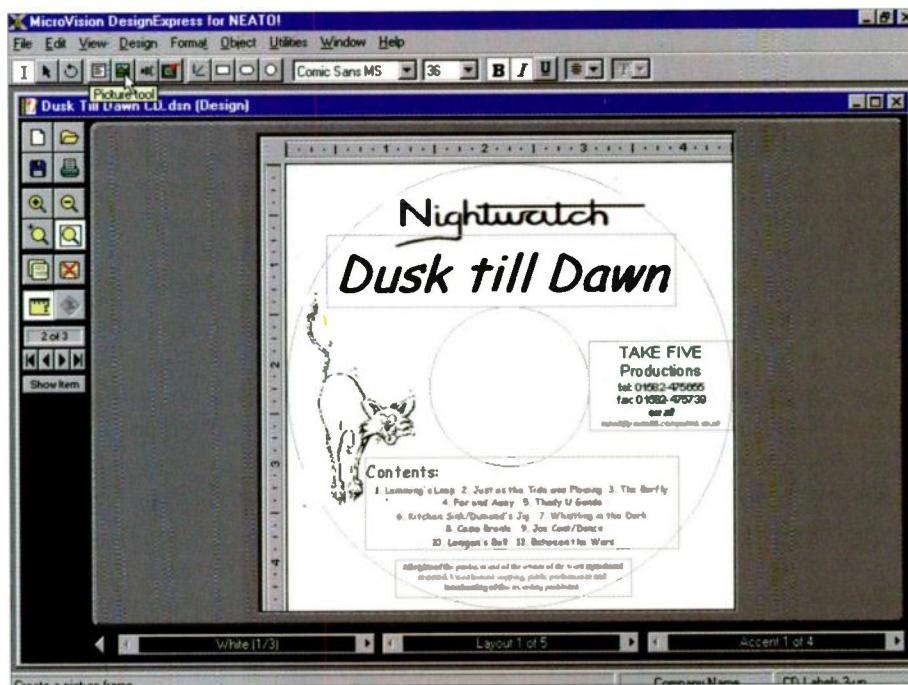
► upmarket somewhat to get this facility. One exception to the rule is an application called *Gear*, from the Dutch company Electroson. This is a pretty comprehensive package which has versions for most operating systems — Windows 3.1, Windows NT, Windows 95, and Mac OS — not bad for a budget package.

Under Windows 3.1, *Gear* works in conjunction with the File Manager, allowing you to select files by 'dragging and dropping' them into its main window. As you can drag entire directories, you can very quickly create an image of your hard disk ready for copying to CD. Using *Gear*, you can create multiple tracks, which you specify as being data (first track only) or audio. To define the contents of an audio track, you simply drag a CD-quality WAV file (16-bit stereo, 44.1kHz) into the appropriate track window. The audio side is pretty basic, and you need to have enough disk space to hold the WAV files — allow 10.5Mb for each minute of audio — but *Gear* offers quite a simple way of making audio CDs.

Of course, there are other ways to create one-off CDs: more and more professional PC-based non-linear editors (hard disk recorders), like SADIe, and Creamware's TripleDAT, have added this facility, along with full PQ encoding and subcode. There are also stand-alone units, like the Marantz CDR-620/615, which allow you to 'record' a CD in rather the same way that you make a tape. However, attaching a CD-R drive to your PC is by far the cheapest way of obtaining the facility to create audio CDs. To get the *Gear*, you need £99, and it's available from CD Revolution (01932 562000).

CD LABELLING

Once you've created your CD, you'll need to label it. One of the slightly disappointing aspects of creating a gold disc is that you can only label it with a soft felt-tip pen — you



NeatO's label-design software allows you to combine text and graphics to produce professional-looking CD labels on your laser or inkjet printer.

can't normally stick printed labels on a disc. Using standard labels can give you problems, both by upsetting the balance of the spinning CD, and because the glues used for self-adhesive labels can attack the gold film backing on the recordable CD, eventually making it unusable.

One labelling system I've recently come across is the rather bizarrely named NeatO from MicroPatent UK — one of the world's leading publishers of information on CD. Apparently, they developed the system so that they could produce short runs of CDs for their own clients. The package comes in three sections: a set of pre-cut, self-adhesive labels suitable for laser printing, a plastic contraption for applying the labels to the CD, and a label-design software package. The labels cover the entire surface of the CD, so there's no danger of the disc becoming unbalanced, and the adhesive has been undergoing accelerated life testing to check that it doesn't attack the plastic of the CD. The Windows-based label-creation software is pretty nifty, and allows you to place text and graphics anywhere on the label, with curved lettering effects, and so on. You can also define templates for labels you produce on a regular basis, with automatically updated date fields.

The plastic label applicator allows you to

“A CD-R gold disc can be read by a standard CD-ROM drive or domestic CD player, making it ideal for archiving, distributing large amounts of data, or creating one-off audio CDs.”


affix the label without touching the business side of the CD and ensures that the printed label is applied evenly to the top, without wrinkles or bubbles. You have to be a bit careful to get the best results, but in all this is a very useful little product that can be used with any type of blank CD. The kit — software, applicator hardware and 99 labels — costs just under £65 and is available from MicroPatent on 0181 932 0540.

GETTING ON-LINE

If you want to look at the screen shots for the items in this column, or link to the web sites listed in this (and previous columns) point your web browser at the PC Notes area on Route66 at:

<http://www.compulink.co.uk/~route66/sos/>

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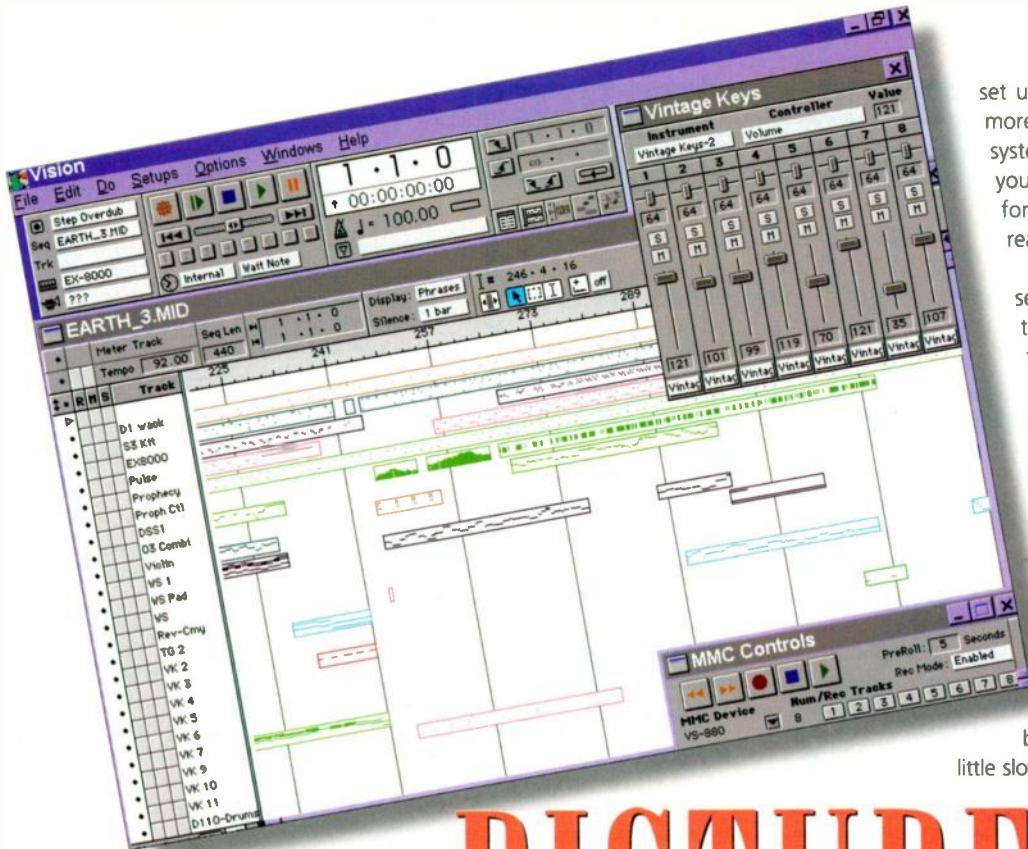
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One of the Mac world's sequencing front-runners, Vision has been ported to the PC, where it faces some stiff competition from the established packages. PAUL NAGLE goes all visionary...

PICTURE THIS

OPCODE VISION 2.5 FOR WINDOWS

The world of MIDI has perhaps been slow to realise it, but there's an awful lot of PCs out there (there's a lot of awful PCs too, but that's another story entirely!). Enter Apple Mac dudes Opcode, sensing the flow of serious money, and following in the wake of Cakewalk, Steinberg, Emagic, and MOTU. Have they allowed the competition to get too far ahead? Does *Vision* have anything fresh to offer when compared to products such as *Cubase* and *Logic*, which are now well bedded in? At first glance, the answer to the latter question seems to be 'no'. *Vision* isn't Windows 95 native, it doesn't have any audio capabilities or flashy MIDI delay lines/arpeggiators, and its management of patches will probably necessitate quite a bit of typing. But don't write it off yet — *Vision* has quite a few appealing aspects, not least its simplicity and understandability, plus one or two tricks up its sleeve.

VISION VIEWS

Vision is supplied on just two 3.5-inch, 1.4Mb disks, and its installation routine provides you with both the *Vision* sequencer and OMS — more about the latter in a moment. Thankfully, the program is not protected, so there are no dongles or cranky software keys to worry about. Neither are there any flashy demo or tutorial songs — instead, you're invited to follow the 'Getting Started' manual and actually record something yourself. Before doing that, though, you need to

set up OMS — see 'OMS & the PC' box for more details on this MIDI studio configuration system. Once you've mapped out and tested your studio connections, and selected icons for each item in your studio setup, you're ready to run *Vision* for the first time.

The highest working level within *Vision* is a sequence, which may contain either MIDI tracks, other sequences, or a mixture of the two. The sequences window lists each sequence by name, and selecting each one activates its own track view. This, in keeping with current fashion, is a *Cubase*-style arrange window with track details on the left, and musical parts represented as discrete chunks of coloured data (the colours being propagated from the instrument definitions). A number of view options are available, ranging from discrete musical patterns, to regular blocks or entire tracks with miniature representations of the MIDI data. In block view, I found busy screen redraws a little slow, and more zoom options wouldn't have

gone amiss, as the track names weren't always clear to my ageing eyes.

Unlike most of its contemporaries, *Vision* works equally well with pattern-based or the more conventional linear method of arrangement. Individual sequences can be created and edited, then assembled later into a new composite sequence. Since sequences can be triggered from the keyboard, you can play them manually, even down to recording the results into a new sequence when you're happy. This brought back fond memories of Dr T's *KCS* program on the Atari ST and, for me, is still the fastest and easiest way to work, although I'd like to be able to drag-copy parts between different sequences. And the fun's not over yet, because you can generate new sequences based on material you've already recorded. *Vision* takes elements of note timing, duration, order, and so on, and creates new tracks based on a series of dialogues. The final results vary with the source material, but I found this to be surprisingly useful for shifting the perspective of a riff or bassline, whilst maintaining elements of the performance. Tracks can be looped individually, regardless of length, and entire sequences can also be looped — if triggered from the keyboard, they can even run at their own tempo — something to make smaller PCs sweat with the effort, I'm sure.

Vision has extensive online help, consisting of a series of black and white boxes of small text, which

pros & cons

OPCODE VISION £234

pros

- A program with no wasted features.
- Option of working in a pattern-based way is a welcome change.
- Powerful input mapper.

cons

- A little expensive for what's on offer.
- No audio facility.
- No drum grid editor.
- On-screen sliders inflexible.

summary







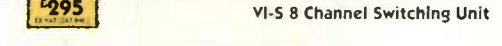
A sequencer that's a delight to work with. Unlike its competitors, you'll probably use all *Vision's* features at some time, and it has several unique aspects that are truly inspiring. The inclusion of the Open MIDI System predicts happier days for Windows users, although we're not there yet.

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Alex Marcou - Abbey Road Studios (House recording engineer) - "The VI makes hard sounding digital sound file only... rounded analogue - a joy to listen to. The control that the EQ, the Amps & Compressors give is excellent."



Andy Jackson - Pink Floyd Sound engineer - "All the lead vocals on the 'Division Bell' album mix were run through the EQ-1. I certainly prefer the EQ-1 to other Valve Equalisers for vocals. The new EQ-2 is probably the best all-round EQ I've ever used."



Chris Porter (Producer, Take That) - "I bought one of the first EQ-1s and I've enjoyed using it immensely. It gives a unique quality to the vocals. In particular 'Take That's Back For Good' is a typical example of the EQ-1 adding depth and presence to a vocal track."

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- 4 track
- 4 track

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- 4 track
- 4 track
- 4 track
- 4 track
- 4 track

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- 4 track
- 4 track
- 4 track
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- 4 track
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- 4 track
- 4 track
- 4 track
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- 4 track
- 4 track
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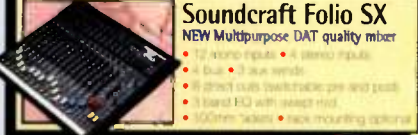
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► look decidedly un-Windows-like. If you didn't know this program was ported from the Mac, these panels and most of the dialogue boxes should give you the hint (quite a broad hint in the case of help for the MIDI Keys function, as it states that you can "generate any Macintosh keystroke..."). Context-sensitive help is available with the messy key combination control-alt-shift-mouse click for input fields, and control-alt-shift-choose for menu items, as opposed to the more normal F1. (That said, the help is invaluable and means you're not constantly leafing through the manual.) The Windows menu isn't exactly as you might expect, either, having no tile or cascade options; instead there is a list of all the main windows which you can open. You can set default locations for many of these, which is handy, because you can very easily fill your screen with the little blighters.

TRANSPORT OPTIONS

Vision's large control bar is the central point for most routine operations:

- The Record Mode box lets you set whether you wish to overdub or replace existing data, in either real or step time. Being able to step-time record directly from a track window is a neat way of creating backing patterns and rhythms without having to enter an editor.
- The Current Sequence box displays or selects a sequence for recording. Pick one from the pop-up menu and its corresponding track view becomes active.
- The Current Track pop-up shows the record track within the sequence. I did find it strange at first that selecting a track didn't automatically make it the record track, but I soon got used to it. Only one track can be selected for recording at once, but as a track can handle multiple MIDI

channels, this doesn't present any real problems.

- The Thru Instrument box shows the instrument currently assigned to the record track, and features an additional set of trigger and transpose modes, which define the way that sequences can be triggered from keystrokes.
- The Current Patch box completes the track/sequence controls and is a handy shortcut to the patch list for the instrument you're working with.

Next are the familiar transport controls, with two play buttons (one to play from the start, the other to play from the current position), record, pause, stop, and so on. Nipping smartly around your blossoming composition is facilitated by eight counter locations, or by the Previous and Next marker controls, which advance through the markers set in the Markers pop-up. Finally, the shuttle bar moves the counter at variable speeds according to mouse position, either when stopped or during playback, functioning as an effective forward/backward audio scrub.

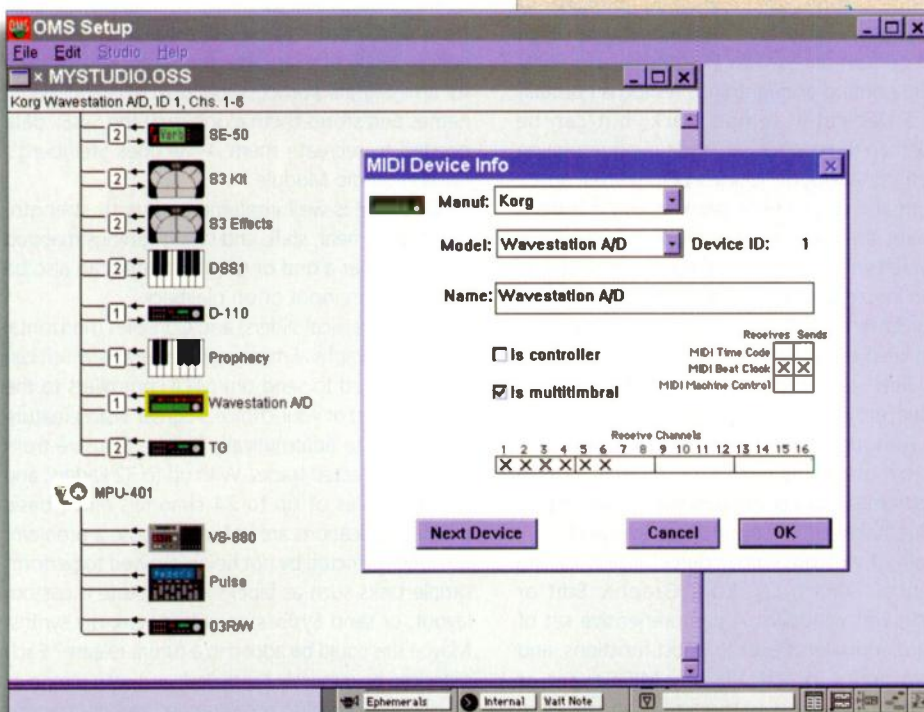
A quick short-cut to the Sync menu reveals all the expected controls, including internal, external, SMPTE, MMC (MIDI Machine Control — for which there is a separate transport window) and Remote (where *Vision* waits for another OMS-compatible application to tell it to start). Recording can be set after a count-in, or with the 'wait for note' option favoured by those of us who resent a machine telling us when to start playing. Incidentally, there are extensive options provided for re-clocking performances made independently

"I found *Vision* to be one of the easiest programs of its kind to use, yet with enough power to accomplish any task with the minimum of fuss."

VISIONS OF THE FUTURE: OMS & THE PC

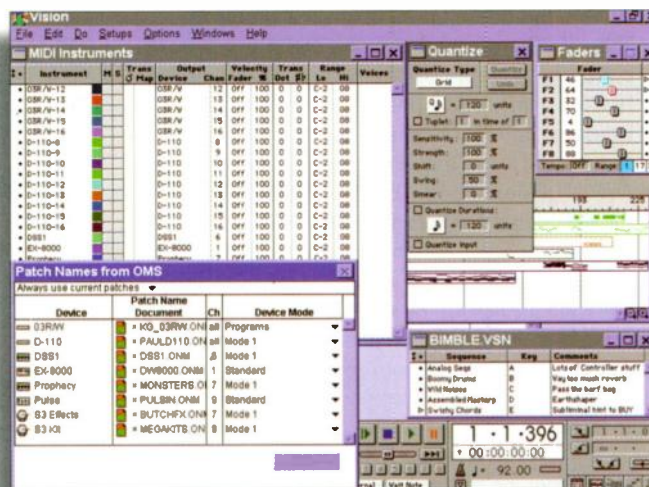
Opcode's Open MIDI System was devised on the Mac as a central point for all MIDI-related interface and device information, and now Opcode have made a deal with Microsoft to incorporate

OMS into a future release of Windows 9x. Certainly, this should be an improvement on Windows 95's half-baked way of handling audio and MIDI, though such facilities will only be really beneficial if everyone joins in. OMS 2.0, as supplied with the PC version of *Vision*, is a basic affair; it sniffs out all installed MIDI interfaces and represents them graphically. From its main screen, you define which synths, controllers, drum machines, and so on, are connected to each port, specifying their channels and transmit/receive requirements. A warning message tells you if you add instruments whose channels overlap. Opcode provide a (far from exhaustive) list of instruments, but thankfully there is provision for adding unknowns. Those that are known are supplied with an initial bank of factory patch names, which can be edited if required. This is an area which has great potential, since any OMS-aware application will have common access to the studio file, so that patch-bank updates made in editors and librarians will be reflected in the current studio settings which, in turn, will be known throughout the system. I wouldn't like to speculate on how long this may take to become established, though, as there is currently no release information for a Windows version of *Galaxy* (Opcode's own universal librarian). With Microsoft's backing, things look hopeful. Eventually.

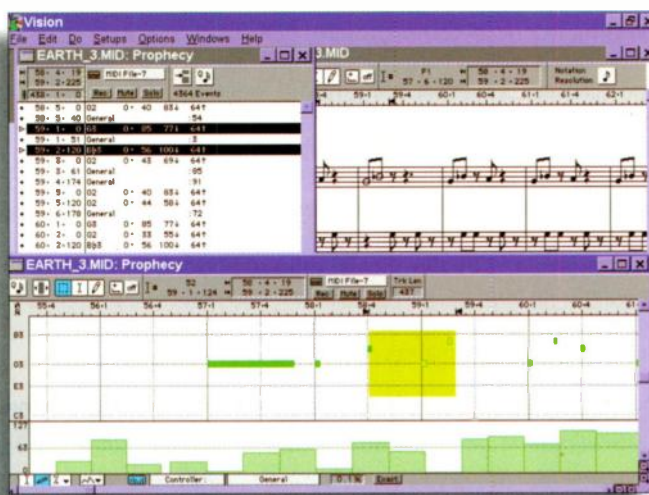


OMS Setup screen — turn your studio into dinky little icons with OMS.

OPCODE VISION FOR PC



The Instrument/Patch definition windows, with Quantise box (top right) and Sequence list (bottom right) also visible.



Vision's List editor (top left), Graphic editor (bottom), and Notation editor (top right) screens.

► of the metronome, and with a combination of re-clocking and 'scale time' facilities, you can align *rubato* performances with Vision's bar divisions, for score printing or quantising. Tempo is normally set in a dedicated tempo track, but can be overridden on the control bar, and timing resolution is a healthy 480ppqn (pulses per quarter note). Punch in and out settings work as you'd expect, and these are used in loop mode to select the area which will cycle, either in record or playback; you can loop record in replace or overdub modes. Hitting 'Enter' as you record confirms that you wish to keep everything recorded up to that point, and 'Delete' erases all the notes that have been recorded either from the start or the previous Enter. Although you can use Control-up/down arrow to move to the next track, there is no auto track increment facility to allow you to keep many individual takes of, for example, a solo part.

Finally, five icons allow quick access to the Sequence, Tracks, List Edit, Graphic Edit or Notation Edit windows. A comprehensive set of keyboard equivalents exist for most functions, and you can define practically any MIDI event or combination of events to trigger Vision keyboard

commands, or even sequence playback. A small black dot, which flashes during recording, is the only visual indication that MIDI is being received. I'd like to see this improved, as a decent MIDI In/Out indicator is invaluable when you're scratching your head and wondering where the sound went.

INPUT MAPPER

Now, this is cool. By setting up an input map to respond to different incoming channels, it is possible to route the outputs of two or more keyboards to different modules, complete with keyboard splits, if required. The serious stuff starts when you trigger sequences from incoming events, resulting in instant Wavestation-type patterns. Since you aren't constrained by the type of data in a sequence, you can trigger not only notes, but MIDI controllers too. The number of applications for this feature are legion — it could perhaps be utilised to recreate vector synthesis by producing volume fades to blend a number of instruments at each keystroke, or to trigger special phrases, or even synth patch edits. Different triggering options allow you to re-start the sequence each time a note is played or wait until it finishes before starting again. In gated mode, the sequence plays only while a note is held down. Simultaneously-played notes start and transpose separate copies of the sequence, and since you can record the results into a track, you can create a layered cacophony of looping mayhem, recalling the power (if not the bulk) of sync'ed-up analogue sequencers.

Custom layered instruments, featuring favourite combinations and/or transpositions, can be created. In overflow mode, a number of synths can be used together, by specifying the number of voices each can produce — you can create complex multi-instrument chords or reduce a polyphonic synth to a single note in this way. Patch details are retrieved from OMS, but can be edited using the Name editor. While this is pretty good, it's no substitute for an integrated process that discovers your patch names and stores them along with the SysEx data needed to recreate them — as does Steinberg's *Cubase Studio Module*.

Quantise is well implemented, with strength, sensitivity, smear, shift, and swing settings mapped against either a grid or groove. Notes can also be quantised on input or on playback.

Faders (vertical sliders) and Consoles (horizontal sliders) are graphical mixer representations which can be configured to send out MIDI controllers to the instrument(s) of your choice. A great Vision feature allows you to automatically build a Console from currently-selected tracks. With up to 32 Faders, and four Consoles of up to 24 channels each, basic mixing applications are unlikely to pose a problem, but I felt restricted by not being allowed to perform simple tasks such as label sliders, create a custom layout, or send SysEx strings to tweak my synths. Maybe this could be added in a future release? Each slider can be remotely controlled, and with tempo as an option, recording *accelerandos* and *ritardandos*

SYSTEM REQUIREMENTS

- IBM (or compatible) PC, 486/66Mhz or faster.
- Windows 3.1 or Windows 95.
- 12Mb RAM (16Mb recommended).
- 8Mb free hard disk space.
- Windows-compatible MIDI interface.

VISION IN SOS

The Mac version of Vision has been reviewed several times in SOS:

- Vision (original version): October 1989.
- Studio Vision: February 1991.
- Vision 1.4: January 1993.
- Studio Vision Pro 3.0: part of four audio sequencers overview, December 1995; full review in March 1996.

with, say, a mod wheel, becomes far easier than dragging a mouse or using the keyboard.

EDITORS

Notes may be edited in the usual ways: there's the List editor, which shows individual events in text format; a Graphic piano-roll editor, which you use to move notes around, paint in new notes, and so on; and a Notation editor, which does its job well enough without threatening the dedicated scoring packages. For most uses, this editor functions very well, and I found its printed output more than adequate for my own needs.

Multiple instruments can be edited at once, and a handy selection box allows you to decide which ones to work on at any time. The Notation and Graphic editors have a strip controller window at the bottom, where you can draw or edit a wide variety of MIDI data, including note duration and velocity, tempo, and data generated by the Faders and Console windows. This is superb for graphically tweaking a mix without having to go back to the sliders and re-record it. The only omission is a drum grid editor, although the piano roll will handle this job at a pinch.

Individual notes may be selected using sophisticated filters; duplicates or near duplicates can be found and removed, and events may be processed according to their position within the bar or relative to other events. In most cases, you can enter note values directly by clicking on a field and hitting a note on your MIDI keyboard. Controller data can be reduced by a user-defined percentage, or increased (to smooth out a stepped curve, for example). In Exact mode, all changes performed graphically bring up a dialogue box, so you can fine-tune your edits using numbers. Transpose is a very musical affair, as it includes modal (major, minor, melodic minor, harmonic minor, Dorian, Lydian) operations, as well as the more familiar semitone shifts. Transpose Maps allow any MIDI note to be translated to any other — and as with many *Vision* options (faders, input maps, MIDI keys, sequences, and so on), these can be saved and loaded separately.

CONCLUSION

Vision appears to have no frivolous or superfluous features; no dark corners for you to explore on a rainy day. I felt the Faders and Consoles were a little basic, and I missed an automatic way to grab patch names, although when OMS becomes widely established this should be less of an irritation. If you like to assemble music in small snapshots, or to experiment with looping patterns of unequal lengths, *Vision* looks very attractive. With audio being included in most other Windows sequencers, perhaps a lower price would have reflected this omission, but nevertheless, I found *Vision* to be one of the easiest programs of its kind to use, yet with enough power to accomplish any task with the minimum of fuss. In fact, by concentrating on only the most important facilities, you can better see the wood for the trees, and the extra frills that are provided are well chosen. Naturally, I managed to crash it hideously several times (saying a not very fond farewell to Windows 95 in the process), but setting this and the ugly dialogue boxes aside, *Vision* is a very creditable first attempt at a Windows program. If you haven't decided on what's best for you, and don't need the audio facilities offered by the competitors, take a long hard look at *Vision*.

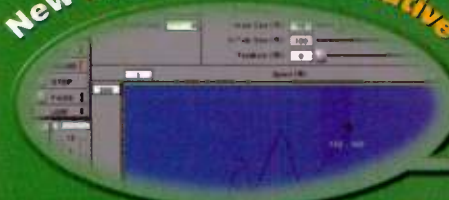
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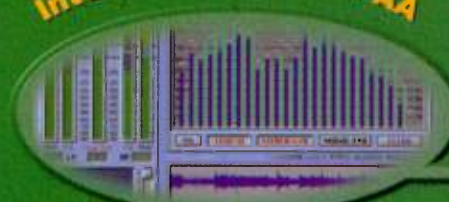
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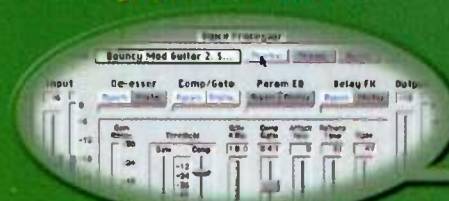
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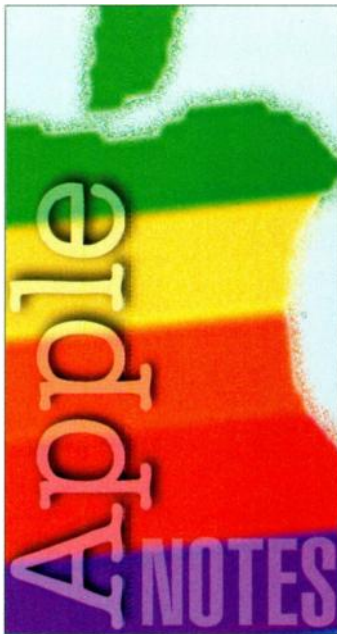


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MARTIN RUSS brings you the latest news direct from an Apple R&D gathering, and takes a set of Allen keys to some expensive digital audio hardware...

On a hot and sticky evening earlier in the summer, Apple held the Broadcast Solutions Event at BAFTA in London. A team of evangelists from the Apple R&D laboratories were on hand to answer questions from an invited audience of TV, news, broadcast and media people — and me — and there was a demonstration of how to put a broadcast-quality video together, from script to screen, in about 20 minutes.

I spoke to Jonathan Knowles, the Senior Product Manager for QuickTime, and he showed me QuickTime 2.5, which he claimed would be out by the time you read this. This is the version with the proper QuickTime Music Architecture built in, which means:

- OMS support is now included;
- You can now Drag & Drop AIFF soundfiles

(and other formats) to provide sampled and synthesized musical instruments;

- 44.1kHz/16-bit sounds are now available (if your hardware can cope);
- Yamaha, Korg, InVision and other sound sets will be available (these can contain synthesized and sampled instruments);
- The QuickTime musical instrument editor has been greatly improved.

With this release of QuickTime, the MacOS (Macintosh Operating System) and Windows versions are finally synchronised, so developers can now provide moving pictures, audio and music across computer platforms.

I've been asked why I frequently mention QuickTime in this column. The answer would have been very apparent if you had been at the Broadcast Solutions gathering. Here was an event targeted at people who work in TV (not hi-tech music) — and the major focus was to discuss the progress towards a universal digital media format — as well as try and push Apple-based systems as a neat way to edit video. Acronyms and abbreviations were much in

This brings me to the answer. I mention QuickTime because it shows the way that audio, video and music are becoming ever more convergent. When I learn that the BBC have over 70 Digidesign Pro Tools systems, and the demonstrator for the *Media 100* video editor happily edited his video material and his soundtrack simultaneously using the same program, then anyone using a MIDI sequencer with a few audio tracks who is also sync'ing to video players should be aware of it. MacOS musicians need to keep aware of what is happening out there, because the future is wider than just CDs — the future is CDs, videos, on-line magazines, TV programmes that look like magazines...

Having mentioned the BBC, their new multimedia site is worth a visit; it uses a host of Macs and QuickTime VR. Check out the web site given in this month's 'On The Net' box.

HOW IT WORKS: TDM

Using a Digidesign Pro Tools system for a month or so (as I have done in order to write



Digidesign's Digital Audio Engine Splash screen.

evidence: QT 2.5, QT3D, QTVR, QTTV, RAVE, 3DMF, AVI, OMF and more. With demonstrations of 'best of breed' ways of non-linear editing audio and video from MediaSpec and the Tyrell Corporation, it was serious stuff.

this month's *Digital Performer* review for *SOS* — see page 124), you come to appreciate how daunting Digidesign's products can appear from the outside. I've always aspired to buying one, but I've never quite got around to it, and so I had only a sketchy grasp of how it all fitted together. On the assumption that I'm not the only one, here's a brief guide to some of Digidesign's wonderful MacOS computer expansion goodies.

Digidesign's Audiomedia cards are straightforward in concept — they provide basic audio I/O capability with EQ as the only audio effect. But a Pro Tools system contains rather more. The underlying enabler is the Digidesign Audio Engine (DAE), which runs in the background — you can bring it to the front, but it has only a splash screen and a simple 'File' menu. This provides a standard interface between the Digidesign hardware, Audio I/O and DSP processing, and the software that runs

APPLE NEWS IN BRIEF

• SHARE & ENJOY — NOT!

Don't bother looking up Apple's share price. At the time of writing, the price was the lowest for many years, and this year's ongoing descent shows no sign of slowing. Repeated warnings that the recovery was going to be tough and would not happen immediately appear to have been correct. But don't write off this column just yet!

• THE WAY OF THE FUTURE? (PART 629)

Roland's PMA5 music pad is yet another MIDI device with a serial interface, so it can be connected directly to the two major brands of personal computer. But

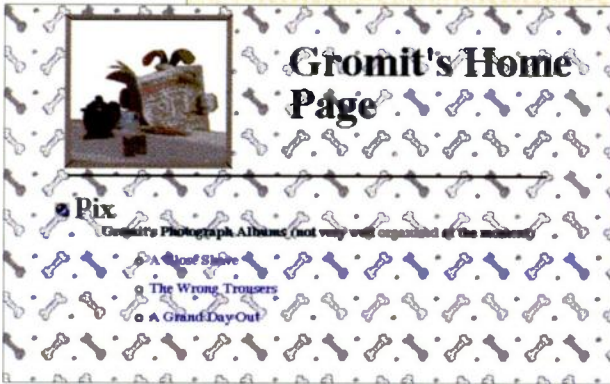
the combination of a touchscreen user interface, an 8-track sequencer and a MIDI interface is something more unusual — and might indicate the future direction of hi-tech electronics: purpose-designed gadgets for specific market sectors. When the next version has 32 tracks, audio tracks and waveform editing, your Mac can start worrying!

• BMW & APPLE

Apple and BMW may not seem the likeliest of partners, but check out this web site: <http://www.bmwusa.com>

It shows how the two companies have joined forces to reinforce the links between two high-quality, well-engineered products by utilising the Internet.

ON THE NET



The world's best-loved man/dog combination window-cleaning team surf the Net as well, you know...

http://www.bbcnc.org.uk/the_centre/brochurewelcome2.html	The Beeb
http://www.digidesign.com	Digidesign
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on the MacOS computer. The DAE has the advantage that lots of third-party software uses it, not just the stuff from Digidesign.

The other important piece of underlying technology is TDM (Time Division Multiplexing). This allows several different sets of audio information to be conveyed along a simple piece of ribbon cable by sending them at different times. Digidesign call this the Trans-system Digital Matrix buss, or TDM buss for short. Physically, it looks like a short piece of blue ribbon cable with some IDC connectors pressed onto it, but in conjunction with the TDM software, it actually allows up to 256 channels of 24-bit digital audio to be transferred between your computer and plug-in cards.

TDM is also the key to providing software plug-ins that work like outboard effects units, but which use the hardware DSP chips inside the computer. There are a huge and expanding range of plug-ins, from the dynamics, delays

and EQ that you might expect, through to some very complex and sophisticated specialist tools (for an overview of some of these, see Mike Collins' article 'Plugging Into Pro Tools', which ran in the February and March issues of *SOS* this year). Non-TDM hardware, like the Audiomedia cards, or the basic Pro Tools, still provide EQ.

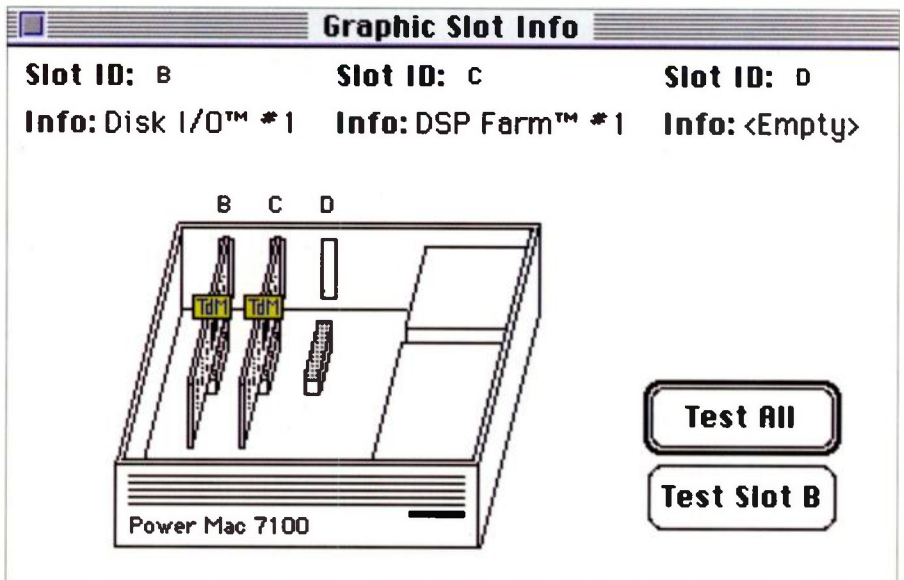
TDM-based systems come with some useful software accessories. I used the *DigiTest* application to check the exact hardware lurking in the Power Mac 7100/80AV that I used for my *Digital Performer* review. The

screen shot shown is a composite, because you actually need to click on each of the card slots to get the text report shown at the top of the screen — but *DigiTest* still detects the model of MacOS computer, the number of slots, and the cards in the slots. In this case, there were two cards: the Disk I/O card provides a specially dedicated SCSI2 interface, which is for the hard disk that will be used for the audio files. Having a separate SCSI buss keeps the audio data separate from the computer's own SCSI buss. The Disk I/O card also has the socket for the 882 or 888 Audio I/O boxes. The DSP Farm is just a card full of Digital Signal Processing hardware — and is used to provide the effects processing for TDM plug-ins.

SOS

MISSION: IMPOSSIBLE

Also heavily featured by Apple at the Broadcast Solutions event was the TV advert for the Power Book — even though the *Impossible* film itself has a Mac with the least Mac-like user interface I've ever seen! But to immerse yourself in even more *Impossible* material, you could try the web address shown in this month's 'On The Net' box.



The inside of the Power Mac 7100/80AV used for the *Digital Performer* review.

INSIDE THE DIGIDESIGN 882

Since I had a captive Digidesign system for the purposes of writing this month's *Digital Performer* review, I took the opportunity to have a closer look at it. I always open up hardware boxes, and the Digidesign's 882 Audio I/O box was no exception, even though I needed to find some Imperial Allen Keys to get inside!

The inside of an 882 is more or less filled with a large double-sided PCB. The design and construction is of a very high quality — there were no visible corrections or modifications, and the audio/digital areas were clearly defined by the ground planes used

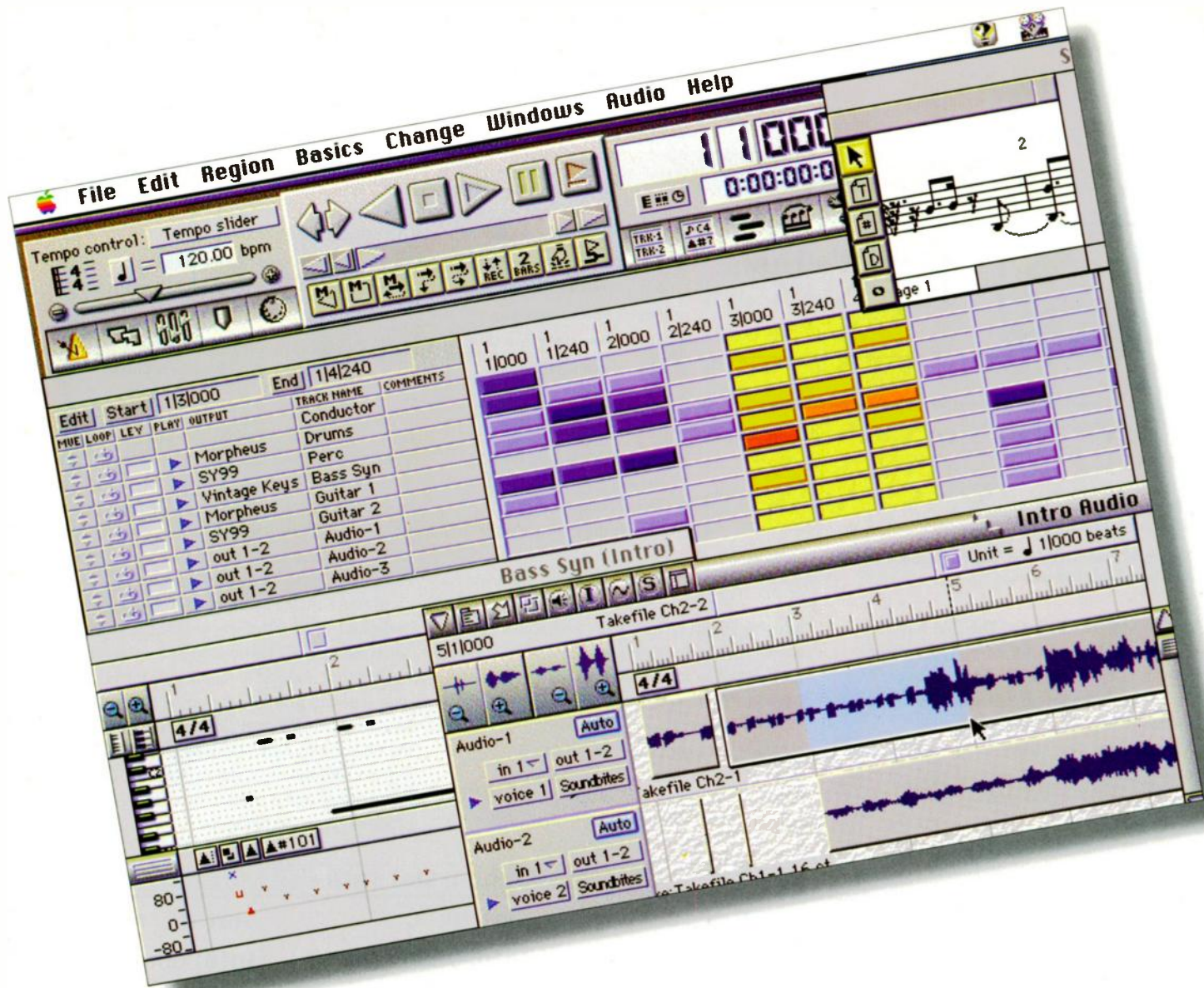
for the audio sections. The majority of the board components were surface-mounted, with just a few through-hole components. The BNCs for the clock I/O were hand-soldered.

The main Analogue-to-Digital Converters (ADCs) were eight Philips SAA7360Ps, with PMI Op-amps buffering and filtering the audio inputs. On the output side, eight AK4318 Asahi Kasei Digital-to-Analogue Converters (DACs) were used, with PMI SSM2142 VCA, and an Analogue Devices ADG412BR DAC was used to control output level. An Actel gate array

forms the bulk of the control logic; the remainder was made up of small gate-count DIL packages.

The umbilical cable that connects the 882 to the host computer is buffered using standard 26LS31 and 26LS32 line drivers, whilst the power cable to the external power supply unit has RF filters plus 2 large chokes and several 220µF electrolytic capacitors around the 5V regulator.

Overall, this is a very nicely constructed and designed unit. Having the audio inputs and outputs remote from the computer enables a much more flexible placement of the computer, and provides high-quality audio conversion.



Audio Magic

Mark Of The Unicorn's recent demo CD for Digital Performer caught everyone's attention — so how does the real thing compare? MARTIN RUSS takes another plunge into the wild waters of digital audio on the MacOS platform.

MARK OF THE UNICORN DIGITAL PERFORMER v1.7

I last reviewed Mark Of The Unicorn's (commonly abbreviated to MOTU) Performer MIDI sequencer way back in the November 1986 issue of *Sound On Sound*. The intervening 10 years involved a long relationship with Atari, but I'm now back with my first love, the Apple Macintosh. Performer, meanwhile, has continued to develop from a very basic but capable sequencer into one of the leading generation of 'MIDI+Audio' programs: *Digital Performer*. And so we meet again...

DIGITAL DIMENSIONS

These days, the MIDI sequencer is fast becoming little more than a cut-down, lower-priced version of the digital music production tools that are now the flagships of the music software companies. The integration of audio tracks with MIDI tracks is changing the way that music is made, and the way that people think about sequencers. Instead

of being the cheat's method of producing music with MIDI, utilising a computer to edit both MIDI and audio data has become accepted as a viable alternative to working with tape.

I've already commented at length about the way that my MIDI-focused, audio-free way of working was turned on its head by Opcode's *Studio Vision Pro* (see *SOS* March 1996), but despite changing my thinking about how you can use MIDI and audio in an integrated environment, I've yet to get around to investing personally in the requisite hardware for digital audio. Perhaps with this in mind, Mark Of The Unicorn approached me and offered the chance of a detailed look at Version 1.7 of *Digital Performer*. As a result, I've spent the last month working with a second example of a state-of-the-art combined MIDI and digital audio sequencer — and so what follows is part review, part comparison with *Studio Vision Pro*, and partly a 'try this!' exploration of what it can do.

MIDI

There are several ways of interfacing a Macintosh to MIDI: the simplest being the standard hardware interface, with Apple's MIDI Manager being the oldest and most basic software. But at the leading edge there are two options: Opcode's Open MIDI System (OMS) software and their 'Studio' series of hardware interfaces; and MOTU's FreeMIDI software and 'Time Piece' range of hardware interfaces. In the past I've always used OMS, so this was a chance to see how FreeMIDI behaved in practice.

As it happens, installing FreeMIDI was very smooth — the automatic configuration detected the standard MIDI interface hardware that I was using. The current FreeMIDI (version 1.2.4) will only read pre-OMS 2.0 studio setup files, and so it couldn't read my present settings, but configuring a simple test setup with a few MIDI devices took only a few clicks of the mouse. The MOTU manuals are very detailed about the options available for installing the MIDI software and hardware, and having both FreeMIDI and OMS present in my computer's System caused no problems. Overall, getting the MIDI working was much easier than I expected.

AUDIO HARDWARE

MOTU have taken a conscious decision to support the higher end of the direct-to-disk/digital audio market, and so *Digital Performer v1.7* does not support the rather limited audio facilities (and nasty connectors!) offered by Apple's Sound Manager 3.0 and upwards, nor does it support the Yamaha CBX hardware that the special version 1.41Y did. Instead, MOTU now concentrate exclusively on Digidesign hardware, from the simple plug-in cards of Audiomedia II (NuBus) and III (PCI), via what was once Session 8 and is now called Pro Tools Project, through to the fully professional and comprehensively expandable Pro Tools III systems. Supporting just one manufacturer's equipment pays dividends in consistency and simplicity, and makes setting up much easier for the end user.

The review setup was based upon a low-end Pro Tools system, giving 4-voice polyphony and eight audio inputs/outputs. (There is more information on Digidesign systems in this month's Apple Notes column; see pages 122/3.)

CHUNKS

Digital Performer builds music out of one or more phrases or Sequences. A Sequence can hold multiple tracks of MIDI and/or audio, and the basic window is called the Tracks window, where you can control the track settings (Instrument, Patch, Record, Play etc) and see an overview of the contents of each track — blocks appear in boxes which represent beats, bars or sets of bars, and the darkness of the block reflects the density of the MIDI data. This lets you quickly see where the music is on each track. For more detailed editing, event or piano-roll style graphic windows can be opened, when desired.

The Chunks window contains all of the bits of music (the Songs, Sub-songs and Sequences) that have been created in step time or recorded in real time. Sequences can be dragged from the Chunks window to a Song window, so four separate 1-bar

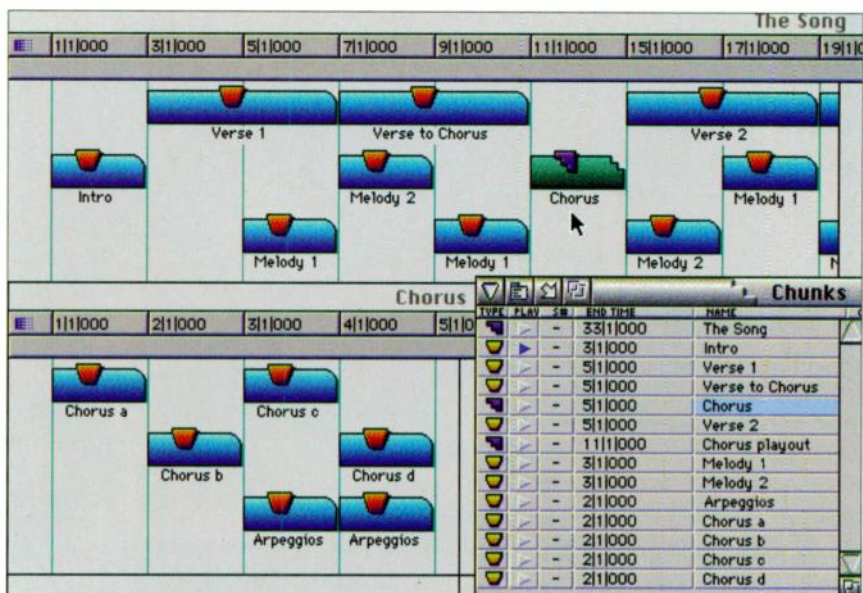
Sequences might be used to produce a 'chorus' Sub-song, and then this Sub-song could be dragged into another Song window which deals with the 'verse/chorus' structure of the final piece of music. The Song windows show the Sequences and Songs as graphic blocks, and this makes the structure of the song very clear — probably one of the clearest ways of showing how a song is put together (and sadly missing in *Studio Vision Pro!*).

Personally, one of the most important aspects of any sequencer is how visible it makes the structure of the contents of the song. I tend to work with short sequences of between one and four bars, using them to build up my song in short sections before chaining these together into the final completed piece of music. *Digital Performer* makes this process very easy, and the hierarchical way that Sub-songs can be embedded within other Songs is superb.

WINDOW CHANGES

MOTU have always used the graphics capabilities of the MacOS to the full. The user interface has evolved considerably over the years into a sophisticated, rich environment which is optimised for music sequencing. The most fundamental change to my eyes is that the familiar striped bar at the top of a window has gone. Instead there is what looks like a curved metallic bar with a cluster of icons at the left-hand end, and a set of steps leading to the name of the window on the right-hand side.

The icons have the usual 'close' box for putting a window away, except that it now has a triangle in it. The next icon provides a pop-up menu whose contents are specific to that type of window — this saves having to move back up to the top of the screen for common functions, and is especially



useful with larger screens. The 'move to back' icon is an arrow, and this moves the window behind all the other windows on the screen — to the bottom of the pile! The minimise/maximise box is the final icon in this group of four which are common to all the windows, and although this location is not where you expect to find this useful tool (it is normally at the top right of the window), it makes a lot of sense where you have lots of

pros & cons

DIGITAL PERFORMER V1.7 £599

pros

- The PureDSP pitch-shifting and time-scaling functions are superb.
- Spectral Effects offer some novel changes to vocals and other instruments.
- The DSP processing is well suited to a hard disk recording environment alongside MIDI tracks.
- Audio processing occurs in background.

cons

- The PureDSP transposition is best for monophonic audio.
- Apple Sound Manager not supported.
- No Audio-to-MIDI or MIDI-to-Audio conversion.

summary

For the sophisticated user who wants an audio software workstation for editing music, speech or sound effects, *Digital Performer* on a Power Mac will not disappoint.

SOUND ON SOUND

Digital Performer allows you to drag chunks of a song into a window to assemble the music in a graphical form. In 'The Song', the Chorus consists of the four chorus bars called 'Chorus a' to 'Chorus d', plus two repetitions of the 'Arpeggios' bar.

Imagine...

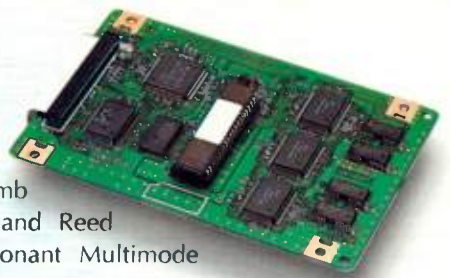
Imagine starting with the synth so powerful "It's dragged the high-tech music industry into the future".* Then consider the possibilities of physically modelling *Real Acoustic* instruments and *Classic* synths of the past, playing back your favourite *Samples* of instruments and loops then recording several *Tracks* of Vocals and Guitar, *Mastering Digitally* using a built-in *Mixer* and then *Interfacing* everything to your Computer and other Digital equipment.

You have just imagined your options with the Korg Trinity.

* As predicted by Sound on Sound Magazine, Jan. 1996.

Solo TRI Option

This is a complete Prophecy sound engine. Analogue, Ring, Cross, Sync, VPM and Comb synthesis plus Picked, Horn and Reed physical modelling. Two Resonant Multimode filters and 7 extra effects.



PBS TRI Option

(Playback sampler)

8 megabytes of memory that allows you to load samples in KORG or AKAI S1000 format. Being Flash ROM means that samples are not lost when power is disconnected. Adding this board also adds 2 extra banks of Programs and Combinations and adds 64 extra program locations to the Solo Board Bank if fitted.



Digital I/O TRI Option

This enables you to connect Trinity digitally to any device with an ADAT Format digital interface. The option features an ADAT Digital output and a Wordclock input.



SCSI TRI Option

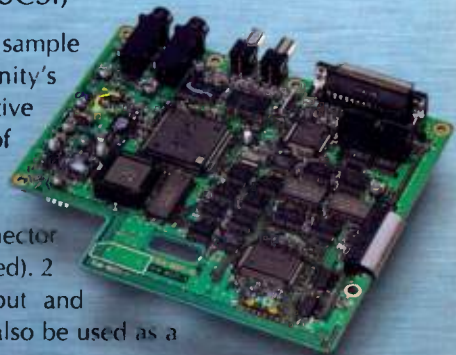
This board adds a SCSI port to the Trinity enabling you to connect the Trinity to an external hard drive or CD ROM drive. (This option is included in the HDR TRI Option.)



HDR TRI Option

(Hard Disk Recorder with SCSI)

16 bit Hard Disk Recorder @ 48K sample rate. Synchronised to the Trinity's internal Sequencer. Non-destructive editing and automated control of Volume, Panning, EQs and effects sends. 2 track record and 4 track playback. SCSI connector for external hard drive (not supplied). 2 analogue inputs and SPDIF input and output. The SPDIF interface can also be used as a Backup Utility.



Trinity Plus 76 note



Trinity ProX 88 note weighted action

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MOTU Digital Performer v1.7

► differently sized windows on the screen. Because these four icons are always on the left-hand side, making a window fill the screen is easy because you do not have to find the right-hand side, you just find the much larger block of icons. Any additional icons after these first four are window-specific, and allow the setting of audio playback or soloing of a track.

In the same way, having the name of the window on the far right also makes things easier, because the name acts like a tag, and it is much easier to look along the top right-hand

Studio Vision Pro makes much more use of keyboard modifier keys to alter the effect of mouse clicks. Whilst this can be faster, once learned, it is not as intuitive as an icon that indicates what mode you are in.

My only criticism of *Digital Performer's* user interface is the slight lack of mouse-awareness. I like to use the mouse for everything, and *Digital Performer* does not allow some values to be changed by clicking and dragging. When changing

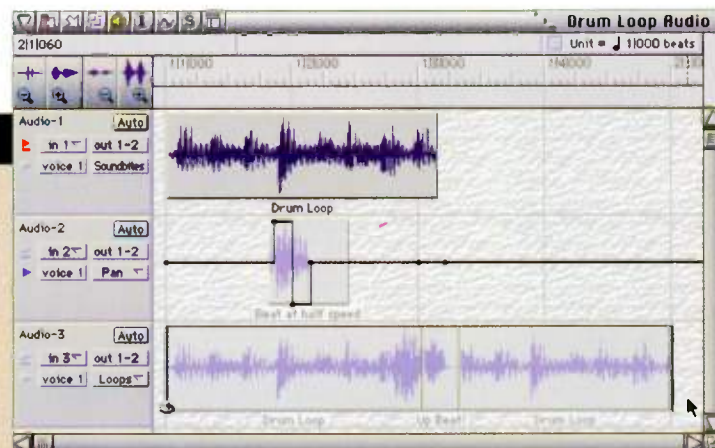
DSP DISCOVERIES

The 'PureDSP' processing of *Digital Performer v1.7* has many uses. Here are a few of the discoveries that I made whilst I was exploring the less obvious corners of the program.

- Because the pitch transposing thankfully avoids the normal 'munchklnisation' effect, large amounts of transpose can be useful for processing things you normally wouldn't attempt. Transposing speech up by an octave produces a remarkable 'Australian' twang. Shifting just the formants up by 12 half-steps produces 'cartoon duck' speech, whilst taking the formants and the pitch down by 12 half-steps gives a wonderful 'Second World War

radio' sound. Although the audio quality suffers slightly for these extreme changes, it is very usable as a special effect.

- Vocals are often the subject of extensive processing, and by deliberately misusing the time-scaling function, it is possible to create some very unusual and expensive-sounding effects. For example, by compressing the time by 1:2, and then expanding by 2:1, and perhaps even by 2:1 again, sibilants take on many of the qualities of the 'laser breath' effect.
- When you 'split' part of an audio soundbite from a larger soundbite, the volume of the extract can often

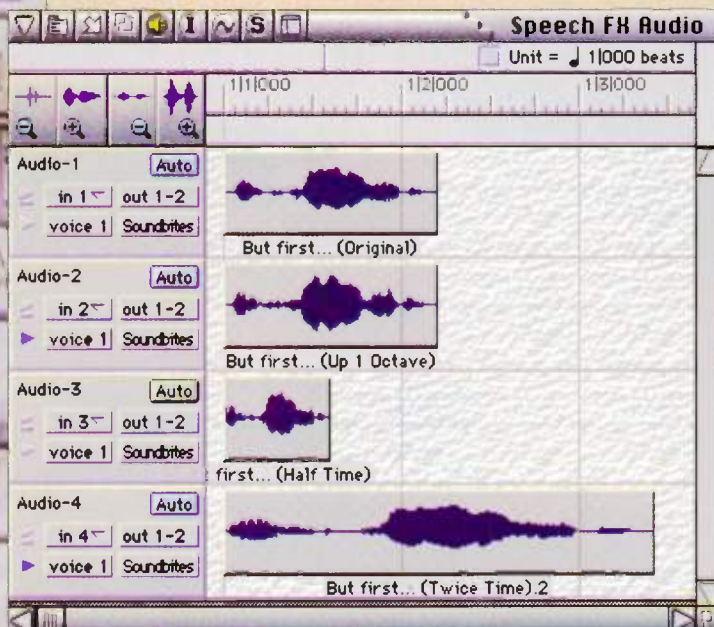


The middle beat of the raw drum loop has been pitch-shifted downwards and mixed in just before the end of the bar. The wrongly-named 'Up-beat' is another drum hit which has been pitch-shifted upwards and then placed at the start of the second bar.

be too low — and there's no obvious way to 'normalise' the volume so that it uses the full dynamic range. In fact, the 'Normalise' function is hidden away in the Mix menu option — you merely select one audio soundbite and replace it with itself, normalising it at the same time.

- The time-scaling, pitch transpositions and spectral effects processing can radically transform existing audio material. I took a drum loop off a CD, trimmed it and time-scaled its length so that it fitted exactly into one bar, and then extracted one drum sound out of it.

By halving the pitch and using the on-screen 'draw the pan' feature. I had an unusual drum that jumped from one side of the stereo image to the other. I then mixed this into the drum loop and looped the drum loop to provide a backing beat. The part of the bar after the inserted drum sound needed some contrast now, and so I doubled the pitch of one of the subsequent drum hits and mixed that back into the loop. The result sounded like the product of a couple of samplers and lots of detailed editing, but it only took me a couple of minutes!



The audio processing can also be used to provide special effects: in this case by deliberately squashing and then expanding an audio soundbite.

a name, for instance, you can't use a mouse click outside of the box to finish typing — you have to press the Return key.

AUDIO AWARENESS

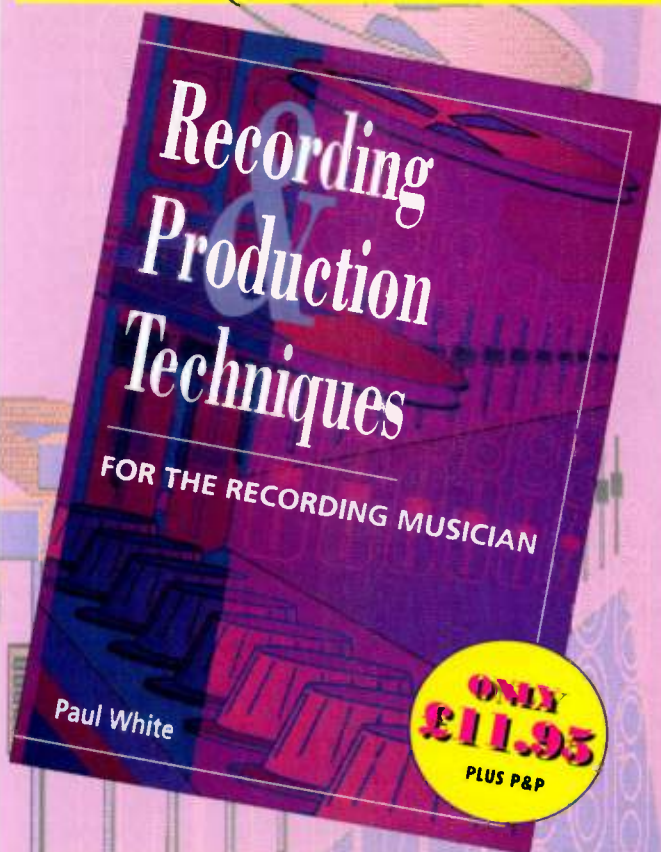
Audio tracks appear in the Tracks window, and there are separate windows for viewing the audio soundbites — the MIDI tracks can't be seen in the soundbite windows. The only concession is that you can see the bar lines, and so it is possible to align a graphic editing MIDI window and a soundbite window, though it is not as straightforward as opening a single window containing MIDI and audio tracks (as happens in *Studio Vision Pro*).

Soundbites can be dragged from the Soundbites window onto the Track window in much the same way as chunks can be dragged from the Chunks window into Song windows. In

edges of windows than trying to find the middle of each top bar of a window. I can't help comparing *Digital Performer's* sequencer-specific user interface with Opcode's *Studio Vision Pro*. *Digital Performer* has a more 3D look, and the extra icons in the top bar of the windows make it much easier to work with multiple windows on the screens at once, or make changing the mode of working quick and obvious. Conversely,

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MOTU Digital Performer v1.7

► fact, the audio editing is mostly so intuitive (you drag soundbites around to move them in time, for example) that you don't need to read the manuals very much — although there's plenty of very clear explanation in the 1200 pages of the four manuals. Audio editing is restricted to cutting, pasting, mixing, splitting (extracting part of a

a special display which reports on its progress.

Although this sounds like magic, the PureDSP processing does in fact work out the fundamental frequency of each sound, and then looks at the levels of the harmonics of that frequency (which actually determine the timbre). The analysis process thus splits the audio into pitch information and information about the harmonic structure of the sound (known as the 'formants'). The pitch extraction works best for monophonic sounds — for polyphonic sounds *Digital Performer* provides conventional pitch-shifting and time-scaling.

Unsurprisingly, it does take time to perform this analysis: for example, a 30-second stereo soundbite (1,009,985 samples at 44.1kHz) took 200 seconds to analyse on my review machine, a Macintosh 7100/80AV, but subsequent pitch transpositions or time-scalings took only a few seconds.

Once analysed, it is then possible to manipulate the pitch, time or formants of the audio soundbite separately, and with astonishing quality. There are separate pitch

transpose and time-scaling commands available within the program, plus the Spectral Effects control which lets you independently change pitch, time or formants as you wish. Extreme changes using PureDSP still affect the audio quality, but the usable range is far in excess of conventional processing.

With conventional pitch-shifting, where the audio waveform is merely replayed at a higher speed or chopped, the formants change if the pitch is changed. This sounds as if the person or instrument is growing bigger or smaller. In contrast, *Digital Performer's* PureDSP pitch processing



The analysis and processing of audio soundbites takes place in the background, so you rarely notice it.

soundbite) and other tape-like functions — if you need to make changes to the audio waveform, then you will need a separate waveform editor such as Digidesign's *Sound Designer II*. Mixer windows that look like the real-world equivalent can be used to control MIDI or audio tracks, and this is where you will find any third-party TDM effects plug-ins (if you have any installed).

Track windows do not indicate the actual length of a soundbite, they only show the first box that is occupied. This means that you need to check whether a specific part of the track has audio data in it; you can't see this directly from the Tracks window, so some of the overview capability is lost. This also makes editing audio and MIDI information more difficult, because although you need to 'Split' an audio track so that it forms a separate soundbite within the region, this is again not obvious from the Tracks window. This audio segment display problem will, I am told, be fixed in the next release of *Digital Performer*. In fact, it appears that the whole of the Tracks window segment display may change from one where the darkness of the segment blocks shows the density of the MIDI or audio data, to one where a tiny representation of the piano-roll graphic window is employed instead.

DSP POWER

One of the most noteworthy aspects of *Digital Performer* has to be the innovative pitch-shifting and time-stretching facilities. Using native PowerPC code (the Digidesign DSPs are not used), the PureDSP processing firstly analyses any audio that is recorded and then allows some powerful changes to be made on anything that is monophonic. The analysis happens in the background, so you can carry on performing most operations whilst the computer is doing the analysis, and you can select

"Digital Performer's PureDSP pitch processing changes only the pitched part of the sound and then reimposes the original harmonic structure."

changes only the pitched part of the sound and then reimposes the original harmonic structure. So the basic timbre of the audio is left virtually untouched, and the person or instrument appears to stay the same size, only the pitch changes.

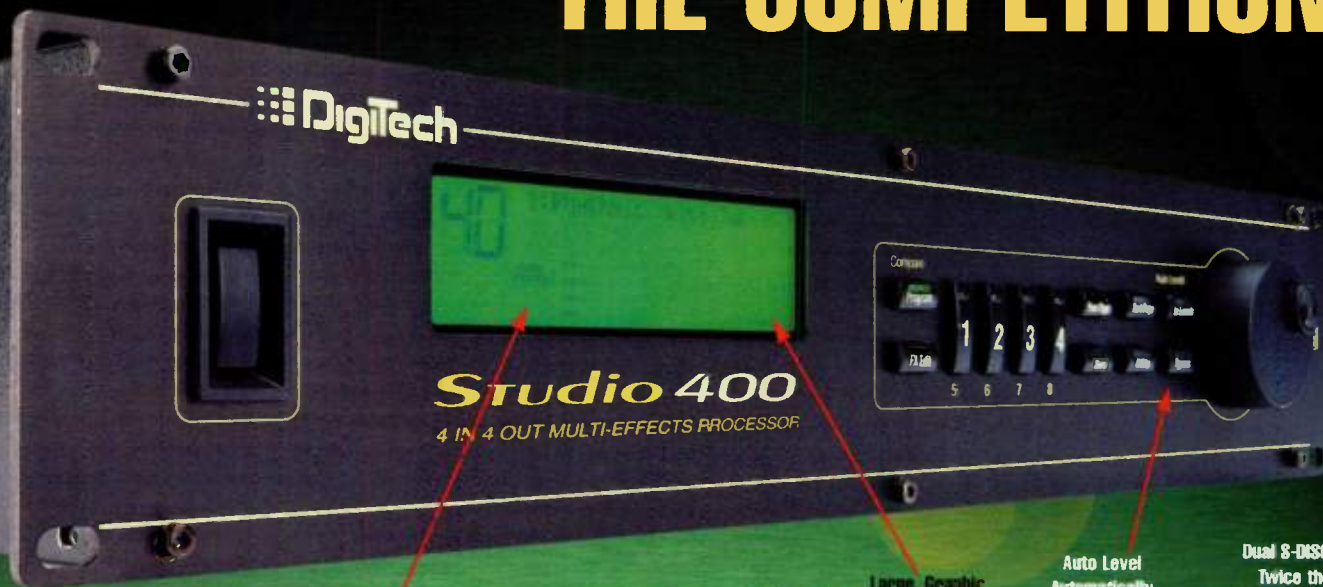
One of the really clever features of *Digital Performer* is the way that the audio editing is integrated with the MIDI editing. Almost all of the editing functions work on a region basis: you select

WHAT MACINTOSH?

Digital Performer v1.7 requires a computer running MacOS 7.0 or higher, with 32-bit addressing enabled and at least 16 Megabytes of RAM. For computers running System 7.5 or higher, then 20Mb is recommended. Stripping unnecessary fonts, sounds, control panels, extensions and other items from your System Folder will probably improve stability and performance too. The Power Mac 7100/80AV used for this review had 32Mb of RAM fitted.

Computers with PowerPC chips will run the DSP code faster since it is 100% PowerPC native, although it will still run on 680n0 Macintoshes (eg. Quadra 650). Before buying a computer for use with *Digital Performer*, you should confirm its compatibility and suitability with Digidesign, because their digital audio hardware has more exacting computer requirements than MOTU's software.

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8 different Effects in any order	yes	no	no	no
Graphic Display	yes	no	yes	no
A/D	18 bit 128X	16 bit	20 bit 64X	16 bit
D/A	20 bit 8X	16 bit	20 bit 64X	16 bit
Sampling Freq.	44.1, 48kHz*	n/a	32, 44.1, 48kHz	n/a
Freq Response	20-20kHz	2-18kHz	10-20kHz	2-16kHz
Digital I/O	AES/EBU, S-PDIF (optional plug-in)	none	AES/EBU, S-PDIF	none
THD @ 1kHz	<0.003%	<0.0032%	0.003%	<0.0032%
S/N ratio	-96dB	-90dB	> -96dB	-90dB
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DigiTech

MOTU Digital Performer v1.7

- ▶ a region first, and then alter it with a menu command. For transposition or time-shifting, it is perfectly okay to select a region which contains both MIDI and audio tracks, and then to process both sets of information with a menu command. It is possible to set the audio transpose to be either the PureDSP transpose or the normal transpose, rather

✓↕ Use PureDSP™ Pitch Shift
↓ Use Standard Pitch Shift
⊘ Don't Pitch Shift

✓↔ Allow Time Scale
⊘ Don't Time Scale

like the 'do not transpose' feature that you can set for drum tracks, and so a single transpose command on a specified region can behave differently depending on the content of the tracks — but all that you do is 'transpose' the music. Brilliant.

This direct linking of audio and MIDI is particularly useful when you need to change the tempo of MIDI tracks, because it is easy to then make the audio tracks follow the changes. There can be quite a lot of background processing going on if you have lots of tempo changes, and this gives you some idea of how hard it would be to do this manually.

A FRESH PERSPECTIVE

A lot can happen in 10 years: just about the only bit of *Performer* that I recognised since my last review was the pie-graph memory usage window! The improvements, however, are manifold and very impressive. For example, I actually prefer the time-independent, column-based display of song chunks to the more rigid, time-based display that I get from *Studio Vision Pro*. MOTU have clearly spent a lot of time researching how to make working with a sequencer easier — the window management features may seem like superfluous extras at first glance, but when you find yourself trying to push a window to the back in another program, then you know that they are actually very useful indeed.

Working in Audio windows is intuitive — you drag soundbites around (even from the Soundbite window to the Audio window) to move them in time or from one audio voice to another. You have to select an audio sample by double-clicking on it before you can select parts of it for splitting (extracting the selected section) and this 'select and then edit' approach is consistent with the way that *Digital Performer* works — you are always clearly shown which mode you are in — and in this case, the double-click selection of the audio soundbite causes it to be surrounded by a box, so you then know that you are working on that specific soundbite. Holding the mouse key down to play an audio sample was fine once I got used to

it, but I kept forgetting to turn off this option in the icon bar for the window, and so each time I tried to move an audio sample, it would pause and play before I could move it. Most of these minor irritations would, I feel sure, disappear once I became really familiar with the program.

Effort expended in learning to use the Audio window is easily offset by the sheer power of the audio processing. The PureDSP facilities make large pitch changes to audio tracks entirely feasible, without the accompanying chipmunk or creaky door syndrome. And the background processing of the audio means that you rarely notice it — there were only one or two occasions when I did have to wait a few seconds; typically when changing a tempo map.

Digital Performer is obviously a MIDI plus digital audio sequencing environment for the user who requires comprehensive and straightforward editing and assembling of music, speech or sound effects. It does not have all of the more esoteric features that appeal to MIDI hackers and audio

"Effort expended in learning to use the Audio window is easily offset by the sheer power of the audio processing."

wranglers like myself, but then it isn't aimed at that market. Having said that, I wish the song chunking, window bottoming and a few other features of *Digital Performer* were present in the sequencer I currently use — so I'm weakening.

Perhaps the best advice I can give is probably the least obvious: if you've invested significantly in digital audio hardware and a competing MIDI+Audio sequencer, then the cost of adding *Digital Performer's* very clever PureDSP processing, neat windowing and ultra-clear song chunk display is a fraction of what you have already spent on hardware — so why not have two sequencers and use each for what they do best?

SOS

AUDIO HARDWARE

Digital Performer requires additional hardware support to enable it to work with digital audio, regardless of the Macintosh (or Mac clone) that you use. Currently, only the following Digidesign hardware is supported:

HARDWARE	OUTPUTS
Audiomedia card (I, II, III, LC)	2
Sound Tools II	4
Pro Tools	4
Session 8	8
Pro Tools Project	8
Pro Tools III	16+

Here are some rough guide prices for Digidesign systems:

- Audiomedia II card £469 (includes *Sound Designer II*)
- Audiomedia III card (PCI) £704.
- Pro Tools Project (Session 8) £2,231 (NuBus or PCI).
- Pro Tools III (16 channels) £6,238 (NuBus)
- Pro Tools III (16 channels) £7,131 (PCI +extras).
- 882 Audio I/O £892.
- 888 Audio I/O £2,678.

A Digidesign, Avid Technology Europe Ltd, Pinewood Studios, Pinewood Road, Iver Heath, Bucks SLO ONH.

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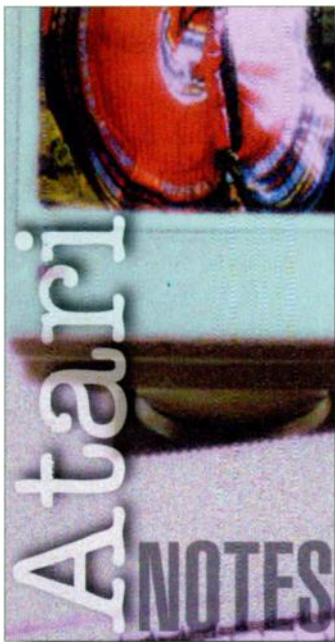
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OFIR GAL reflects on the history of the Falcon with mixed feelings, and revisits the current C-Lab MkX...

I've spent the last few days with my Fender Strat plugged into the new C-Lab Falcon with *Cubase Audio v2.06*, recording and playing around with the built-in effects and the audio editing facilities. I was pleasantly surprised to find that it performed faultlessly, in contrast to the original Atari model, which was problematic for me.

Although I was one of the first to buy the Atari Falcon, I never had the need to push its audio capabilities to the limit. I was more interested in general use — word processing, graphics, DTP and comms. When I did try *Cubase Audio*, I hit various problems. The first version was far from perfect, and the Falcon's clumsily-designed SCSI hardware was showing its weaknesses. I tried two of the SCSI modifications that were published by Atari, and although these improved performance, I just couldn't trust the machine for recording my band's first album. Since we were given 'proper' studio time by the record company anyway, we just stuck with our MegaST and plain old *Cubase* for the MIDI side of things.

THE NEW PRETENDER

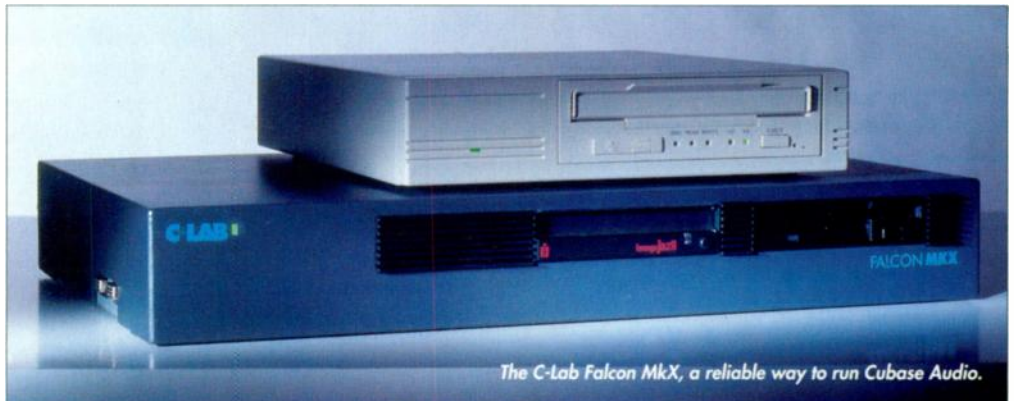
The news of the C-Lab Falcon arrived as the aforementioned album was nearing completion. I saw it demonstrated and I was quite impressed, but you can only learn so much from a demo — you can't really tell how

reliable a system is until you try it for yourself.

Later on, I was able to review the new machine, but not for long enough to really push it hard. However, user reports seemed quite positive, so eventually we (the band) decided to get one for the humble home studio which we mainly use for songwriting and putting demos together. For one reason or another, it took

"I recorded some guitars, grabbed audio off a CD, edited the recording, even used effects, and it all worked without crashing once."

until late May this year to arrive — just in time for a little project we had going: a radio jingle to promote a gig on Radio Caroline. Armed with the new Falcon, we started putting together the 30-second promo by capturing audio from our CD and compiling the jingle. The basic idea was to cut and paste together a few key passages from the album and overdub



some speech on top — nothing too technically demanding, as I'm sure you'll agree.

We came across a variety of problems. To start with, things went well. Apart from some minor bugs in *Cubase Audio*, the Falcon seemed to be working OK. But gradually, as the recording became more complex and contained more edit points and effects, the odd random audio click would appear, along with inexplicable crashes. I was losing confidence in the Falcon very quickly, but we did manage to

ATARI NEWS

There's more trouble in Atari-land, as the last news-stand magazine closes. *ST Format*, the longest-running Atari title in this country, is to close down. Reasons for the closure have not been made public, but are believed to be over-estimation of the Atari market and a decline in overseas sales. The only running title is now *ST Applications*, run by the FaST Club (0115 945 5250). This disk-based magazine is still a source of useful, although not music-specific, information. There is also some talk of a subscription-only magazine — more news should be arriving over the next few weeks.

Interactive, one of the biggest supporters of the Atari shareware scene, now has a web page advertising its shareware collection, which includes favourites like *Freedom* and *Egale*, plus OCR and other utilities. The Interactive page includes demos and lots of information, and is available at:
<http://www.compulink.co.uk/~active/welcome.htm>

complete two versions of the jingle, as Caroline listeners in Kent can testify.

PROBLEM SOLVED

I spoke with Paul Wiffen from C-Lab Falcon distributors Digital Media, who was convinced that there was something wrong with my setup. After I had followed his various suggestions, to no avail, he decided to send me a replacement Falcon. The new machine worked perfectly. I spent hours trying to make it misbehave, but simply couldn't — I recorded some guitars, grabbed audio off a CD, edited the recording, even used effects, and it all worked without

crashing once. The only problem I faced was a bug in *Cubase Audio*, which sometimes forgets to place a new recording in the Arrange window, so you have to drag it manually from the Pool.

Only time (and perhaps a serious assessment of the C-Lab Falcon/*Cubase Audio* combination) will reveal the long-term prospects for this machine, but in my opinion the C-Lab Falcon is now a system that has had time to mature, with enough hardware support to make it a viable option.



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NOTES

Jazz saxophonist Courtney Pine is breaking down the barriers between acoustic and electronic sound generation, marrying jazz with modern forms such as hip hop in a cross-genre partnership which is partly forged in his own home studio. PAUL WHITE hears some Modern Day Jazz Stories..

Courtney Pine's remarkable jazz career started at school when he was 13, taking piano and clarinet lessons. Though he subsequently decided that the saxophone was what he really wanted to play, his musical heroes, including Grover Washington Jr, John Coltrane and Miles Davies, all played the piano, and Courtney's piano experience has been very useful, as he now spends quite a lot of time in his home studio, working with a MIDI sequencer connected to an ageing Sequential Prophet VS keyboard. As you might expect, he's also had a lot of experience with MIDI wind controllers.

One of the motivating factors behind this interview was Courtney's latest album, *Modern Day Jazz Stories*, an essentially acoustic modern jazz album underpinned by hip-hop loops and DJ vinyl pyrotechnics. Unlike the many hip-hop records that have a jazz influence or feature a token jazz performer, *Modern Day Jazz Stories* is most definitely jazz with a hip-hop influence, rather than vice versa, and unlike many compositions that use off-the-shelf loops, many of the drum loops on this album started life as an acoustic kit in the studio, while some of the more experimental loops were produced by Courtney at home.

Despite Courtney's obvious enthusiasm to do this interview, numerous obstacles conspired to make it as difficult as possible. Just before my first attempt, my camera bag was stolen from the Audio '96 show, so, armed with the company camera and a new tape recorder, I set off for the Pine residence in London for a second try. Courtney had just had a problem with his house alarm system, which had gone off unexpectedly, then refused to turn off. Undeterred, and pausing only for a cup of coffee,

we went straight into interview mode, but shortly after I switched to a second cassette, my shiny new mini-recorder ate the tape. Obviously, the patron saint of technology was taking a day off! That left us in a studio full of recording gear, looking desperately for something that could be used to record the rest of the interview.

The only cassette deck in the house was a ghetto-blasters which Courtney went to get from another room. Unfortunately, as soon as he entered the room, the alarm went off again, and no amount of punching in codes would silence it — we had to sit and listen to the siren for a further 15 minutes before it timed out! When we finally got a mic rigged up to the ghetto-blasters, we found that it was purely for karaoke use — you couldn't actually record with it! At one point we were seriously considering finishing the interview on *Logic Audio* so that I could take the result back on a SyQuest disk, but we eventually settled on Courtney's DAT Walkman — and even that involved us pooling resources to find enough batteries to make it work!

TALKING TECHNOLOGY

How does a musician playing what is essentially acoustic jazz find himself so deeply involved with technology?

"For me, it was important for composition. I could hear other sounds, I could hear a whole orchestra, and I wanted to get my hands on that. I'm also a science-fiction freak, and using technology was another way to get to places I couldn't previously get to. What they don't teach you in music lessons is how to play things you hear — it's more about classical playing — but for me and the kind of music I was listening to at home, it was a matter of sitting down at the piano and bashing away until you found the right notes. Though you can play chords on the sax, the pitches are all over the place; a keyboard is truly polyphonic.

"I bought my first Atari computer in '86 with my first royalty cheque, and I couldn't afford a grand piano, so I got a DX21 and some Dr T's software. The next royalty cheque bought my first sampler, and so it went on. I wanted to hear my compositions before giving them to the band, and this was a way to achieve that."

Your studio now includes some pretty serious equipment, including a Yamaha 02R digital mixer and a couple of Alesis ADATs. How far do you want to take your recording — do you



want to make records at home?

"I want to record and mix here — it's very serious. What you see here is only a temporary setup, as I'm having a studio built onto the side of the house, where I can rehearse and record. On the last two albums, I've utilised bits that I've recorded here — with *Modern Day Jazz Stories* I did the loops, backing sax, flute lines and keyboard parts here. Some of the stuff was transferred to an acetate so the DJ could spin it in, then we'd play over the top in another studio.

"The musical style of the album is something from our locality — we've been doing this for quite a while. At some of the more modern jazz clubs, you'll see a DJ

spinning and band playing, sometimes interacting, and I wanted to get that onto record. The problem is that most wind jazz players don't have a grip on the technology, so they call someone else in and end up playing their part after everything else is done. I wanted to do something which reflected both my studies in technology and in jazz.

"I had a guy called Sparky, who works in the hip-hop field, and a DJ called Pogo, who did all the vinyl stuff and checked that it sounded OK. This went directly to analogue tape, but I also had some material on my Mac, which I took over to the studio in the States. That caused problems, because my material was set up for 25fps [frames per

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COURTNEY PINE

▶ second] SMPTE, and of course the Americans use 30fps. We also had problems because the co-producer put the sax on track 23, right next to the timecode, so whenever I played hard, the code stopped working. Once these problems were sorted it was plain sailing."

Was it a conscious decision to record on analogue multitrack?

for the same price as an Akai S1000. It just worked — I felt it sounded better, and the screen made editing a lot easier. The S760 has a slightly different sound, which is useful, but I still have some traditional synth modules, including a Roland D550 and an Oberheim Matrix 1000, which works particularly well with the EWI wind controller. I also produce music for other people, so it's useful to have access to all those other sounds.

"My sequencer is *Logic Audio* running on a Mac with a Digidesign Audiomedia card fitted. I find it does everything I want, and the audio side is great. It's been very reliable, but I like to set my screen resolution for a larger window size, which makes the screen rather cramped. I think a second monitor would make things better.

"The Alesis ADATs originally had some teething troubles — one of them was eating tapes until quite recently, but it's now been serviced and updated to the latest software, which seems to have cured it. These hook up to the 02R via the optical cables, but I've kept the wiring looms for when I take my ADATs out. Ultimately, I'd like my recording system to be as portable as my instruments so I can bring copies of the master tapes back home on ADAT to work on.

"My last console was a Soundtracs PC MIDI, but the 02R has been a revelation. The analogue desk seems to have more bass and is warmer, but the amount of stuff you can do in the 02R is incredible. The EQ is very strong, so you have to be careful with it, but I really like being able to see the graphic EQ curves. The desk has now become a part of the creative process, and if I'm working on a loop, I can mix and process the sound all at the same time, then resample it. I don't think the effects are anything special, but the compressors are really nice.

"One problem is that I'm already running out of inputs. I think that with my next royalty cheque, I'm going to get another one and chain them up. One day we'll have a system where everything talks to everything else. OK, at the moment I've got a Mac Power Book running Yamaha's *Project Manager*, but ultimately, I'd like to be able to sit down at just one machine and do everything.

"I don't need that many outboard effects with the 02R, but the Ensoniq DP/4 is very good, as is the Sony R7 reverb unit. I wasn't in the bracket to buy a Lexicon PCM70 or 80 at the time, and I needed something that would just give me quality reverb. I find the R7 very clear and transparent — I really like it, though the internal battery has died, so every time I turn it on, it resets to the factory defaults.

"I have a Digitech harmony machine which I use for detuning effects — I haven't got into creating real-time harmonies with it yet, though it's something I'd like to do. It could be useful live. Most of the rest of my analogue rack of gates and EQs is going, because now I have the 02R, it's



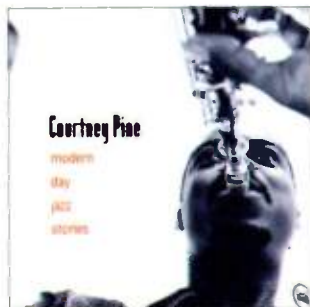
Courtney Pine in his compact home studio, with his sax by his arm, and, on the left, his Sequential Prophet VS. The Yamaha 02R is just visible behind him on the right.

"Yes, I wanted the warmth of analogue, and I've always enjoyed working with Neve desks. But we had some problems recreating the classic old sounds for loops. We went to another smaller studio, which had a nice piano and a Neve desk, we used an old drum kit with all the old ride cymbals, but we could never quite recreate that '60s sound. We had great musicians who played with the right feel, but it wasn't the same. You can bit-convert, or change the pitch up and then back again, but you can never get back to the sound of a particular day in 1964 or whatever. Those were the things that were a bit disappointing to me, but it took the sound somewhere else. There were some loops that we had to keep in — I had a Dexter Gordon piano loop which I'd recorded from my cheap turntable over there, and when we came to play it back against a piano in concert pitch, there was a tuning difference. So we tuned the loop to get it close, and there was a setting where the detuning was really nice, so we kept it that way."

STUDIO TOYS

What are the key elements of your studio?

"The S770 samplers are central to my system. I went through the stage of having masses of tone generators, but six months later I'd be bored with the sounds. So I decided to use samplers, and the London retailers TSC offered me a Roland S770



LEXICON JAM MAN: DREAM MACHINE?

"I have a Lexicon JamMan which lets you store and replay loops very quickly. I once had a crazy dream about Roland Kirk, the American saxophone player who did circular breathing and often played two instruments at once. In this dream, Kirk played one line that was going around, then he played another line at the same time, and they went around accompanying each other. Then he took the sax out of his mouth and the sound kept on going! For years, I was thinking, how could I get this effect? Then this machine came out, and my dream came true. I could play a line, trigger it, play another line, pull the sax out of my mouth and it would still go. At the moment, this is more of a road tool than a studio tool."



pretty irrelevant. I do, however, have a Peavey analogue filter, which I tend to use as a kind of parametric EQ rather than as a triggered effect. It really lets you change the character of a sound when creating samples or loops."

WIND CONTROLLERS

Which wind controller system do you prefer, and what improvements would you like to see?

"The first wind controller I bought was the Akai EW1 1000, and that worked fine, although it took some getting used to, because it has touch-sensitive keys rather than mechanical keys. As a sax player, you're taught to keep your fingers on or close to the keys, but with the EW1 you have to keep them away. I actually did an article on this for *SOS*, after which Yamaha contacted me and said I should try their WX7. This has mechanical keys and a sort of pressure-sensing reed you can use as a controller by biting on it as you play. That was rather different to the Akai system, where you blow around or across a kind of teat — not like playing a saxophone at all. However, what I didn't like about the WX7 was the plastic keys and the light weight — it wasn't like picking up a real instrument. It also doesn't have the pitch range of the Akai.

"The latest acquisition, an Akai EW1 3020, has a ribbon controller underneath, rather like a Polymoog, and it's nice because it actually does a glide function so you can put a bit more personality into your sound. If you hear two guys playing the same patch, you'll still get a different degree of expressiveness depending on how you use the controllers."

What performance control do you have with the way you blow? The main performance controllers seem to be underneath the instrument, operated by your thumbs, which can't be natural for a wind player.

"Apart from velocity, you have the

pressure sensor, but there isn't really that much control. With a sax, when you play harder into it, or if you change the shape of your mouth, you change the shape of the note. With these controllers, it's more mechanical — you blow into and squeeze the mouthpiece. Wind instruments are very closely connected with the brain in that you don't have to move your hands to change the sound. With the EW1, you have to use several things in combination, and it still doesn't do as much as a real saxophone. We need a unit that can actually deal with that type of information, and hopefully the VL series of physical modelling synths will go some way towards meeting that need. If you play harder, you can have the sound get sharper, as it would do on the saxophone."

Physical modelling synths seem to have the ability to turn controller information into expressive timbral changes, but that still doesn't solve the problem that you can't use your mouth in the same way as you would on an acoustic instrument.

"Yeah, what we need is something with a real mouthpiece that would take the information in, then convert it to MIDI information. Even though they're using different pitchings and tunings and that sort of thing, it still isn't quite right. At the moment, the variations come from the programming, but what you need is to be able to control the variations from the actual interface."

You've said that the Yamaha VL1 interested you in all areas apart from that of signing the cheque!

"When it came out, I thought it was a great idea — I read all the literature — but then I saw the price, which was ridiculous! You pay, at the most, £2500 for a Mk 6 saxophone, which is a really good horn, so who's going to pay £4000 for an instrument that's still an unknown quantity? Is somebody going to book you because you have one? That kind of money is a serious investment — so I've stayed clear and waited for the price to come down."

It seems that you may have done the

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Courtney with his Yamaha 02R: "it's been a revelation".

GOING SHOPPING

I asked Courtney what he felt he needed next for his studio.

"My new shopping list obviously includes the VL70m, but I'm also looking to get a Pro Tools system, a Focusrite EQ, and one major reverb unit. I like the idea of having Pro Tools plug-ins, such as being able to get a Focusrite EQ or Lexicon reverb in software. I've heard about bands recording whole albums on Pro Tools, but I want to know if anyone has been brave enough to do that for jazz. You have to have some way of backing up the data, such as transferring it to ADAT via an interface.

"I had a bad experience with my hard drive, where I had it in the studio, and I had to lean it up on its side because there wasn't room for it. After we'd finished recording, it refused to work unless it was kept on its side. I had to get it serviced and lost all that data — that whole album was gone! Some kind of removable, large-capacity drive would be a good idea for backups. At the moment, I have a SyQuest EZ135 drive which is great for saving samples. That's the other thing I'd like — some kind of SCSI switcher or patchbay so that I can use the same drive on both my samplers and my Mac.

"When it comes to effects, I've been looking at the TC Electronic MC2000, but I've also heard good things about the Lexicon PCM80. I like the idea of having effects that can change in response to your performance — where the reverb time gets longer as you play harder, for example."

► right thing, because Yamaha have recently announced their sub-£500 VL70m physical modelling module [see page 40 this month for a sneak preview — Ed] based on the VL1, with a simplified user interface and incorporating a wind controller interface.

"That's definitely on my list! The VL70 should also be better suited to horn players because of its simpler interface. We don't want to edit too much, we just want a sound that we can play expressively — the only time we want to edit is when we hear somebody else with a better sound than us! There should be scope for getting deeper into sound editing if you need to, but learning a Charlie Parker song is hard enough without having to worry about MIDI controller data and suchlike."

DIRECTIONS

What direction will you be taking for your next project?

"I'm going to continue what I'm doing in the jazz/hip-hop kind of vein, incorporating the old styles of jazz but sculpting it using filtering, pitch-shifting, and whatever else it takes to get that traditional sound into 'now'. I'll still be using loops underneath the music, but they will all be acoustic — created by an acoustic drummer, then processed.

"On the album, I'd often play a solo, load it into *Logic Audio* and then put it down maybe 24 or 25 semitones. The Digital Factory section of the program is great for that kind of thing, because the sound doesn't have to be clinically perfect. What I want is something with more of a street feel. I also like working with microtones, or changing the saxophone to make it sound like a whale. I can do that with *Logic Audio* or the samplers. It's a bit hit-and-miss, and a lot of times it doesn't work, but you just have to keep trying, putting in the numbers and seeing what comes out.

"It's down to utilising the traditional forms of jazz — the improvising, the interaction with musicians — but surrounding that with lots of detuned stuff that could never exist in a natural environment. I could never play some of those detuned sax parts, but hearing them come back at me inspires my playing to go in a different direction."

You're obviously not concerned about

taking your own playing and electronically shaping it to use it as part of one of your compositions — some purists might object to working this way.

"I want to pitch-shift things, reverse them, fine-tune them — I want to put my playing into places that I can't get to with my actual horn. I use loops way down in the baritone register, and people wonder 'what instrument is that?' Sometimes I'll use *Logic Audio*, sometimes I'll use the sampler. The reason I have so many samplers is that they all produce different results. For example, I might create something in *Logic Audio*, then transfer it to the S760 and timestretch it manually rather than in auto mode. That way, you get that gritty, bright sound — you can distort the stuff in ways that you could never play on a real instrument."

Does that mean you steer clear of CDs or CD-ROMs of ready-made samples?

"Oh no, I have loads of them, but I don't use them exclusively, and I tend to use the different samplers to totally destroy the sound and then build it up again. You can do things like change the bit rate to distort the sound in interesting ways.

"When we recorded the album, the co-producer Eric Calvey, who's a very good engineer, was watching me working with a piano, drum and bass loop which I filtered, transposed up a semitone, time-stretched back down, then digitally filtered, which took around 15 minutes. He rubbed his chin, then said 'Hang on a minute, plug the original source into a Focusrite'.

"He sat there for about half an hour trying to get the sound I was getting, then he suddenly realised what I was doing — it's not just about filtering, but about the way each machine has its particular way of changing the sound. That's something you can't do with EQ — when you slow down a drum part, things that the drummer would do before flams are magnified, so the picture becomes bigger.

"A lot of people come into technology from the electronic side — jungle or techno. Nobody seems to do this on the acoustic side — it's all about putting up two mics with no EQ and keeping everything exactly as it was played, but we can take that and use technology to do something else with it.

"On the road, we all use the Roland MS1s — the little Roland miniature phrase samplers — which are great for putting together ideas. I also have a Wavestation and I'm very interested in the vector thing, where you have one sound which changes when you press harder or use the joystick. I was looking at the Emu Morpheus, as that seems to offer a lot of scope in that direction."

Will future work feature mainly the saxophone, or can we expect another foray into electronic territory?

"I would really like to get back into electronic territory, but I need the right tone generators and interface. I've tried sampling the saxophone, but it's not quite right — it's an organic instrument that's different every time you blow it. I'm still holding out for the manufacturers to make the perfect wind controller or wind unit."

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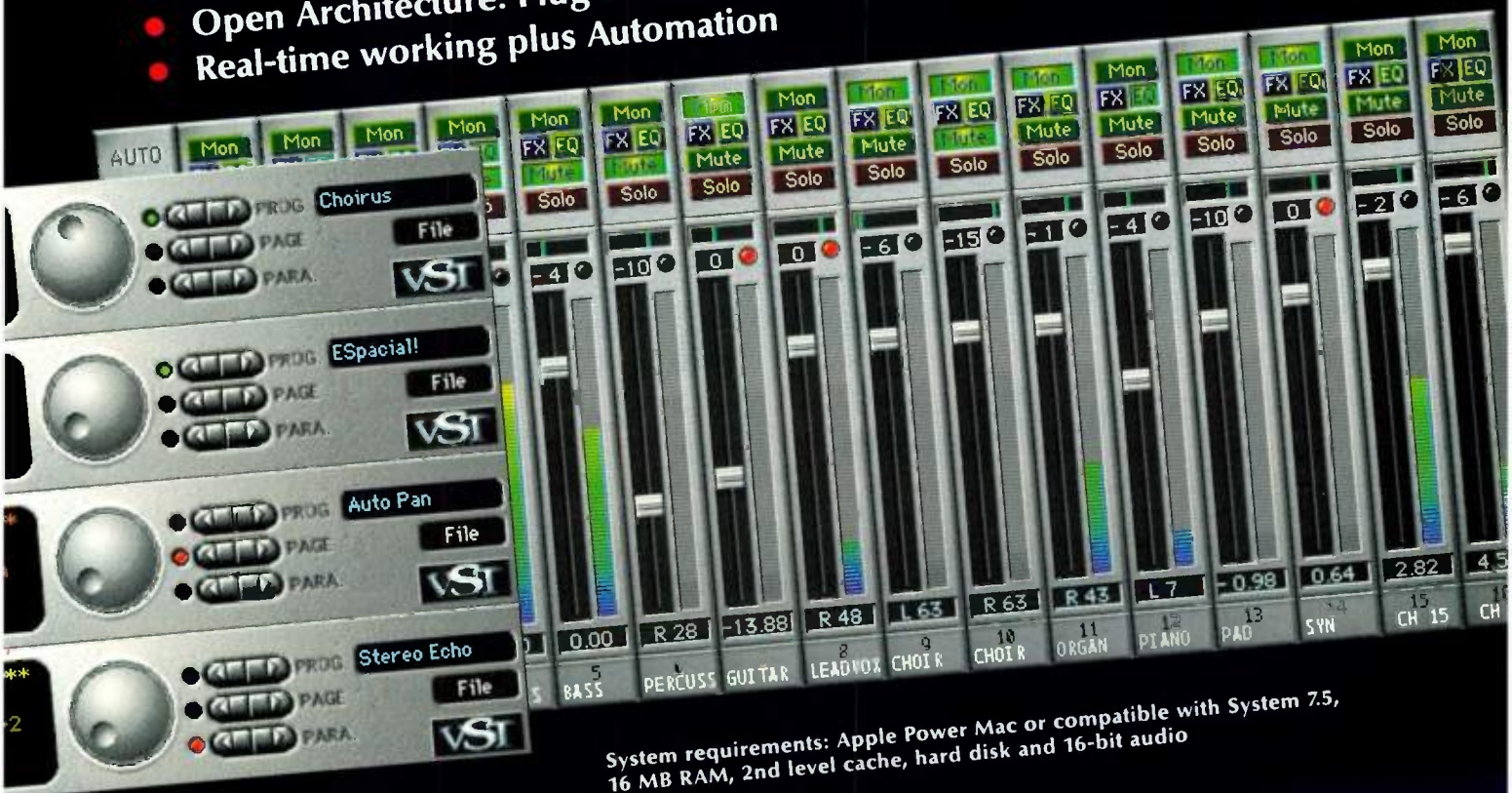
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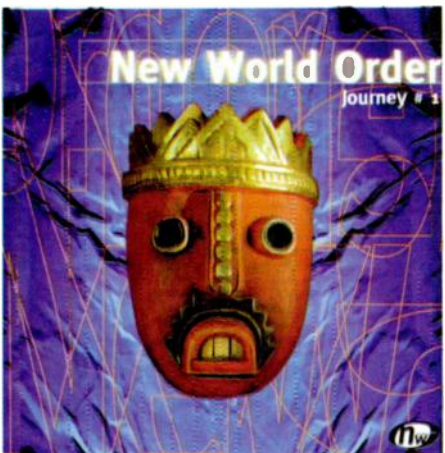
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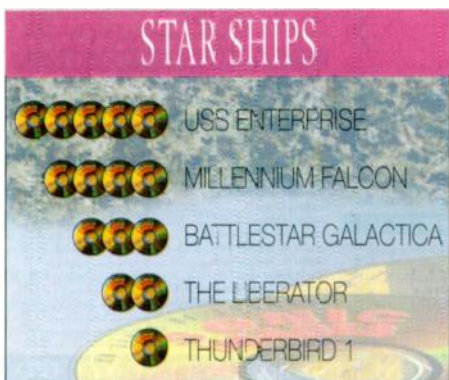


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THAT JUNGLE FLAVOUR (AUDIO CD)



There's jungle loops, hits, sounds and effects in spades on this Zero-G release. Starting with the loops, tracks 1-36 each comprise a bpm-grouped set of 10 loops, mostly based around speeded-up breakbeats...

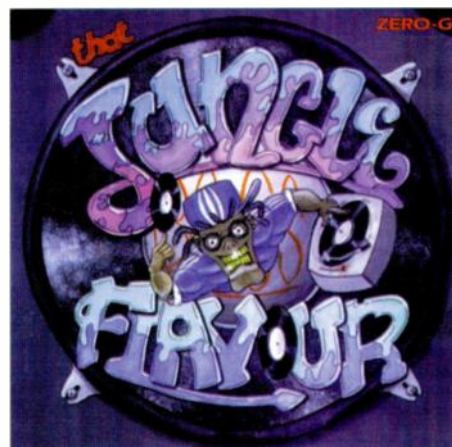
Tricks used to extend the basic source material on That Jungle Flavour include re-sequencing cut-up loop segments, adding in the occasional reversed splice, and putting a 'rrrrr' at the end of a pattern...

Four (or occasionally eight) bars are played out where the loop is one or two bars in length.

Longer, four-bar variations are sometimes repeated, sometimes not. I found this inconsistency in presentation irritating when it came to sampling...

Moving onto the sound effects section, I was disappointed to hear old chestnuts like the shakuhachi, sirens and helicopter making an unwelcome early appearance.

In conclusion, the loops on That Jungle Flavour are very much of the bread and butter variety — good for, as the title suggests, adding a little 'jungle flavour' to a composition...



your own fills, though — those on offer are not nearly dramatic enough to turn heads on the dancefloor.

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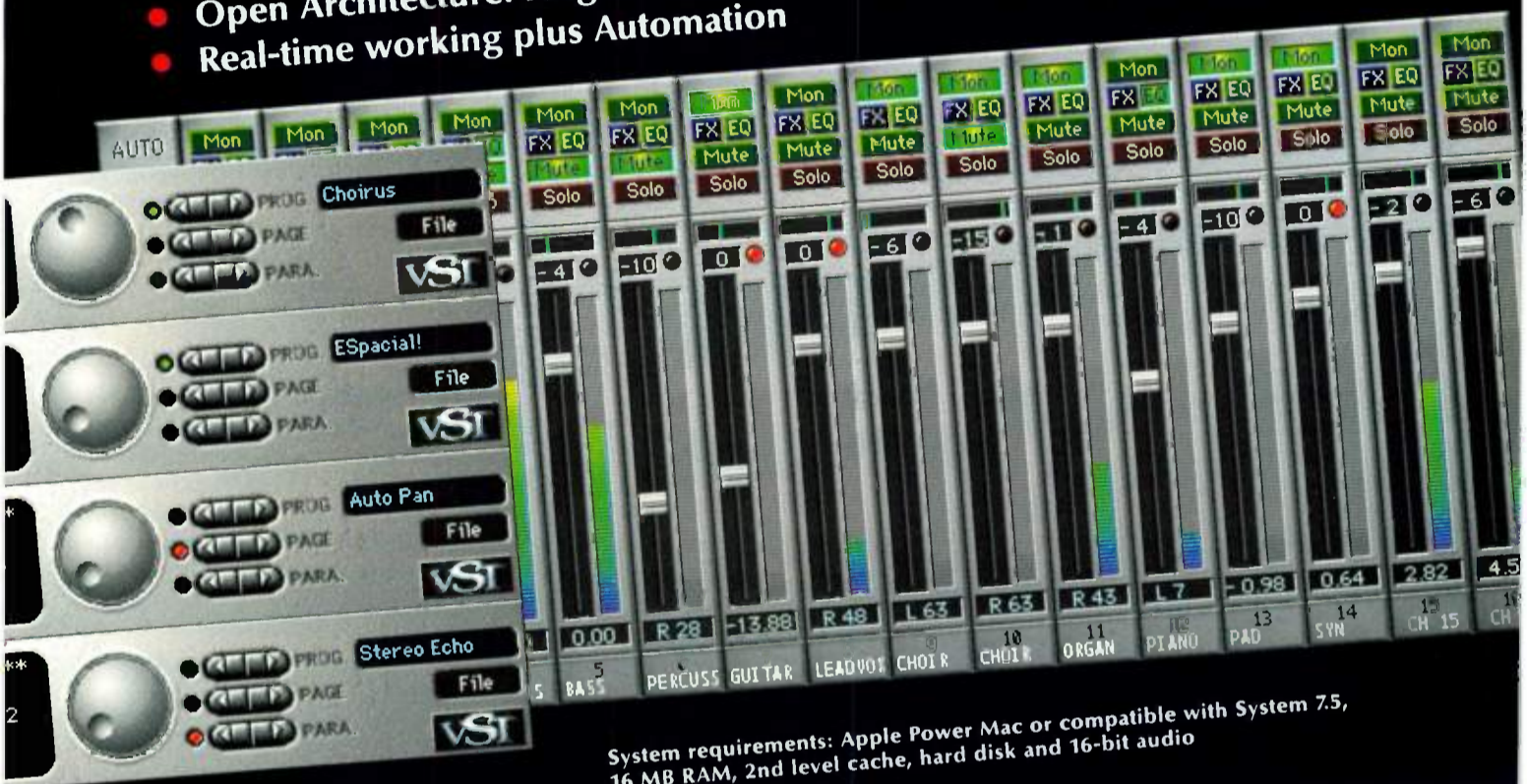
All the products featured this month are available from:

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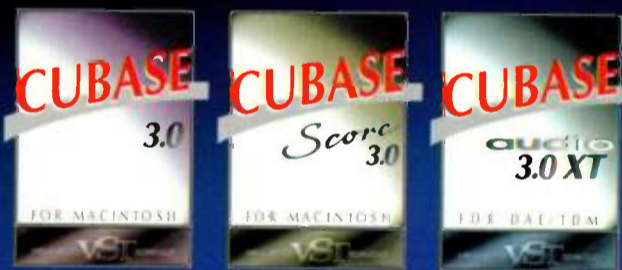
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16 MB RAM, 2nd level cache, hard disk and 16-bit audio

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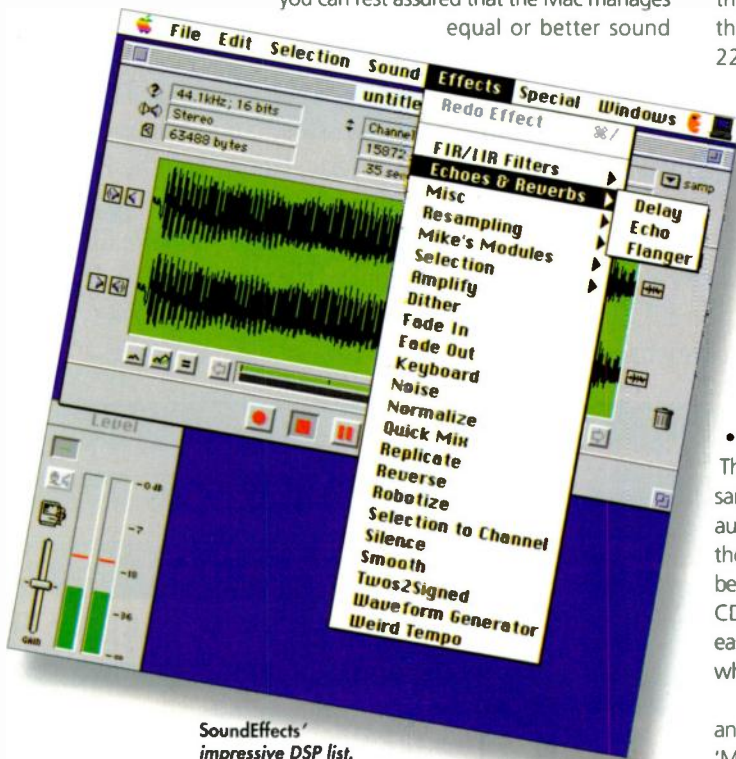
Making The Most Of Synth Sample RAM With Your Mac

▶ still other ways to get it — keep reading...

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SoundEffects' impressive DSP list.

SHAREWARE SAMPLE EDITORS

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The program has its own plug-in architecture, and there are additional plug-ins on the Internet like 'Mike's modules', two really unusual offerings from Michael Norris, a New Zealander, called *Granular Synthesis* and *Sample Hose*. The latter is an audio version of the paint hose in *Fractal Painter* (a leading graphics program). The plug-ins provided by the author provide a fairly comprehensive suite of DSP functions; one of the most notable handles sample rate conversion at any rate up to 64kHz, and bit

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files via the serial port to the onboard PCMCIA flash RAM card.

■ **Sound Bridge** is free with Alesis sample RAM synths.

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If you have an Ensoniq TS10 or 12 you are in luck, too. *EPSm* offers really comprehensive import and export of Ensoniq samples on the Mac. I got my copy from the author (see email address below). You can also get the latest copy (v1.44) by emailing the second address given below and requesting *EPSm.sea*, which is around 700K when binhex-encoded. Make sure you are connected with a fast modem — or request it is mailed to someone who is!

Primarily aimed at EPS and ASR10 owners, *EPSm*'s ability to create an ASR10 disk (complete with instruments from AIFF, *Sound Designer I* and *II* and

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Once registered, you get additional bonus utilities. *stEPS* lets you build more elaborate instruments containing multi-samples and multiple layers. *K-Snatcher* converts Kurzweil K2000 samples to EPS instruments, and *SMAC4* converts Roland S50 S550/S330/W30 to EPS instruments, as well as reading and writing Roland

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- **EPSm** 20 US dollars.
- t.g.finstad@fys.uio.no (the author)
- noise@fys.uio.no (to request *EPSm.sea*)

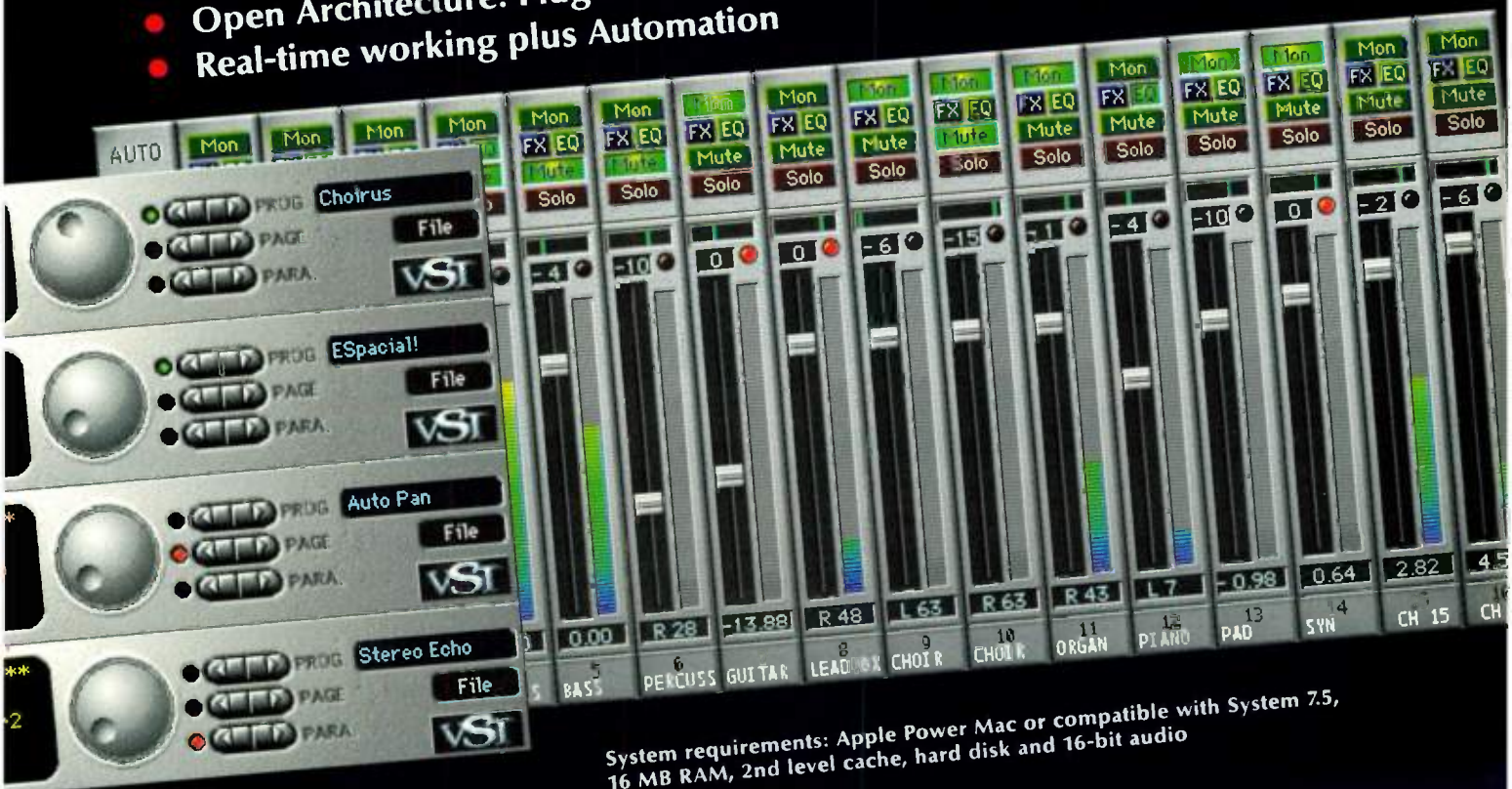
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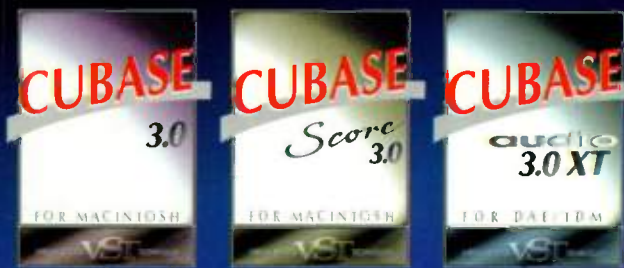
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MAKING THE MOST OF SYNTH
SAMPLE RAM WITH YOUR MACINTOSH

& Enjoy

Bored of the sounds in your sample RAM synth? Fear not, freelance engineer and programmer MARK TINLEY can help.

Here, he reveals some ways of adding new samples with the aid of nothing more than an Apple Mac and some cheap shareware...

My first sampler was a strange affair which I had built myself at home — an 8-bit, CV/Gate-controlled 32K RAM sampler for a Sinclair ZX Spectrum, offering a whopping four seconds sampling time at 8kHz. My entire setup — including a 21-inch colour screen — cost about £150. Viewing waveforms on a huge valve TV was an everyday practice for me, and I was later really surprised to discover that the Emu Emulator II, Ensoniq Mirage, Sequential Prophet 2000, and Akai S900 couldn't do this.

As I became involved in programming and engineering for others, I realised that most people with

frequently on products, which is good for both manufacturer and customer alike.

Today, sample-based synthesizers with adequate user memory to replace a sampler include the Kurzweil K2000 (with four SIMM slots supporting up to 64Mb of sample RAM, and an optional sampling board), the Alesis Quadrasynth series, which can load up to 8Mb of samples onto PCMCIA cards (a great feature for live work, as the cards retain memory even in the event of a power failure, and switching cards between songs gives instant access to further samples) and the Ensoniq TS10 and TS12, which have two SIMM slots and can be fitted with 8Mb of user RAM. The TS10 and TS12 can also be fitted with SCSI cards, can access EPS/ASR10 hard disks or CD-ROMs, and can share their SCSI buss with an Apple Mac.

USING A MAC

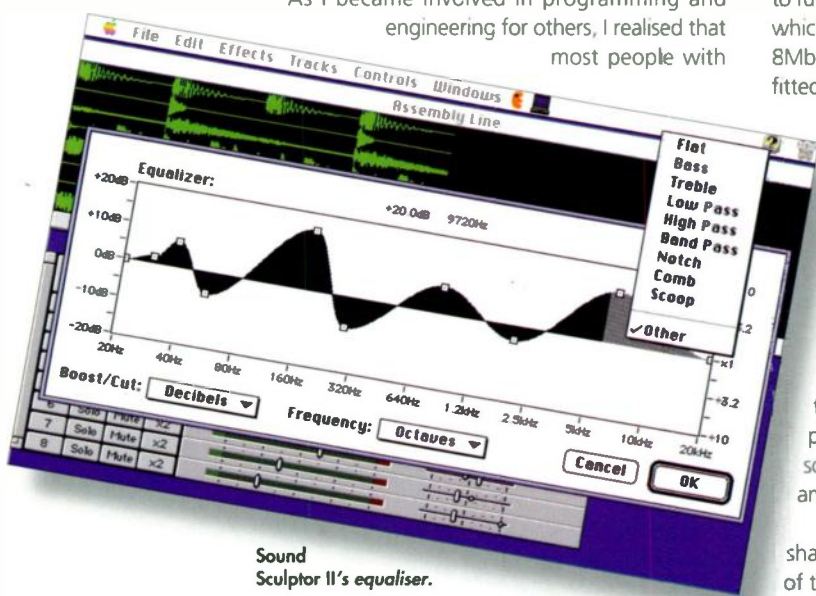
If you own a Macintosh with a 68020 or better processor, there is a cheaper alternative to the sampling option for the K2000, and to sound libraries for the Alesis Quadra series or Ensoniq TS10 or TS12. The purpose of this article is to help owners of these synths on a tight budget create their own sounds, and to point the more seasoned audio professionals at some useful and often overlooked utilities. Yes, I am talking about *shareware*.

The Internet and ftp addresses for all the shareware mentioned here are given at the end of the text on each program. Where *no* address is stated, the programs are obtainable from the following ftp site:

1 ftp://src.doc.ic.ac.uk/packages/infomac/_Graphic_&_Sound_Tool/_Sound/

Most of the other programs in the article are available from here as well, but not necessarily in their latest incarnations.

The utilities mentioned here will allow you to grab and edit 16-bit sound, and save it as a Macintosh: AIFF (Audio Interchange File Format) file. This can then be used with any of the aforementioned sample RAM synths. While AIFF is the common denominator between the programs here, support for other formats will be noted. I haven't mentioned recording yet, because even if you can't record high-quality sound without additional audio hardware for your Mac (hi, all you Performa and LC owners out there!), there are



Sound Sculptor II's equaliser.

samplers had purchased them to play back samples, rather than record their own; sampler purchasing decisions were made not on the merits of the samplers, but rather on which had the best piano sound. Korg eventually reacted to this trend by releasing the M1 — basically a sample playback engine that utilised ROM instead of RAM, with no expensive sampling hardware — and suddenly, my Spectrum-based sampler was robbed of most of its work. If only I could get the TR909 bass drum, snare and hi-hats into the M1, I mused.

Others must have been thinking the same, because within a couple of years, synths based on sample playback engines were appearing with user sample memory. Gradually, both computer memory and memory cards became fairly standardised, and so SIMMs (Single In-line Memory Modules) and PCMCIA memory cards started appearing more

MACS THAT CAN RECORD 16-BIT SOUND

- Quadra AV models that include an AT&T DSP chip.
- All Power PCs *except* some of the new Performas (eg. the 5200), which can only play back 16-bit sound from the internal CD.
- PowerBooks 520/540 and the 5300 series (the 190 can play back 16-bit stereo sound, but has no line input).

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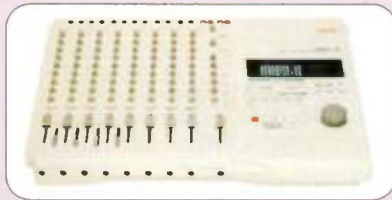
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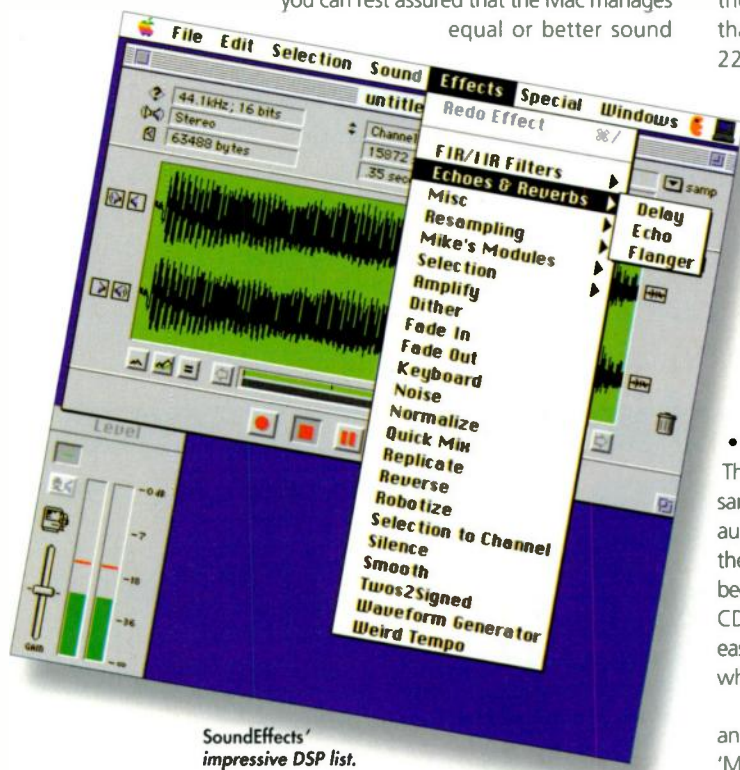
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► still other ways to get it — keep reading...

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£ *EPSm* 20 US dollars.

£ t.g.finstad@fys.uio.no
(the author)

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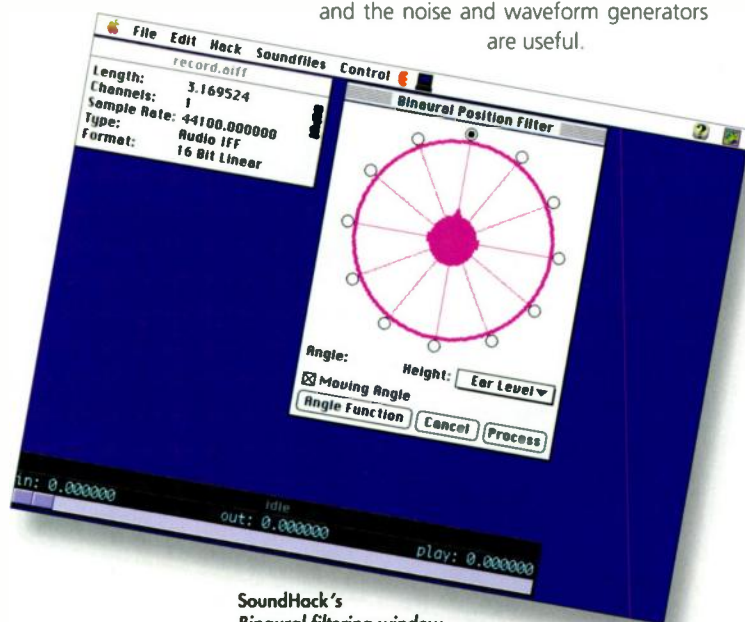


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SAMSON

Making The Most Of Synth Sample RAM With Your Mac

- conversion from 1-bit right up to 32-bit. There is also comprehensive filtering, smoothing and dithering, and support for multiple channel sound files. A mixer is in the pipeline (the *Quick Mix* plug-in can be used as a temporary workaround), as is a spectral display. Some of the other effects are really quite unusual, such as Robotise, a metallic delay effect, and Weird Tempo, which imposes random pitch-shifting and timestretching on the sound file — for these alone the program is worth registering. There is also a facility to play back samples from a virtual keyboard which covers an 8-octave range, and the noise and waveform generators are useful.



SoundHack's Binaural filtering window.

The recording interface is the most comprehensive of the three editors mentioned in this article. There are also generously-sized level meters. Clicking the record button opens a new window where you set up various recording preferences such as sample frequency and bit depth. The great thing about this program is threshold-triggered recording, which waits for a sound above a previously-set threshold to trigger it. However, record time is dependent on the amount of RAM assigned to the program. No Undo features are implemented yet, so saving after each action is desirable. Only two formats are supported at the moment, System 7 and AIFF. On-line help doesn't work yet either, but most of the program's functions are self-explanatory if you have used another sample editor. Lastly, it's notable that *SoundEffects* is claimed to run on a Mac Plus, unlike the other programs mentioned here, which require at least a 68020 processor.

£ *SoundEffects* 15 US dollars.
I <http://ftp.alpcom.it/software/mac/Ricci>

• SOUNDHACK v0.872PPC

This is available on the Internet, with the documentation available from another address (see below). As yet, I haven't seen it on any CD-ROMs. The author invites music instead of the fee, but bear in mind that he needs money to develop the

program, so if you can afford it, send the money!

SoundHack is a real 'Swiss army knife' as far as sound editing tools go. The Open Any command allows any file to be loaded and subsequently played and edited. The mere fact that this program handles virtually every conceivable file format makes it invaluable.

SoundHack also differs from the other two editors mentioned here in that it records audio direct to hard disk, and performs most of its functions in the spectral domain. This means that it performs analysis and resynthesis in order to process sounds. My favourite process is Binaural filtering, which the program does quite convincingly. The effect is better on headphones than speakers, but is in my opinion an equal to Roland's RSS, although it isn't real time. Sounds can also be processed to move around the stereo field over time, and there is a function window where you can draw a graphical representation of your pan.

The Convolution process multiplexes sound files, and one of the effects here is akin to ring modulation. Spectral Dynamics offers frequency-conscious compression and expansion, which can be used for audio restoration. In some cases, I have found this produces superior results to Digidesign *DINR*, which is amazing, when you consider that *DINR* costs nearly 40 times as much! Mutation offers spectral combinations of two source files, and creates a third (mutant) sound file. Though this produces similar sonic results to a vocoder (to my ears), it is not to be confused with the program's separate Phase Vocoder. This is a timestretch function that differs from conventional time-based algorithms in that it stretches information in the spectral domain, which can sound a lot more natural. Spectral extraction and analysis are also included here.

Unfortunately, it would take more room than I have in this article to explain any one of the above functions in any depth. The on-line help and the manual do not carry enough information on the processes involved here either. The program performs complex manipulations with strange technical names like 'Uniform Unsigned Interval Magnitude Mutation' — and to understand these fully, you really have to study some of the books and academic papers in the bibliography. That said, if you are using a Power Mac, you will get the native version once you have registered. This is incredibly fast, and it's much easier to experiment to see what everything does. Highly recommended.

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W <http://shoko.calarts.edu/~tre/SndHckDoc/>
(for documentation)

• SOUND SCULPTOR II v2.1

This has turned up in earlier incarnations on various cover CD-ROMs, and lacks some of the more esoteric functions of the previous two editors, but is probably the most recommendable for the purpose of making S+S RAM synth samples. Most important is that the

SHAREWARE: GOOD & BAD POINTS

THE GOOD

- You can try before you buy (if buying is necessary at all).
- Individual support (usually via email).
- Evolving programs.
- More esoteric features implemented.
- The price (low or non-existent)!

THE BAD

- Not generally available from ordinary music stores.
- Some proposed features don't work yet.
- Payment is in US dollars.

loop function works properly, though it doesn't support loops in *Sound Designer II* files, only AIFFs (it's important to remember that you can't always edit the loop parameters in some sample RAM synths). The DSP functions are similar to those in *SoundEffects*, but all the effects are in stereo, and process tracks individually. The program supports sound files with up to eight channels in System 7, AIFF, *Sound Designer II* and *SoundEdit16* formats. There is a really comprehensive mixer, with level, pan and surround sound (in real time), but as with *SoundEffects*, sample size is limited by the amount of RAM assigned to the program. The EQ is probably one of the most comprehensive I have seen, and the reverb algorithms are superb; the best I have come across in any sample editor, shareware or otherwise; they provide *real* reverb, not just 'bathroom-style' delays. Finally, the on-line help is really comprehensive. Probably the only disadvantage of this program is that you need to register and enter a password before you can save samples, so you can't get working straight away. Again, the reverb and mixer with surround sound functions alone are worth far more than the price, so it makes sense to register.

£ *Sound Sculptor II* 30 US dollars.
 I <ftp://users.aol.com/sculptorii/public/>

OTHER SHAREWARE

After patiently reading this far, Performa and LC owners may be starting to wonder if this article *does* actually contain any information that will be of use to them. Well, apart from gaining access to the entire EPS, Kurzweil, Roland S50 series and Yamaha TX16W libraries, if you have an Apple CD300 CD-ROM (or the newer CD600), there is a function which has been termed 'audio-via-SCSI' by the multimedia fraternity. This lets you import audio directly from an audio CD as raw sample data, so you can transfer 16-bit audio to the computer, bit for bit. You must have Apple QuickTime in your Extensions folder in order to do this, and the easiest way to import audio is from *SimpleText*. Fortunately, both of these are part of the compliment of utilities shipped with System 7.5. All you do is simply go to Open in *SimpleText*'s File menu, and select an audio track to convert from the CD. The QuickTime audio CD import options dialogue box will appear, from which you can set the sample rate, sample size, number of channels and the part of sound to import. Apple's latest implementation of this feature saves the sound as an AIFF-format audio movie, which is compatible with all the programs mentioned here. Bear in mind that you need sufficient hard disk space to store the sample, and that if you intend to load

it into one of the RAM-based editors, you must have sufficient RAM assigned to the program to do so. In other words, use the options to sample only what you need.

SoundHack has an Import CD Track option to do this from within the program, and there are also various shareware programs that allow you to batch-convert using the 'audio-via-SCSI' process. You can set the computer up to record several tracks from, say, a sample CD, and leave it to get on while you do something else. The neatest I've found is called *CDtoAIFF*.

£ *CDtoAIFF* 10 US dollars.
 I QuickTime & *SimpleText* are free — all part of System 7.5 (owners of Macs with earlier systems could try the Apple web site below).
 W <http://www.apple.com>

ABOUT THE AUTHOR

Mark Tinley is a member of the Apple Interactive Music Toolkit Developers' programme. During the day, he is also a synth programmer, sequencer pilot, engineer and producer. Mark can be contacted on the Internet at the following address — his DAW's always open...

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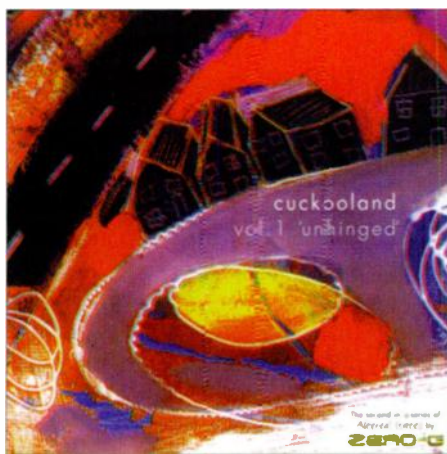
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Our regular look at the hottest new sample CDs and CD-ROMs.



**CUCKOOLAND
VOLUME ONE:
UNHINGED**

(AUDIO CD)



Cuckooland Volume One: Unhinged has got to win the prize for title of the year. As you might expect, the contents of this 70-minute, 99-track audio CD are about as far-out as the Hubble telescope and as patently insane as another term of Conservative government.

The CD starts as it means to go on, with 98 seconds of twisted, mangled sound effects and drones. Imagine the most eclectic and harsh whooshes, swooshes, whizzes, pops and bangs, shove them through the latest state-of-the-art outboard gear, and you're getting close to the kind of feel that this release has throughout.

Loops form the main body of sounds on this CD, in the form of both drum breaks and instrumental passages, but often these boundaries are cleverly blurred, resulting in chunks of rhythm and sound simply aching to be sampled and used in new and exciting ways. The bpm's are listed where appropriate, and there's a good amount of variation within the loops themselves, so chopping them up into different sections is a piece of (fruit) cake.

There are some great live sax, guitar, bass and drum performances, all of which are the sonic equivalent of being chewed up, spat out and left in the sun to dry, before being stuck back together again with luminous sticky tape.

The 81 loop tracks each have between one and nine different loop styles, and at the end of the CD there are some incontinence-inducingly low bass sounds, as well as a good selection of individual drum and FX samples ranging from the conventional to the totally deranged and manic.

As you might have guessed, this is no ordinary CD, and mainstream, non-experimental musos should steer well clear in favour of a cup of herbal tea, a Phil Collins album and a nice lie down. The rest of us, however, can bask in the pear-shaped peculiarity of off-beat drum loops, distorted pad effects, flanged atmospheres, and the kind of stereo treatment that should carry a government health warning.

With so much unrestrained nuttiness flying around, you'd think that much of this CD would be confined to the 'interesting-but-unusable' pile. This, however, is not the case. The more I listened to *Unhinged*, the more ideas it gave me for the kind of tracks I really should be making. Even so, I would have loved to see more pads and ambience samples, as well as a few vocal phrases and effects — maybe for a future release?

As it stands, *Unhinged* is full of sounds the like of which you will never have heard, and if it doesn't breathe new life into your compositions, then I'm a large Swiss cheese called Brenda. *Paul Farrer*

£59.95 inc VAT & UK p&p.

**BOLDER SOUNDS
VOLUME ONE:
ECLECTIC**

(AKAI CD-ROM)



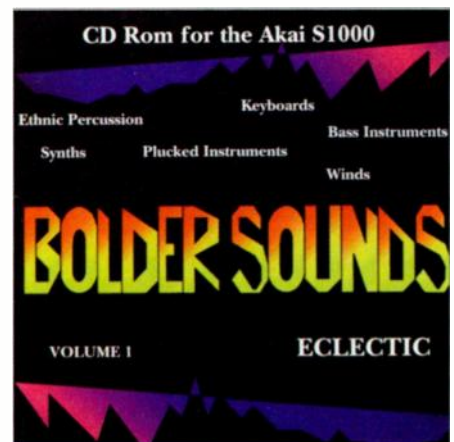
Sample CD producers are constantly trying to push the barriers of weirdness further and further, giving new and unusual spins to their sample presentation. But every so often, you get a product that simply says 'pooh' to that way of doing things and gives you a selection of untreated acoustic samples of conventional instruments. *Bolder Sounds* is one such release. Presented in un-fussy and universally unprocessed Akai format, this CD-ROM contains a good selection of acoustic and ethnic instruments.

The first partition is full of 'Plucked Instruments'. These range from the unusual (saz, bouzoukis, and dobrolins) through to more conventional recordings

of classical guitars, concert harps, banjos, and a picked Stratocaster. The recording quality is good throughout, and each volume is listed with its size in Mb. Interestingly, although the programmes on the disk are all named, the actual volumes they come in are not, which means that you'll almost certainly need the CD booklet for reference at all times.

Wind instruments follow, with a great collection of South American pan-pipes and assorted flutes which is well worth a listen, as are the harmonicas. However, though well recorded and programmed, these sounds don't always inspire as much as they could. The idea of presenting them in a natural, unprocessed state is a valid one, but it does mean that many of the sounds may require additional EQ or filtering before they really shine.

A small but very usable collection of basses (electric and acoustic) is followed by a huge



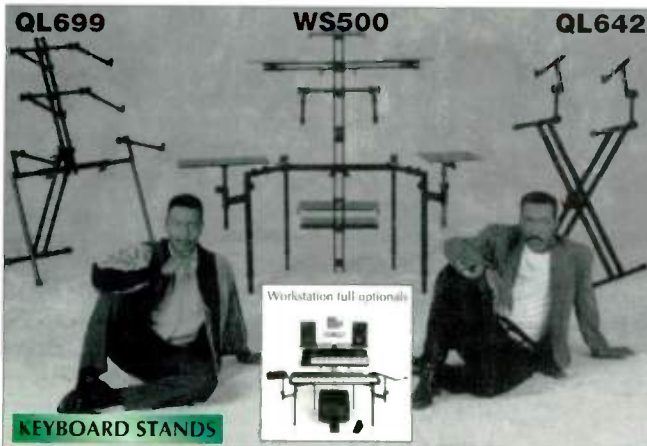
selection of ethnic percussion samples. These are presented firstly as a few multi-sets, then as individual volumes. Steel drums, rainsticks, tablas, marimbas, udus, bell trees and bodhrans are just some of the inclusions in what is by far the strongest section of the release. At the tail-end of the CD, there's a whistle-stop tour of the producer's favourite patches from his Korg 01W and Wavestation modules, and the whole thing is rounded off by a miscellaneous bunch of electric violins, cellos, and a few sound effects.

As I said at the start, this is hardly groundbreaking material, and if you're familiar with Akai's own sound library, there won't be much on this release that you haven't heard the likes of before. However, everything is presented in a straightforward and easy to use format, sound quality is good (if a little raw) and there's enough choice to keep the average user happy for a while, at least. To sum up, I feel the title, *Eclectic*, somewhat overstates the contents of this highly usable, but hardly revolutionary CD-ROM. *Paul Farrer*

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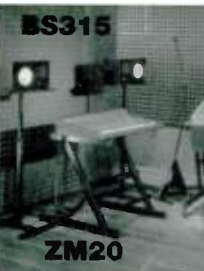
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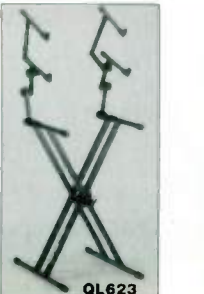
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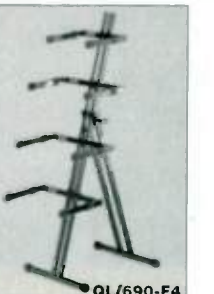
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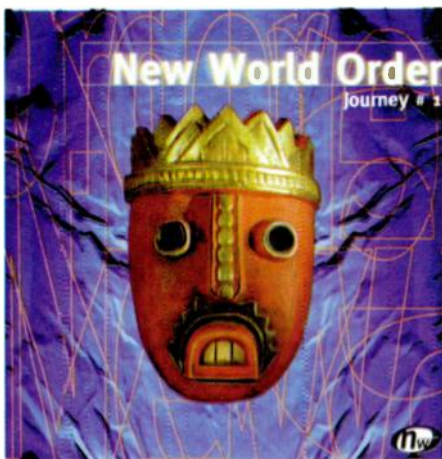
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▶ **NEW WORLD ORDER JOURNEY 1**
(AUDIO CD/CD-ROM)



The cover artwork of *New World Order Journey 1* depicts what appears to be a cyberman auditioning for *Henry V* while beta-testing Esther Rantzen's teeth — at least it gets your attention! The content of the CD is composed entirely of rhythmic loops featuring instruments from around the world. These break down into 88 different tracks, each comprising 12 rhythmic snatches, and all should be easy enough to loop, even if you go for the audio CD rather than CD-ROM.

Tracks 1-8 cover tribal sounds, varying in tempo from a cool 65bpm to a missionary-melting 145bpm frenzy. In fact, it's not until we reach track 22 that we leave Africa for a detour through the Middle East, pending a transatlantic jump to South America, where Brazilian, Jamaican, Reggae, Calypso, Voodoo, Cuban and numerous Latin rhythms abound. Most of the examples are very well played, nicely recorded, and generally useful, though not all of them would work in a pop or dance music context. Writers of travel documentary themes, on the other hand, should be well chuffed. My only criticism is that many of the rhythms are mixed with a noticeable amount of reverb, which

rather precludes you from adding your own.

The next cultural leap is into Indian rhythms, with spicy tablas, before visiting Japan for a feast of eastern rhythms. After that, it's back onto Concorde for a quick trip to Ireland, to be regaled by bodhran-beating folkies and jiggers, before being whizzed to New Orleans, and finally Texas, for a bit of down-home rockabilly. Six additional tracks offer a selection of more obvious contemporary rhythms (though still featuring ethnic percussion of one sort or another) and the final track is given over to FX loops. Altogether, it's a dizzying selection of over 1000 different loops, all sounding surprisingly usable. If ethnic rhythms are your thing, this has to score a four. *Paul White*

£ Audio CD £59.95/CD-ROM £149.
Prices include VAT & UK p&p.

THAT JUNGLE FLAVOUR

(AUDIO CD)



There's jungle loops, hits, sounds and effects in spades on this Zero-G release. Starting with the loops, tracks 1-36 each comprise a bpm-grouped set of 10 loops, mostly based around speeded-up breakbeats, typical of the genre. The tempo range is unusually small, staying around 160-167bpm, and patterns are all in mono. The voices used tend to be basic — kicks, snares and hi-hats — which you could say leaves room for your own character-building overlays of percussion, music, and so on. Many hits and bits have come from vinyl, which imparts a grunge quality to most loops. Initially, the patterns have a rather obviously programmed feel, but around a third of the way through, some livelier loops begin to emerge, either played straight (my preference) or cut up. At this point I decided it was worth switching on my sampler...

Tricks used to extend the basic source material on *That Jungle Flavour* include re-sequencing cut-up loop segments, adding in the occasional reversed splice, and putting a 'rrrrr' at the end of a pattern ('rrrrr': something like the digital feedback you get when your DAT output is routed to its input in record mode — a bit of a jungle cliché.) For an illustration of how to make one loop into several, check out track 31. Here you'll find five variations on the Funky Drummer, generated by rhythmic triggering and inventive looping of this classic breakbeat.

Four (or occasionally eight) bars are played out where the loop is one or two bars in length. Longer, four-bar variations are sometimes repeated, sometimes not. I found this inconsistency in presentation irritating when it came to sampling (why not just play each loop once and be done with it?), since I never knew when to stop recording, and there are no detailed sleeve notes to indicate number of bars. In most cases, I found it easiest to record the full pattern, which left me with some truncating to do.

Moving onto the sound effects section, I was disappointed to hear old chestnuts like the shakuhachi, sirens and helicopter making an unwelcome early appearance. However, things did improve quite quickly, and I have to admit to nicking one or several gems for my current compositional crop. All samples are pretty well recorded and produced in mono, but organisation is poor — samples are not grouped according to type. I suppose this means that a casual listen for sonic inspiration is helped by the constant contrast between sounds. If you know what you're looking for, though, be prepared to be frustrated.

In conclusion, the loops on *That Jungle Flavour* are very much of the bread and butter variety — good for, as the title suggests, adding a little 'jungle flavour' to a composition, but not really strikingly original or well engineered enough to form the foundation of a composition. In addition to the loops, however, there are 500-odd hits, tones and effects on the CD: some are very good, and you can rest assured that most of the 'essential' clichés are to be found in here. (Check out the earlier Zero-G release *Jungle Warfare* for a headier dose of imaginative, immaculate junglist programming.) However, remixers who are into pitching vocals up 20-30% might appreciate the large, ready-to-use palette of tempo-friendly feels. Be prepared to work out

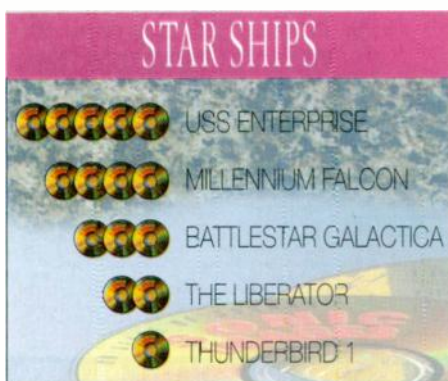


your own fills, though — those on offer are not nearly dramatic enough to turn heads on the dancefloor. The very best sample CDs represent an insight into an artist's soul. I rather get the impression that *Jungle Flavour* has been put together to fill a gap in the market, albeit pretty ably. *Wilf Smarties*

£ £59.95 including VAT & UK p&p.

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- As 1176 but with 88 keys
- Also available with integral flight-case

STUDIO 900

Studio 900 Specifications

- 88 weighted keys with hammer action
- Pitch Bend Wheel and Programmable Wheel
- Program change, MIDI channel change, Transpose
- Also available with integral flight-case

Studio 2001 Specifications

- Full-size 88 weighted keys with hammer action
- Four MIDI inputs may be used for additional keyboards, MIDI accessories, sequencers, etc.
- Four fully independent MIDI outputs,
- 64 MIDI output channels.
- Two programmable control wheels.
- Four programmable control slider.
- Preset increment and decrement input.
- Eight keyboard zones may be defined over local or external keyboard regions.
- Also available with integral flight-case

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MASTER KEYBOARDS

sound on stage

The Performance Audio Magazine

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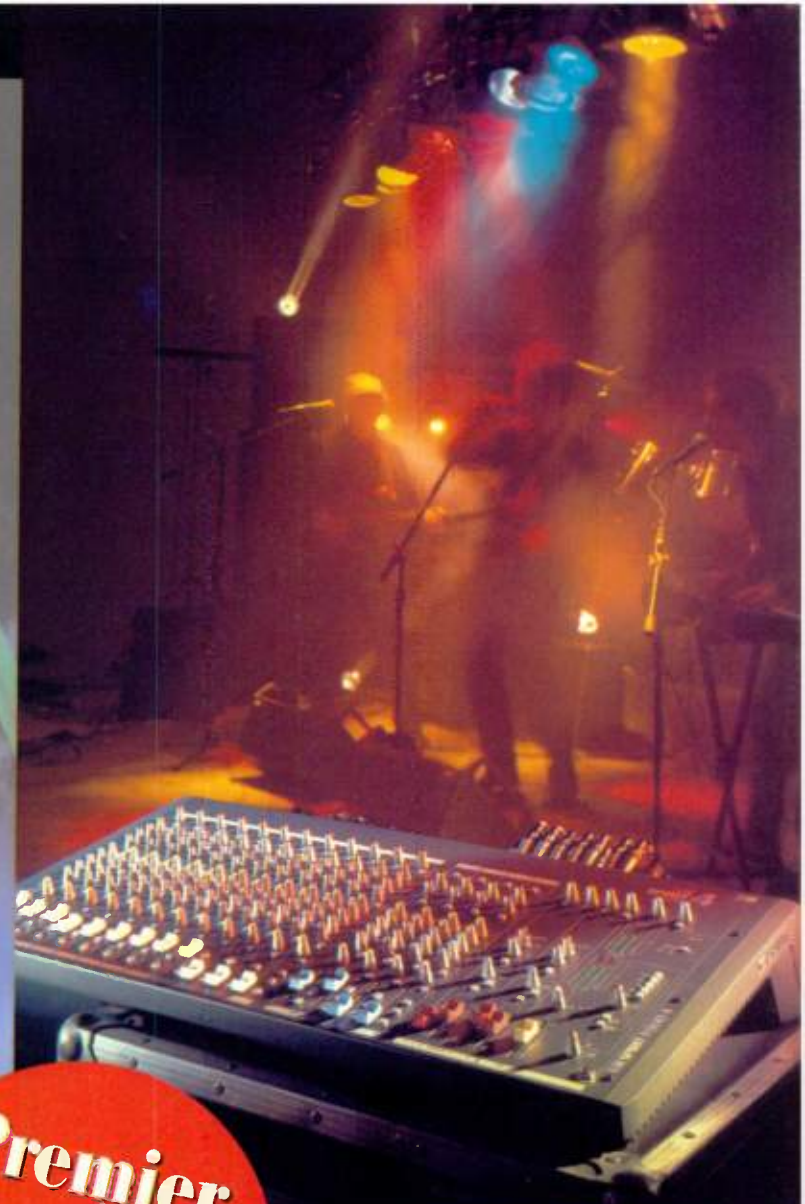


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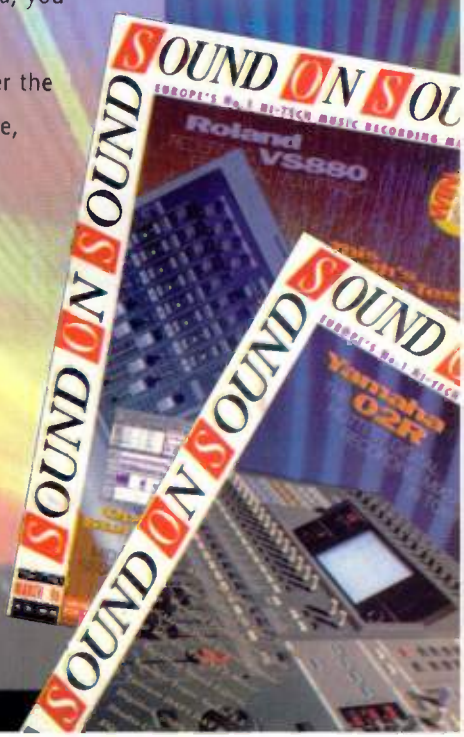
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The Mix

'Philips allegedly invested £500 million in the research and design of DCC... the low cost DCC730 could seriously challenge DAT's hold on the high-tech market. ...could encourage small studios to adopt the format over the increasingly expensive DAT alternative.' *Future Music*

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'All DCC recorders will accept a digital input at 32, 44.1 & 48khz, which is good news for anyone who wants to transfer a DAT collection to DCC. DCC's ability to handle any sampling rate you can throw at it might even precipitate a glut of second hand DAT machines!' *The Mix*



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Heavyweight Champion?

Does Roland's latest contender have what it takes to regain the MIDI Keyboard Controller championship? GORDON REID is your ringside commentator...

ROLAND A90 EXPANDABLE CONTROLLER

Roland were the first Japanese manufacturer to take MIDI really seriously. Indeed, they virtually invented the 'master keyboard' concept when, in 1984, they released the MKB300 and MKB1000 as part of the system that included the MKS10 Planet P, MKS30 Planet S, and MKS80 Super Jupiter sound modules. For a brief spell Roland reigned supreme, before Yamaha stole the high ground with their KX88. Despite adding the excellent MKB200 to the range, Roland were squeezed out as other manufacturers muscled in on their territory — Kurzweil's MIDIboard, the Elka MK88 and the Kawai K8000 at one end, Akai's MX keyboards and the Cheeta MK-series at the other.

In 1988 Roland hit back with the 76-note A50 and, somewhat later, the 61-note A30. In between came the more expensive 88-note, piano-action A80, from which is descended today's offering, the A90/A90EX (pre-fitted with one of three expansion boards, adding sound generation to this otherwise 'mute' keyboard). So, will they place Roland back at the top of the MIDI Controller tree?

A90 AS MIDI CONTROLLER

The A90 is an imposing lump. You immediately notice things like its size and weight, plus the

wooden end-cheeks that look like a Juno 60 on steroids. Then there are the JD800 buttons complete with in-laid orange LEDs, the case on which you could safely park a Chieftain tank, the steel lip that protrudes an inch beyond the keys, and the feel of the keys themselves. On these points and others, Roland can award themselves 10/10, a big tick, and one of teacher's gold stars.

The A90's operation is based upon 64 Performances, each of which contains eight 'Zones' (four internal and four external) whose outputs you define using the plethora of controls and controllers on offer. The most important of these are the 16 primary parameters that you select using the Parameter Select keypad and which you can manipulate individually for each Zone. To be specific: you choose a Zone's MIDI channel using button 1, apply coarse tuning of +/-3 octaves (in semitones) using button 2, and determine the key range over which the Zone applies with button 3. For each Zone, button 4 then offers access to the seven keyboard velocity response curves, the degree of velocity sensitivity, and the maximum velocity that the Zone will transmit to any connected MIDI devices. You control the MIDI volume of the Zone using



button 5, and its pan from button 6.

The next two buttons (Rev Send and Chor Send) are primarily for owners of other Roland modules, and may not be compatible with other manufacturers' devices, but buttons 9 to 12 are far more global, applying modulation, aftertouch, and expression to each Zone, as well as adjusting the portamento time. Buttons 13 and 14 determine the Program Changes and Bank Changes that the A90 sends when you select a Performance and, finally, the last two buttons — Aux1 and Aux2 — should allow you to jump through arcane MIDI hoops by transmitting channel messages, NRPNs and SysEx messages. Unfortunately, every time I attempted to edit them, the A90 crashed. (It did so on a few other occasions, too.) Oops!

Editing couldn't be simpler: just decide whether you wish to adjust an internal or external Zone, press the Edit button, select the parameter that you wish to modify (either via a bunch of hierarchical menus, or by pressing, pushing, or twiddling the offending item) and use the Palette sliders, data entry slider, or Inc/Dec buttons to alter the values presented. You can assign most MIDI functions to most of the A90's controls, including four foot controllers, a breath controller, a pair of traditional pitch-bend and modulation wheels, Roland's more usual mod-lever, twin volume sliders, a number of assignable buttons, and four faders that either assist in editing or initially control the amounts of breath control, aftertouch, expression, and portamento applied to each sound. My only gripe concerns the screen: it's backlit, clear, and can display parameter values as both text and graphics, but it's just too small. Abbreviated function names are acceptable on cheap and vintage gear, but some of those forced

upon us by the A90's 2x17 (!) character LCD are too short by far. Come on Roland...

The System menu also offers a number of goodies. The most interesting of these are the 12 name maps that, if you have another Roland instrument such as a JV80 or SC55, display the names of the factory presets when you select the appropriate bank and patch numbers. For players with other manufacturers' equipment, there are a further four empty, but user-definable, name maps. These are an absolute blessing when you use the A90 with modules such as the Cheetah MS6 and Korg EX800 that have no onboard patch names. Unfortunately, whilst setting up my own maps proved to be a doddle, I couldn't get the preset maps to display for me. Was this another bug, or was I missing something, somewhere?

Once you've configured each Zone within a Performance, you can direct each of them to any combination of the four MIDI Outs. You can then save everything to one of the 64 onboard memories, or one of the 128 that are available if you have the requisite plug-in RAM card. But that's not the end of the story... you can string together a chain of 64 Performances, and save 10 such chains simultaneously. With 640 configurations available, I can't imagine any performer running out of steps, no matter how long or complex their stage set may be. Nevertheless, Roland have seen fit to make chains loopable, and allow you to move both forwards and backwards within them. You can even dump and load chains using SysEx. Whatever next?

While on the subject of receiving MIDI data, I should point out that Roland have implemented the two MIDI Ins in somewhat different manners. You use In1 primarily as a remote control for the eight Zones within the A90, while In2 merges incoming data with that generated by the A90 and then directs this to the Zones of your choice.

Finally, I should mention the Sequencer Controls and the Effectors. The former will select the Song Number, send Song Position Reset, Start and Stop messages, and determine the tempo of any sequencer that responds to an external MIDI clock. The Effectors are edit messages that determine settings within external effects units and drum-machines. Unfortunately, the manual is very unclear about their use and function, and time and space precluded a detailed investigation from first principles. It's a shame that the

pros & cons

ROLAND A90/A90EX

£1699/£1999

pros

- The quality and feel of the keyboard itself.
- Breadth and flexibility of the controller functions.
- Excellent piano sounds.
- Excellent non-piano sounds.
- The styling.

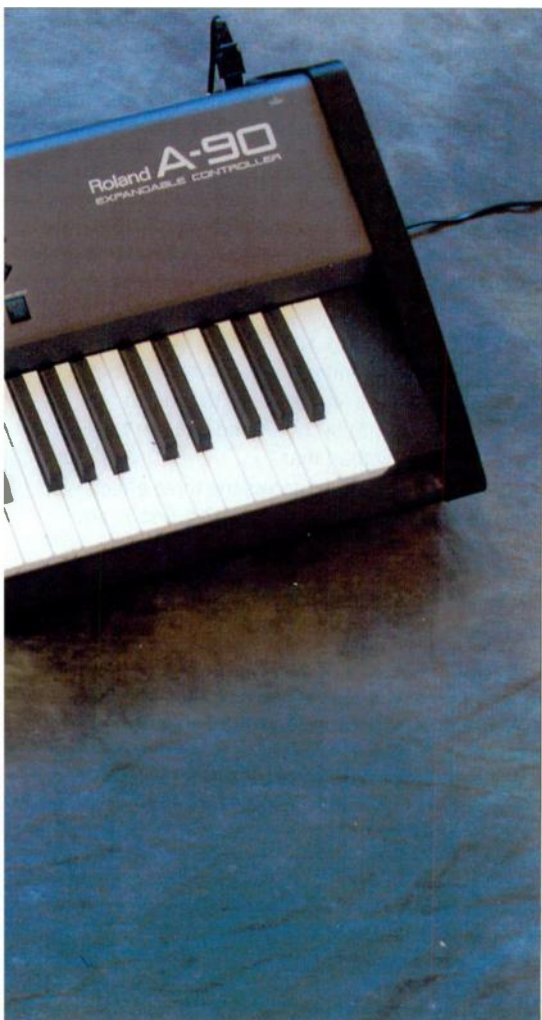
cons

- Small display.
- Limited to one Expansion Board at a time.
- The pressure needed to generate Aftertouch.
- Buggy software?
- Very poor manuals.

summary

If you're prepared to leap-frog the cheap 'n' cheerful and mid-price instruments on offer, and stick your hand in your pocket for nearly £2,000, you have every right to expect something a bit special. Despite the occasional lapse, the A90EX will not disappoint you. It's a top quality master keyboard, beautifully designed and built, and with a superb keyboard action. It's also the best piano in the business. Enjoy!

SOUND ON SOUND



ACOUSTIC PIANO SOUNDS

Despite its other qualities, it's as a piano that players will perceive the A90EX, not only because of the preponderance of piano Patches, but because of its weighted keyboard. So I patched the A90EX into and compared its piano Performances to my dearly loved Roland HP5600, a classic SAS (Sampled Adaptive Synthesis) piano that weighs a few hundredweight, and incorporates a 6-speaker sound system that rattles and resonates like 'the real thing'.

I may as well come straight out with it... the VE-RD1 Expansion Board, despite using 'mere' PCM technology, offers the most accurate piano simulations I have yet heard. The detail of the hammer action is excellent, the dissonance of the

soundboard is exquisite, and the harmonic richness persists well into the tail of the sound. Yet, in common with just about everything from the cheap and not particularly cheerful Emu Performance up to an expensive Yamaha PF100, the 'thunk' of the hammer is perhaps a little overpronounced. It's almost as if Roland have decided that you grasp the soul of a piano by close-miking to within a few inches of the soundboard. Unfortunately, this fails to capture some of the richness and body that you hear if you're sitting in the third row of the auditorium. Yet if I stop analysing, and just listen to the A90EX, it sounds superb. While there's no such thing as a definitive 'piano' sound, I'm going to take the plunge... the A90EX isn't perfect, but it's damn close. Listen and be impressed.

► documentation should let down what is otherwise such a well-produced instrument.

A90 AS SYNTHESIZER

I appreciate all the arguments for having one powerful keyboard controller connected to a rack full of small, light MIDI modules, but I'm personally still a bit wary of keyboards whose only audible

and the VE-RD1 is no exception to this. Four Patches (assigned to the internal Zones) make up a Performance, and it's within the Performance that you apply and store the Patch edits. Unfortunately, and unlike true synthesizers such as the JV1080, the A90EX offers no way to modify the Partials themselves. So, for example, whereas Patch 91 'JP-8 Haunting' demands four voices for every note played (reducing polyphony to a maximum of 16 notes) and, we must surmise, uses four Partials, you can only control parameters that apply globally to the Patch itself.

Editing a Patch couldn't be simpler, with the Parameter Select buttons also controlling the dedicated synthesis functions. Starting, somewhat unusually, at button 13, this allows you to choose the Patches that will occupy the four Zones of the current Performance. You can then select the MIDI channels of each using button 1 (which also controls the Patches' fine-tuning), and can adjust the coarse tuning and the key-range of the Patch using buttons 2 and 3. Once again,

button 4 determines the velocity responses and, likewise, you can adjust the volume of each Patch and its position within the stereo field using buttons 5 and 6. Skipping functions 7 and 8 for a moment, we then come to... the Attack function (button 9), which opens up many creative possibilities, and makes the Patches far more flexible than their somewhat defining names would suggest. Similarly, the Decay and Release buttons (10 and 11) offer a remarkable number of synthesis possibilities. Indeed, by the time that you start adjusting the low-pass filter labelled 'Bright' (button 12), you begin to view the Patches as Partials that you can modify using the ADR envelope and low-pass TVF (Time Variant Filter). Hey! This thing's an S&S synth, after all! You can even control the LFO speed using the Sequencer Control's tempo function (which can itself be assigned to any of the continuous controllers). Mind you, the absence of a Sustain control and the lack of modulation routing restrict things somewhat, but within seconds I had the monophonic Sawtooth Patch sounding just like a monosynth sound on Tangerine Dream's *Rubycon* — and you can't get much more synthy than that.

The final three buttons access the three effects that apply to each Performance. The first is an 8-mode reverb/echo unit (two rooms, two stages, two halls, and two delays), with controls for the effects' level, time, high frequency damping, and feedback. The second is a chorus with level, rate, depth, pre-delay, feedback and output mode controls. (The three output modes are: (i) chorused and reverberated sounds output in parallel, (ii) reverb applied to the chorused sound in series, or (iii) a mix of pure and reverberated chorus.) You control the amount of signal that is directed from each Patch to these effects using the aforementioned buttons 7 and 8 (Rev Send and



output is a dull 'thunk'. It's not a particularly attractive sound, nor one I've ever found the urge to sample. That's why I'm particularly glad that the instrument under the microscope today is an A90EX, not the basic A90.

The VE-RD1 Expansion Board sits behind the screen cover, and can be removed by messing about with a few screws and clips. Still, it's a shame that Roland couldn't have made its installation simpler, because it is completely impractical should you wish to switch between expansion boards with any sort of frequency. As a result, I suspect that an A90EX shipped as a piano will always remain a piano, and that one with, say, the GS board installed will likewise remain a permanent source of GS sounds.

Roland have been building sounds from Partials, Patches and Performances since 1988,

PATCHES AND PERFORMANCES

Provided that it is fitted with a VE-RD1 Expansion Board (the architectures of the VE-JV1 and VE-GS1 boards are somewhat different), each A90EX Performance can combine any combination of up to four of the 128 available Patches. The following are not necessarily Roland's descriptions of each:

PERFORMANCES:	1	Vibe + Marimba combination.	4	EP200s.	
5	Stereo Concert and Semi-Grand Pianos.	1	Polysynth.	4	D50 Patches.
8	Monophonic Semi Grand & Grand Pianos.	1	Brass Section.	6	FM Pianos.
6	Electronic Pianos.	3	Bass + Lead Synth splits.	7	Hammond and Other Organs.
6	Rhodes Pianos.	4	Strings.	3	Vibes.
1	Wurlitzer EP200.	11	Pads.	1	Marimba.
2	FM Pianos.	2	Pads with LFO effects.	4	Clavinets.
2	D50 Pianos.			6	Polysynth Patches.
2	MIDI Stacks.	PATCHES:		7	Strings.
4	Piano + (Strings/Choir/Pad/Bass) combinations.	29	Acoustic Pianos.	17	Pads.
4	Organs.	3	JV80 Pianos.	4	Brass Patches.
1	Clavinet.	4	SAS Pianos (two E-Grand, 2 Rhodes).	5	Pads with LFO effects.
		1	CP Plano.	6	Monophonic Monosynth Patches.
		8	Rhodes Pianos.	9	Basses.

Chor Send). The third effect is an equaliser that offers low, mid, and high frequency gain, and 17 choices of mid frequency, from 200Hz to 8kHz. There's no 'Q' control though. Shame.

So what does this all add up to? Quite a lot, actually. Roland introduced a similar type of synthesis with the U110 module, and later used it in the U220, the U20, and the Rhodes 660 and 760 keyboards. Its implementation within the VE-RD1 expansion board is somewhat different to these but will nevertheless surprise many players with its range of sounds and programming flexibility. Indeed, describing the A90EX as a 64-voice 'stage piano' doesn't do it justice. OK, many of the acoustic and electric pianos are superb, and the Clavinets are excellent, but the real surprises are the pad sounds one would more usually associate with a powerful polysynth. A bit of tweaking with transpositions, envelopes and effects produces Performances that display a richness and depth rivalling even the most expensive programmable synthesizers.

One final point about the expansion card: this can be decoupled from the internal Zones and controlled exclusively by the MIDI Ins. You can then route the four internal Zones to the MIDI Outs, making the A90 capable of directing no fewer than eight independent Zones (in any combinations) to any or all of the four MIDI Outs. Powerful!

CONCLUSIONS

There's lots more in an A90EX. We haven't mentioned the Utilities that offer all the writing, copying, dumping, naming and re-initialising features you would ever want. We've skipped many of the 43 edit functions, and we've ignored goodies such as the onboard Help messages that guide you through the controls and parameters.

But details aside, we should judge the A90EX on four fundamental levels. Firstly, despite needing a vice to get any meaningful aftertouch out of it, I suspect that the A90 would today be my piano keyboard of choice. Indeed, Roland have fitted it with perhaps the best hammer-action ever to be incorporated within an electronic instrument. It's fast enough for monosynth chops, smooth enough for L102 swipes, and firm enough to demand and exercise good pianistic technique. Secondly, and with regard to its credentials as a MIDI controller, the A90's routing and controller flexibility are almost without peer, although it seems to need a software revision to eliminate a handful of teething bugs. On the third count, there's nothing on the market to touch the realism of its piano sounds — the A90EX is definitely the instrument to beat. And finally,

there's the question of its limited synthesis capabilities, and even on this level the A90EX acquits itself surprisingly well. (Just don't expect it to replace your Trinity Pro X or K2500X.) So, are Roland back at the top of the MIDI Keyboard Controller tree? Undoubtedly.

SOS

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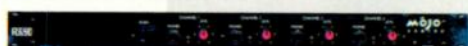
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PAUL WHITE reveals how to create rhythmic gate effects, both using conventional hardware and MIDI Controller information.

Gates were originally intended as utility devices for the removal of noise during pauses in programme material, and their use in this capacity is probably well understood by the majority of *SOS* readers. At its simplest, a gate is just an electronic switch which mutes the signal when it falls below a certain level.

Since gate manufacturers started fitting their products with external key or side-chain inputs, the gate has had its status elevated to that of 'special effects unit', and the purpose of this brief article is to look more closely at the creation of gate effects. If you read the manufacturer's user manuals, they'll nearly always cite the example of using a gate to 'tighten up' a sloppy bass part by gating it from the bass drum track, thus helping synchronise the two sounds. Although this is a very rudimentary use of the side-chain input, it does serve to illustrate how the setup works. More contemporary gating effects include chopping up a sustained sound (such as a synth pad) to generate a rhythmic sequence or even using both channels of a dual gate to create a stereo effect where the rhythms dance from left to right.

CHOP 'EM UP

In some ways, an externally triggered gate bears a close resemblance to a computer logic 'AND' gate, since you get no output unless both inputs are present. You need an external key signal to open the gate, and there has to be a signal present at the

main audio input of course before you hear any output. Only when the two signals coincide will an output signal become audible. Figure 1 shows how this type of side-chain triggering works; a continuous signal at the main input is chopped into bursts by a rhythmic input at the Key In socket. This rhythmic input can be derived from anything — from a staccato synth pulse to the hi-hat or kick drum output from your drum machine. In fact, any sound with a clearly-defined start and end will do the job.

The cleanly chopped output is dependent on the gate being set to a very fast attack time and a very fast release time. If you inadvertently set a long release instead, the gate will barely have started to close when the next pulse comes along and opens it again, so you won't achieve the desired chopping effect. However, if the gate opens so fast that it causes an unpleasant click, you should slow the attack down slightly by increasing the attack time setting, to smooth it out a little.

HOLD ON

When creating gate effects, the gate's Hold control is vitally important because it allows you to set the duration of the triggered bursts with rather more flexibility. If your gate doesn't have a Hold facility, then the output bursts will always be the same duration as the Key input sounds, and if the Key signals are drum beats, the resulting bursts might be too short. By using the Hold control, the burst length can be extended to an artistically correct amount.

A number of dance-style records make use of rhythmic gating to drive the music along, and because of the precise nature of the gating effect, the result is as musically tight as the rhythm doing the triggering. It's most common to use the effect in conjunction with a sequencer, because you can dedicate a separate track to controlling whatever sound you are using as a trigger. You can also quantise, where desirable, to ensure a high degree of rhythmic precision. A great many multitimbral synth modules have their own built-in drum parts and it's unlikely that you'll need them all in your composition, so one drum sound can be reserved as your gate trigger source. For example, in my own setup I use an Alesis D5 as my main drum sound source, but drum sounds are also available from my Sound Canvas, Roland Vintage module, my Emu Proteus and Morpheus. In this instance, however, you do have to ensure that your trigger source signal is not mixed in with any other sounds you may want to use in the mix, which means either using a module with assignable outputs (such as the Proteus), or dedicating a whole synth module to the job of gate triggering. So, if you have an old module (single or multitimbral) that you don't use much, it may be worthwhile keeping it purely for triggering purposes. A sound module with a stereo output and pannable sounds is also beneficial for the creation of stereo effects, as I'll explain later.

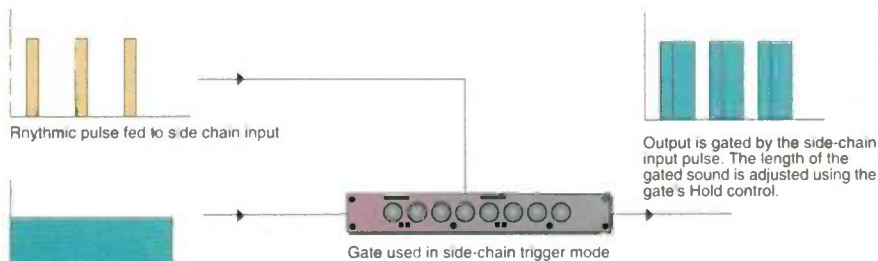
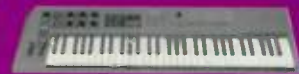


Figure 1: How side-chain triggering works.



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CREATING RHYTHMIC GATE EFFECTS

► If you don't have a drum sound source which you can use for triggering, then any short synth sound with a fast attack and release will do the trick. At a push, if your sequencer is synchronised to your multitrack recorder, you can easily record your trigger source onto one track of tape, thus freeing up your sound module if you need to use it elsewhere in the mix.

WHAT WORKS?

Sustained sounds work best because, when you chop them up with the gate, the rhythmic pulses will be reasonably consistent in level. Guitar is a good candidate, but it needs to be either compressed or overdriven to get the required density of sustain. I find that a mild overdrive combined with loads of compression usually works well.

Other useful sources of 'chop fodder' include layered backing vocals, E-bow guitar (a simple electronic sustaining device), rainsticks (or any other form of percussion that can be shaken or rattled continuously), or sustained keyboard chordal pads. You can even take parts from another song (ideally in the same musical key), and chop them up to provide a rhythm.

To create the stereo effect

sound sources might be a pad from a synth or a looped guitar chord from a sampler, and the only requirement is that the instrument responds to Controller 7, so that you can adjust the volume using MIDI data. Now all you have to do is tap in your guide rhythm pattern (or use an existing rhythm track), then go into edit mode and insert a Controller 7, value 127 event whenever you want the sound to switch on and a Controller 7, value 0 event whenever you want it to switch off. To save yourself time, you only need to construct one bar of this, then you can simply copy it within your sequence track. In fact, if you use one of the better sequencer programs, you'll invariably find a means to input this Controller data graphically, which makes life even easier.

Although this is a very easy way to create gate effects, you can buy pre-programmed MIDI files containing Controller data that provide ready-made gating effects for you to paste into your own music. I use the Twiddly Bits *Bytes and Pieces* collection, which is regularly advertised in the *SOS* classifieds, but Heavenly Music and Hands-On offer similar products. If you have the patience, you can build up complex rhythms encompassing a number of sequencer tracks and a variety of different sound sources, and because MIDI sounds are easily panned, you can also generate some exciting stereo effects. Processing such rhythms via tempo-related delay effects can also help you weave an even more complex rhythmic web. Experimentation is the name of the game here.

NO LIMITS?

Gating effects are normally discussed in the context of dance music, and there's no doubt they are immensely useful in this field, but the same effects may also be applied to pop music, soundtrack work and even ethnic music. For example, you could take a digeridoo loop and chop that up into a rhythm with an ethnic feel (some less-than-kind readers have simply suggested chopping up my digeridoo to cut out the middle man!). You can do the

same thing with sitar drones, hurdy gurdy or tambura, while nearer home, you can find unlikely sources of inspiration in gated vacuum cleaners, washing machines, power tools or industrial factory noises. For new age music, you can chop up recordings of mountain streams (which is far more environmentally friendly than chopping up rainforests!), or you might like to turn your attention to the elements and try chopping wind, rain or the stormy sea.

In the final analysis, rhythmic gating is a very simple effect to achieve, but don't write it off as being trivial just because it is simple. Take the time to experiment and you're almost certain to come up with something that takes both your creativity and your music in new directions — and that's what most of us really need.

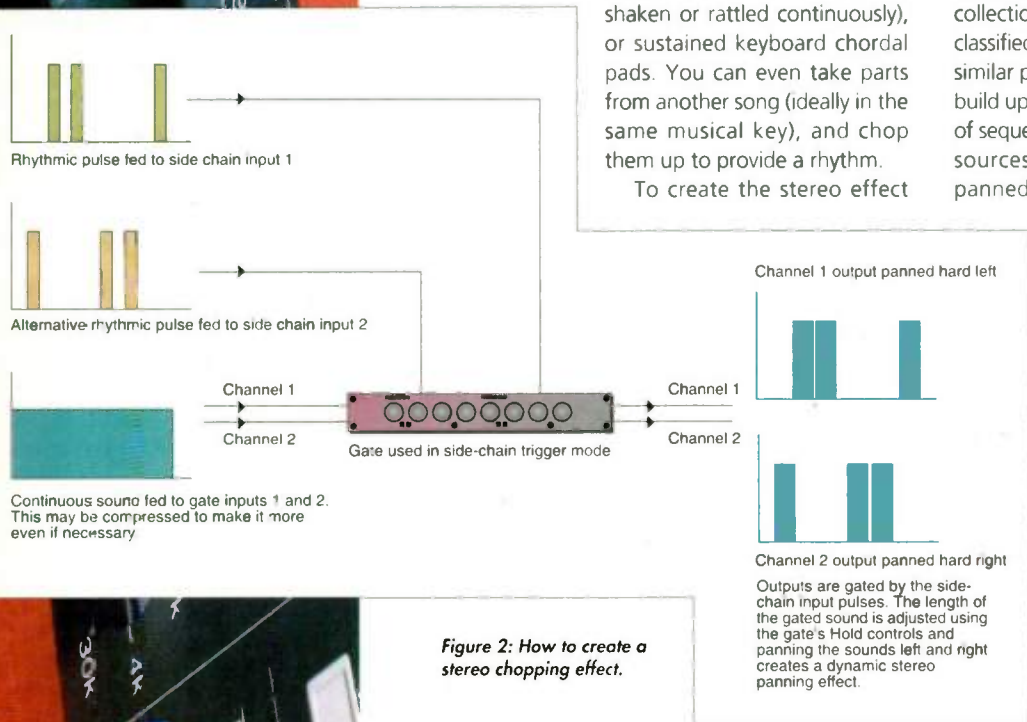


Figure 2: How to create a stereo chopping effect.

mentioned earlier, you simply record two different rhythms into two tracks of your sequencer and then use these to trigger different sounds panned left and right in your trigger source synth module. These two rhythmic signals are used to trigger the two channels of a dual gate and the same 'chop fodder' signal is fed to both gates. All you have to do is pan the gate output signals hard left and right in your mix and the two rhythms will cause the finished sound to dance from left to right speaker. Figure 2 shows how to create a stereo chopping effect.

GATELESS GATING

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Warmer by Tube?

ART have followed up their single-channel Tube MP valve mic preamp by developing two more tube designs for both the project studio owner and the audio professional. PAUL WHITE huddles round to warm his signals...

ART PRO MPA & DUAL MP

Almost everybody who has had a chance to compare different microphones will agree that valve or tube mics have a certain sonic quality that solid-state mics generally lack, and it's also generally accepted that valves, when driven hard, add a type of distortion that we find musically pleasing. With early mics, the 'alleged' magic sound of valves wasn't an issue, because valve technology was all that existed — transistors were still waiting to be invented. Whatever the valves contributed, you had to accept, because there was no way to adjust the amount of tube overdrive, short of changing the distance between the mic and the subject being recorded. It's only when solid-state electronics became commonplace that people realised there was such a thing as 'the valve sound'.

Reissue valve microphones tend to be expensive, though there are some affordable new designs, such as those built by Groove Tubes (see review in *SOS* October '95). However, if you're happy with the mics you've already got, using a valve mic preamp is another way of injecting a little vintage warmth into your work. What I find particularly interesting is that every valve circuit has its own tonal character — valve preamps from different manufacturers will never create quite the same effect. The sound changes depending on the types of valves used, how they are biased, the HT voltage applied to the anode, and whether or not transformer input stages are used.

CALL IN THE MPs

ART's approach in both these mains-powered valve mic preamps is to use a solid-state circuit at the front end to provide a degree of quiet gain, and then follow that with a valve circuit that can be driven into varying degrees of distortion as required by the user. The multiple transistor input stage of the Pro MPA is more sophisticated than that of the Dual MP, and is largely responsible for the unit's very low noise figures (though as these are quoted with a shorted input rather than with a typical mic load, it's very difficult to make exact comparisons). Both models also include high-impedance jack inputs allowing instruments such as basses, guitars or line sources to be DI'd with

the benefits of valve 'flavouring'. There's sufficient gain range to accommodate line-level signals, so it's quite possible to use these units via a console's master insert points to warm up a whole mix.

The valves used are 12AX7 (ECC83) dual triodes (one per channel), and a relatively low anode voltage (sub-100V), is applied, which invariably produces a different characteristic compared to the same tube run from a 250-300V HT line. It does, however, mean the power supply voltages can be stabilised, which helps minimise noise and hum. On both models, a LED meter monitors the tube drive, so that you get a visual indication of the amount of clipping taking place. A simple 4-LED meter is used on the 1U Dual MP, whereas the 2U Pro MPA incorporates a 10-LED bargraph.

THE DUAL MP

The Dual MP offers similar facilities to other mic preamps, insofar as it has both input and output gain controls, phantom power and phase invert facilities, but there's also a Norm/+20dB gain switch which operates before the tube stage. Most mic preamps have an input stage with around 60dB of gain variation, but in this design, the input stage has over 40dB of gain, with the other 20 being provided by the valve stage. A similar gain structure is employed in the Pro MPA, and the maximum gain depends on which connectors you use to get in and out of the units.

Balanced XLRs are used for both the mic inputs and outputs, and these are to be found on the rear panel along with unbalanced output jacks — a useful option for anyone plugging into an unbalanced insert return. High-impedance, unbalanced line jacks are located on the front panel.

To set the degree of valve coloration, the Input Gain is used in conjunction with the 20dB switch, while keeping an eye on the four drive LEDs. Green indicates a clean sound, while the two Yellows show that a degree of warmth is to be expected. If the meter stays in the Red, it indicates clipping, which is perhaps best avoided unless you're using the unit as a valve fuzz box for your guitar. In normal use, the red LED will probably flash only on signal peaks.

THE PRO MPA

Though the circuitry employed in the Pro MPA is rather more sophisticated than that found in the

pros & cons

ART PRO MPA & DUAL MP

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pros

- Clean signal path — especially the Pro MPA.
- Easy to use.
- Variable valve drive with drive level metering.

cons

- Unless you're working with really good mics and recording equipment, the subtle timbral changes may be hard to appreciate.

summary

Two nicely-engineered valve mic preamps offering variable valve coloration at a non-exotic price.

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Art Pro MPA & Dual MP



► Dual MP, the general facilities are broadly similar, the obvious exception being that the Pro MPA has two large, back-lit moving-coil meters to monitor the output levels, in addition to the LED bargraph, which shows the tube drive conditions. There's also a high-pass filter before the gain stage, which provides a gentle 6dB/octave slope with a continuously variable frequency of 7Hz to 150Hz. There's no Bypass for this filter, but if you set it down at 7Hz, it's as good as bypassed for all practical purposes.

All the Pro MPA's audio connections are on the rear panel, and once again, there's a choice between XLRs or unbalanced jacks with jack sockets providing high-impedance inputs for use with electric guitars and basses. Status LEDs are provided for all the buttons.

A glance inside the box reveals that the input stages are placed right behind the input XLRs as opposed to on the main circuit board (where they are on the Dual MP). This is a good move, as it minimises the risk of interference from inside the box being picked up by the input electronics. A further plus point is that the valves are fitted with screening cans in the Pro MPA.

sound and, at the same time, make drums appear more even in level, almost as though they've been compressed slightly. Once again, I got the impression that some of the 'air' was sucked out of the high end, but in a way that made the sound seem more focused and upfront.

When they are used to DI instruments, either unit works fine with passive guitars and basses, and using the valve drive to warm up the tone helps smooth out the sound. For obvious distortion effects, you can crank the drive up to full or even put the two channels in series, but you definitely need a speaker simulator at the end of the chain to make the overdrive sound usable. With most sounds, you can push the peaks well into the red before any distortion becomes evident and used with a little care, it is possible to add a little valve warmth to mics, instruments, complete mixes or even to synths.

I found little subjective difference between the sound of the two units, though the more expensive Pro MPA is a touch quieter, and does have a more comprehensive control layout, as well as the useful high-pass filter.

BRIEF SPEC

ART PRO MPA

Audio
Connectors: Balanced XLRs and unbalanced jacks

Frequency Response: 20Hz to 40kHz
THD: >0.1% typical
Maximum Gain: 72dB (XLR to XLR)
Equivalent Input Noise: >129dBu A-weighted (input shorted) XLR-to-XLR

Maximum Output Level: 28dBu XLR, 22dBu Jack
CMRR: 90dB @ 1kHz

ART DUAL MP

Audio
Connectors: Balanced XLRs and unbalanced jacks

Frequency Response: 10Hz to 20kHz
THD: >0.1% typical
Maximum Gain: 70dB (XLR to XLR)
Equivalent Input Noise: >124dBu unweighted, >133dBu A-weighted (input shorted)

Maximum Output Level: 28dBu XLR, 22dBu Jack
CMRR: 75dB @ 1kHz

WARMED UP

Once plugged in, these preamps are much the same to use as the mic input stage on a typical mixing console, the only additional consideration being how much valve drive to apply. With most sources, including vocals, I found that little effect was audible until the drive was set to a level that resulted in the clip lights coming on quite strongly on the signal peaks, but then you have to be careful that further level excesses don't drive the unit into audible clipping. This being the case, it would perhaps have been a nice idea to include a rear panel insert to allow a compressor to be connected before the valve stage.

Operation is simple — the drive indicator makes it easy to set up the required degree of valve warmth, and no vices of any kind were evident. Once the levels are adjusted correctly, the tonal changes brought about are very subtle, and you have to listen quite carefully to notice exactly what the difference is. On vocals, the effect is to thicken the lower mid-range, which emphasises throaty or chesty sounds. There also seems to be a slight loss of transparency, which is replaced by a greater sense of directness or proximity, but I stress again that these effects are on a very small scale — they don't leap out of the speakers at you.

On mixes which include drums and bass guitar, the effect can be to create a richer, rounder bass

SUMMARY

There's no doubt that both units are well designed and nicely engineered. Both are quiet enough for the majority of pop applications with the Pro model being particularly good for a tube product. However, while everything about the units works perfectly, I have to reiterate that the amount of tonal change you can expect (short of out-and-out overdrive distortion) is subtle. Valve preamps are most definitely not a case of 'the emperor's new clothes', but at the same time, they don't give you an effect that you can lay on with a trowel either. If you're not sure what to expect from a valve preamp, rent one for a day or two before you sign that credit card slip — that way, you'll know exactly what you're getting. This is true of any valve mic preamp, not just these two — the valve sound is one of the most contentious issues in audio, and I don't expect it to go away for some considerable time!

SO5

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One of the unwitting founding fathers of so-called 'new age' music, Kitaro has journeyed down many musical roads in his 20-year career. PAUL TINGEN reports.

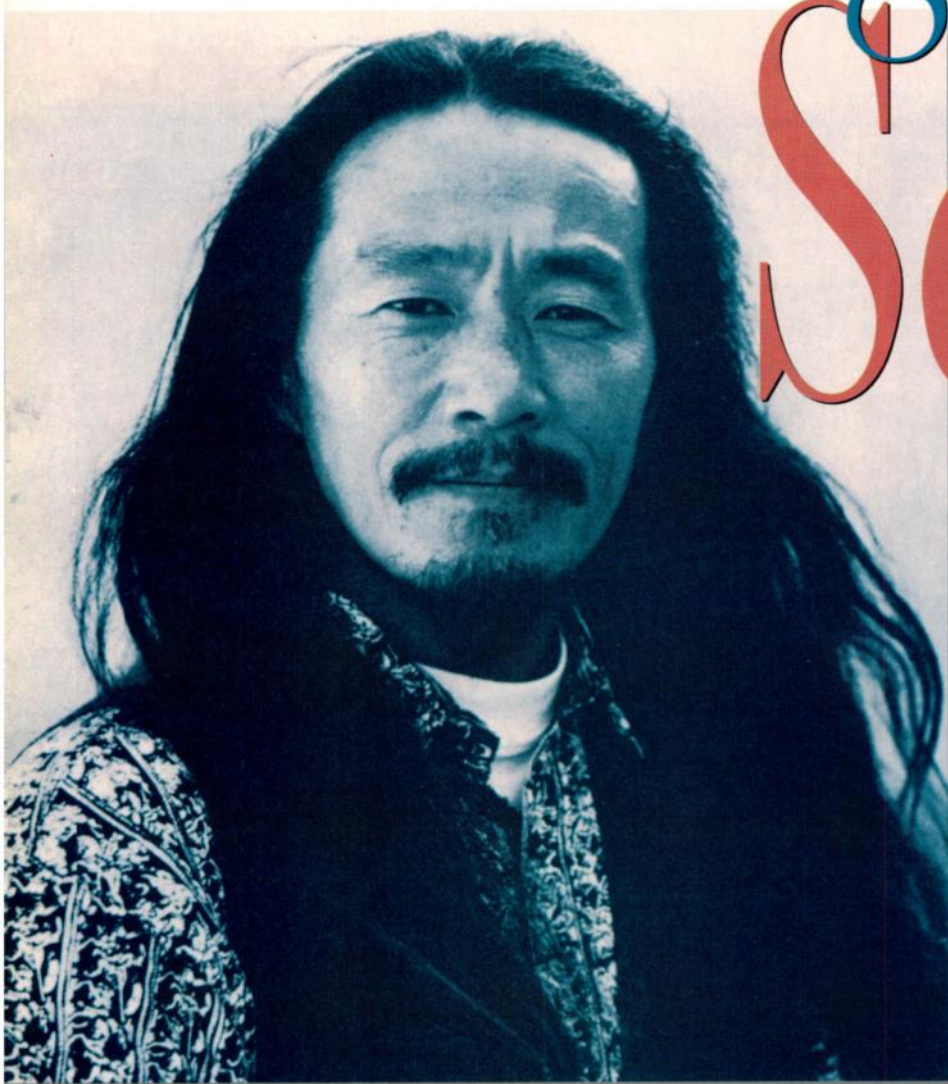
With the dreamy, lilting synth textures of his now legendary *Silk Road* albums (1976/77), Japanese musician Kitaro was one of the founding fathers of 'new age' music, more than a decade before the genre was invented. Fresh and ahead of his time, Kitaro has remained extremely prolific and now has an array of albums to his name: 20+ solo albums; half a dozen compilation, live and 'best of' albums; plus an album with the London Symphony Orchestra. Although less and less at the cutting edge of

year Kitaro is busier than ever, with three new releases under his own name, plus two productions of other artists playing his music under the umbrella of Kitaro's World Of Music.

Of the three albums under his own name, two contain existing material: a live album called *An Enchanted Evening*, and his second album with a major London orchestra, this time the Philharmonic. The latter will be released this Autumn, around the same time as an album of new material, *Peace Symphony*, that features ex-Yes vocalist Jon Anderson. One of the Kitaro's World Of Music albums features the Chinese huqin (a Chinese violin) player Yu-Xiao Guang, backed by a Western chamber music ensemble; the other is dedicated to Kitaro's band member Nawang Khechog, a Tibetan flute player and vocalist, who is backed by nature sounds and traditional Kitaro synth washes. Both World Of Music albums reinterpret Kitaro's music for the 'sophisticated Kitaro fan', according to their cover notes. Altogether it's quite a deluge of CDs, and so this is an especially appropriate time to talk to Kitaro and find out what drives and inspires him. A recent promotional tour of the UK to support these five

Rising SOS

KITARO



releases on his new American record label Domo Records, offered *SOS* a unique opportunity to put these questions to Kitaro, face to face.

MODERN LOVE

For a man who has lived in America now for five years (Kitaro moved from his native Japan to Boulder, Colorado in 1991) his English was still poor, and so it has to be kept in mind that all the quotes in this article are heavily edited. Kitaro, though clearly having great problems getting his points across, happily and imperviously made his generally rather short and cryptic comments to the questions I posed. Given that he is a man who wears his spiritual heritage on his sleeve (witness the 'Great Spirit' poem on the inlay booklet for *Mandala*), interestingly, it was my technology questions that received the most animated responses.

I asked Kitaro about his Shinto background — he was born into a Shinto family in 1953 — and all he wanted to say was that Shintoism is "like a way of life. It's not really a religion, although it is classified as such." Kitaro has gone on record saying that his music is "spiritual" and that "the human element" and "traditional values" are most important to his music, and I was trying to ascertain what these values are and how they fit together with his obvious love for modern Western music technology, and especially for synthesizers. Apparently, it was the legendary Klaus Schulze who first opened his ears to the magical world of

musical developments as his career progressed, Kitaro's albums have nonetheless continued to sell by the million, and have been considered innovative and artistically interesting enough to reap music industry awards such as the Golden Globe Award for his album *Heaven And Earth* (1993, the score to the Oliver Stone movie), and a Grammy nomination for the single 'The Field', from his 1987 album *Light Of The Spirit*. This

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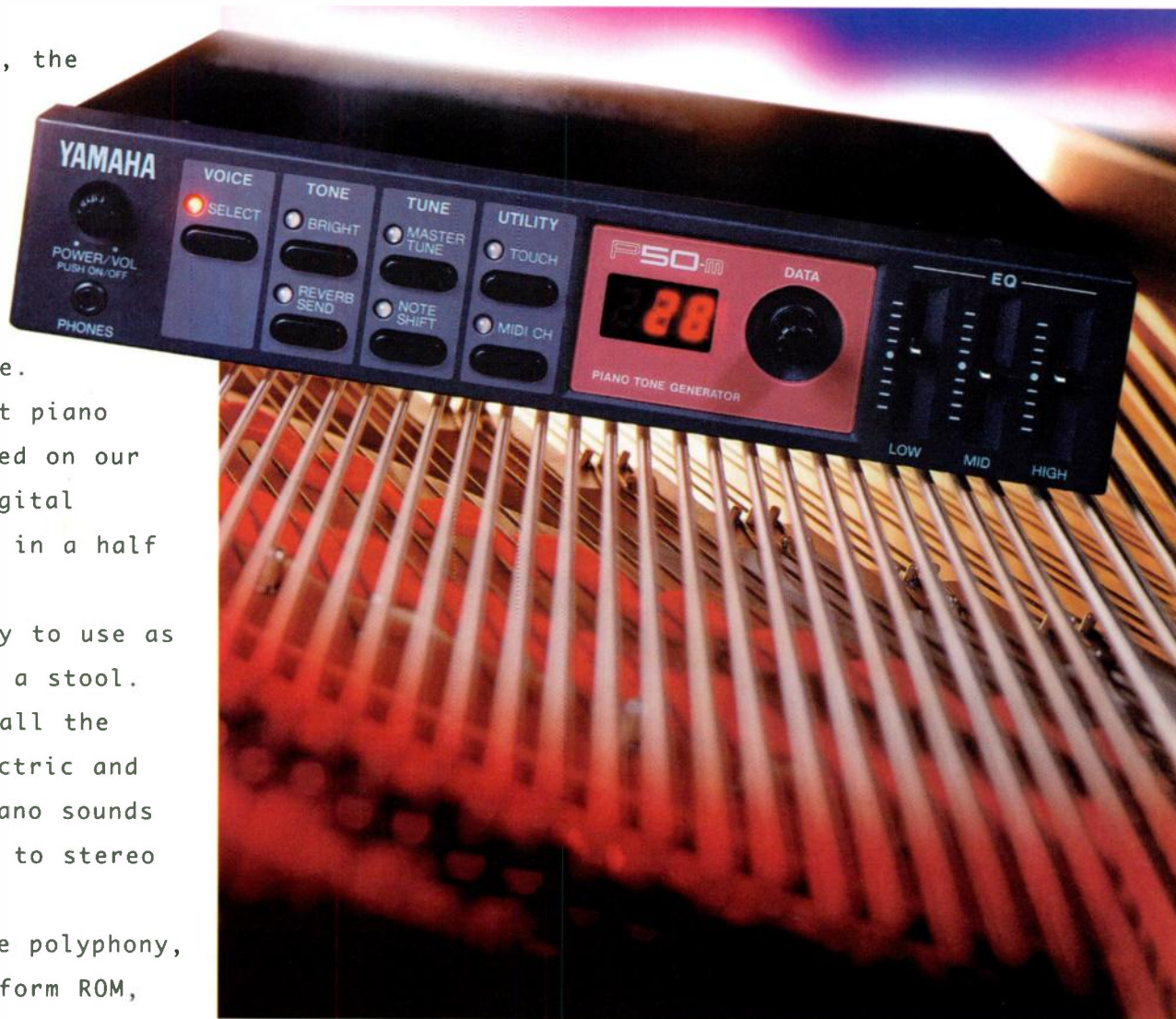
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Kitaro



Kitaro's Mochi House control room houses the Neve 8048 console (rear), Minimoog, Prophet 5, and a rarely seen Korg Wavedrum (centre).

► synthesizers in the early 1970s, when the ex-Tangerine Dream synthesist produced two albums with Kitaro's group, the Far East Family Band. Kitaro remembered this occasion with enthusiasm: "It was the early time of electronic music, and people like Klaus and Tangerine Dream were pioneers. It was so interesting to see him operate these synths and perform on them. I learnt a lot of technical stuff from Klaus, and then I created my own spiritual style with this technology."

Continued questioning about the exact nature of this spiritual style and these "traditional values" led Kitaro to remark that "we need to feel the old ancient stuff. Yesterday I watched the older architecture here in London, and it's really good. It's kind of beyond the times, and we can imagine how people once spent their time and money. I think that it gives a good opportunity for younger people to become aware of other times." And why, exactly, is it so important for people to look into the past? Kitaro appeared unflustered by the interruption: "A long time ago people didn't have any technologies. They connected with nature more naturally. I'd like to learn more of that natural feeling, how we can live, how we can feel, and how we can survive in the future. And in Shintoism we believe that gods live in nature, in the trees and the oceans, and so on. They're invisible, but maybe if we close our eyes and make some image, we can feel something. That's one of the gifts from the gods, maybe from nature; that's kind of spiritual stuff."

Well, quite possibly, depending on how you define gods, or nature, or both. What this latter quote does make more clear, however, is the nature of Kitaro's attraction to synthesizers. He has said that synthesizers enable him to create visual images in music that he couldn't otherwise create, that he can

conjure up "an ocean, a winter coastline, a summer beach, a whole scene" with synthesizers, and so one assumes that they give him the opportunity to create images of these Shintoist gods that live in nature.

Kitaro continued emphasising that it was especially analogue keyboards that give him the most creative freedom to turn his visions into sound: "Synthesizers from the analogue era are much easier to programme. You can create sounds much more freely than with digital synthesizers. Analogue synths also have a much wider sound

"The sounds of digital synths are becoming too much like gimmicks — there's no spirit in them."

picture. Today it's much harder. You spend much more time in the creative process and need big computers to change the data of your sounds. It's much too complicated, and leads many people to just use flat, unoriginal presets. This is why I still prefer to use analogue synths."

NO SAMPLES, PLEASE

Kitaro laughed cheerfully, clearly aware that his attitude will be seen as slightly Luddite in some circles, and enjoying what he considered a spot of controversy. His favourite synthesizers are the Minimoog, the Korg 800DV and the Mini Korg 700, all of which he has used since the time of *Silk Road*. And, obviously wanting to press home the point of the hopelessness of modern, MIDI-fied synths, he adds: "I have a MIDI-Moog, but it's no

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Kitaro

► good. The sound is different. You know, I once changed the tuning pots on one of my oldest Moogs, and the sound changed even from that! They're really sensitive, and so a MIDI-Moog simply doesn't sound the same as a Minimoog, and I prefer to use the latter. I don't use MIDI very much anyway, because I don't use sequencers very much. Most of the time, I play live to a click track when recording. The only sequencer that I do use is the one in my Synclavier, just to allow me to cut and paste parts. But often I don't like the feel of it, because things sound too perfect when they are sequenced. I like to have a more human feeling and, sometimes, when I make mistakes I simply leave them in."

With the admission that he owns a Synclavier, Kitaro instantly does away with the image of himself as a true technology retro man, adding that he uses the Synclavier mainly for "orchestrating and audio-visual work. It's good for that, with the samples, and it has an incredibly easy and well-functioning SMPTE lock to picture. One touch of the button and it's going."

Other than for orchestrating, Kitaro claims he never uses samples: "I don't even use drum machines. Most people use them as an easy option, but sampled drum sounds are not very good. I think original recordings always sound way better."

The search for 'real', dimensional sound appears central to Kitaro's musical quest. It's why he prefers analogue synths to digital (even though his collection of 50+ synths at his Boulder studio, Mochi House, also contains a fair amount of the

latter — Roland JD800, Korg 01/W, and even a Roland S760 sampler). Kitaro tends to play his synths through a PA system and then mike the sounds from the speakers, again in order to create the effect of a real sound. "I like to create a natural feeling, and for individual sounds it's not important whether it is stereo or mono, or processed in some 3D system. It's not what matters. I have a friend who has created a 3D virtual sound system, but if your sound is real you don't need that much depth. Real-life sounds can often sound mono, anyway. The important thing is to create *good* sounds and *good* music. People often follow the technology too closely and sometimes they forget the music, and they are losing something."

DIGITAL GIMMICKS

His search for 'real' sounds has led Kitaro to learn how to play various instruments, which he also uses to great effect on stage, such as the native American flute, the taiko drums and the six-foot long Tibetan long horn. He plays them in addition to the electric guitar and his beloved analogue keyboards, plus a Roland VP330 Vocoder, a Kurzweil K2000 and a Casio FZ1, which are all part of his live rig.

For his most recent live concert CD, *An Enchanted Evening*, eight Tascam DA88 digital recorders were used to record Kitaro and his 8-piece band across 64 tracks. Despite his pledged reservations about people being too focused on



MOCHI HOUSE STUDIOS

Kitaro makes most of his original recordings in his Mochi House Studios in Boulder, Colorado, where he owns a 180-acre estate surrounded by spectacular mountain views.

Mochi's 2,500 sq ft control room is large enough to hold a 70-piece orchestra. As everything with Kitaro, the studio is a strongly contrasting mixture of old and new, with a vintage Neve 8048 32-input desk having pride of place in the control room. "I like old valve gear. The Neve sounds so much better than modern, digital boards. The only problem is the maintenance; it's really tough!"

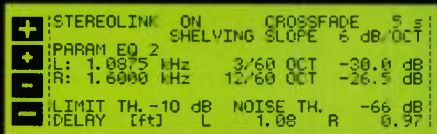
His last studio album, *Mandala*, as well as his Kitaro's World Of Music albums, were all recorded at Mochi House on his state-of-the-art,

32-in/32-out, 16 Gigabyte Sonic Solutions hard disk recording system. "I'm using Apogee A/D filters and we're actually working the whole thing as a 20-bit system. And you know, 20-bit does sound much better than 16-bit. It's a totally different dimension. You can feel the exact place of all the instruments within the stereo image. It's much much more spatial and dimensional."

new technology. Kitaro spontaneously sings the praises of one particularly good piece of gear that enhanced the sound quality of his live CD: "We recorded directly to the DA88 via a special preamp which a friend of mine created. They've just gone on the market with it as a commercial company, called Luna Tech. We compared their preamps to

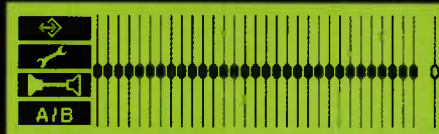
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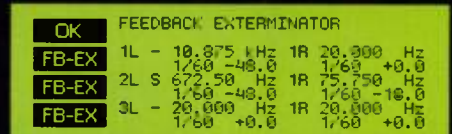
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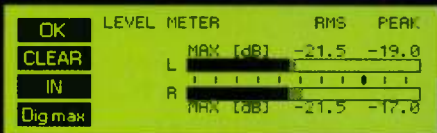
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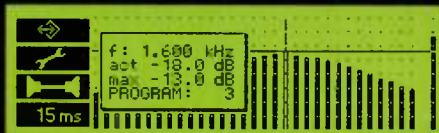
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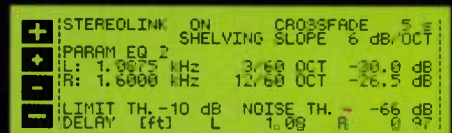
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Kitaro

► many others, even George Massenburg's, but the Luna Tech units were definitely the best. It has warmth and depth, and a really good sound."

Kitaro's obvious enthusiasm for technology keeps raising the question of how this relates to the self-professed "warmth" and "humanness of his

undeniable, and that forced respect. It was the music of a man who had somehow found a way to forge synthesizers in the creation of an original voice that was entirely his own. No mean feat in the often rather faceless and bland world of synthesizer music. Yet listening to Kitaro's newer material — *Mandala* and the live album, *An Enchanted Evening*, which contains the title tune from *Silk Road* — all that delicacy has somehow gone. Most of his music now sounds like rather derivative symphonic rock, a kind of sub-standard Pink Floyd, weak on good tunes but heavy on the big drums, bombastic synth washes and long, ecstatic guitar solos. Occasionally there are some nice elegantly subtle touches, like the flute solo that carries the short piece 'Planet', but then it is off to the Andes again for a pan-flute filled rendition of some cliched Andean music, and on to what sounds like an out-take from *Meddle*-era Pink Floyd in 'Chants From The Heart'.

One wonders what happened to Kitaro's own voice? A normally rather tolerant and broad-minded friend of mine, who was a fan of *Silk Road*, was seriously affronted on hearing Kitaro's recent releases. Slightly more reflective about the whole thing myself, I chose to put my friend's reaction to Kitaro, instead of my own as yet unformed one.

Kitaro didn't miss a beat, hardly appeared to notice the criticism inherent in my question, and put the whole thing down to fans who don't want to change with their artist: "My life is about change, and over the years my music has changed

"His favourite synthesizers are the Minimoog, the Korg 800DV and the Mini Korg 700, all of which he has used since the time of *Silk Road*."

a lot as well. There's a big difference with what I did 20 years ago. That's OK. I don't worry about that. I'm not losing the spiritual things. I go through different stages and I'm not going to stay the same in each stage. *Silk Road* was like a prototype for new age music, and they have since tried to pigeonhole me on that corner. But I think



Mochi House: Pride of place goes to Kitaro's NED Synclavier with Macintosh front-end, and the Roland JD800 (top left).

music." So what is his angle on the generally held view that technology is somehow cold and inhuman?

Kitaro shrugs his shoulders: "It totally depends on how you use technology. Twenty years ago we didn't have digital technology, and synthesizer music sounded really nice. Unfortunately as technology grew better and better, people became more confused. If we didn't have any better technology, then the sound quality of today's music would actually be higher. This is my opinion. The quality of original sounds, whether samples or patches or recorded music, is getting worse now. The sounds of digital synths are becoming too much like gimmicks — there's no spirit in them. I like analogue synths much better; they're much warmer. I think we should really think about how we can make sounds more real, and the way to do that is to create them via air and use microphones to pick them up. If we didn't have air we wouldn't have sound, and so we need to appreciate oxygen and air in our music."

DERIVATIVE?

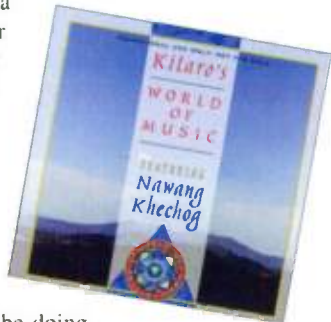
So good music needs air, and the important thing when working with technology is to not forget about the music... So how does Kitaro's music hold up then?

Silk Road may not be everybody's cup of tea (and certainly wasn't mine), but there was an integrity and delicacy to the music that was

that most new age artists don't have a recognisable identity — each person sounds almost the same. Vangelis and Jean-Michel Jarre were also forefathers of that new age, but they do have their own sounds. Vangelis has melodies that are really identifiable. The audience can find true sounds in his music, but in today's music that's virtually impossible."

WORLD OF MUSIC

It may be Kitaro's quest for 'real sounds' that has contributed to the first two releases through his Kitaro's World Of Music project, featuring Tibetan Nawang Khechong on flutes/vocals and Chinese musician Yu-Xiao-Guang on the Chinese violin (the huiquin), plus assorted acoustic instruments and/or nature sounds. Kitaro asserts that he started the project to "give new artists a chance. Nawang is a member of my band, and I thought that he and other great musicians can perform their own solo albums. They interpret and play my music on these particular albums, which were also produced by me and recorded at Mochi House, but on their next albums they will hopefully be doing their own music. All the nature recordings for Nawang's albums were done by ourselves. I don't like using sample CDs, and so we went out and recorded many things to DAT. I even recorded the cracking of the ice on a frozen lake. We made holes in the ice, then put hydrophonic, waterproof microphones into the lake and recorded the cracking sounds. We didn't use that particular sound on these latest albums, but I will try to use it on my next album."



Kitaro adds that other World Of Music projects are already in the pipeline, including one with a Peruvian player and another with an Indian player. On the evidence of the two existing World Of Music CDs one would hope that their quality improves, for the semi-classical arrangements behind Yu-Xiao Guang's violin are (to my ears, at least) dreary and dragging, whilst the mixture of environmental sounds with Tibetan flute and chanting on Nawang's CD sounds contrived and doesn't hang together. Add to this the fact that, despite Kitaro's valid claims to being an original voice in the instrumental music of the mid-seventies, his last two albums (*Mandala* and *An Enchanted Evening*) sound rather derivative, and one wonders what has happened to his creative spirit and sense of adventure.

Kitaro himself, however, clearly holds the opposite to be true. He explained that the reason for the strong Pink Floyd influences on *Mandala* (and five of the eight tracks on *An Enchanted Evening* are also from that album) was a conscious effort to return to his roots: "I was trying to remind myself of my original music, and of the original spirit with which I started my musical life. 20 years ago I played electric guitar, then I changed to synths and orchestrations. *Mandala* is the next step, back to the original music that inspired me — Pink Floyd, '70s progressive rock... The album that I've just finished with Jon Anderson, *Peace Symphony*, is also a little like '70s progressive rock. I will soon start work on my next solo album, which should be out during next year, and this will be entirely different again. It will be based on the planets of our solar system, similar to Gustav Holst's classical work *The Planets*. So my next album will be another step. I'm trying to keep in good shape. Life is different, and the time is good and passing by... and I'm happy."

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CREATING CUSTOM SAMPLE TEXTURES

Many of the sounds on sample CDs or CD-ROMs such as Spectrasonics' *Distorted Reality*, or Ian Boddy's ambient sample collection, are so complex and evolving that you wonder how on earth they were created. The people who produce these CDs all have their own tricks and trade secrets, but the truth is that with relatively little equipment, plus a lot of patience, you too can create custom samples that nobody else will have.

The type of samples I'll be concentrating on in this article are the textural type which tend to be

THE INGREDIENTS

• **SYNTHS:** The equipment lists on texture-type sample CDs invariably feature a large number of synthesizers, but by combining the sounds from even a modest range of instruments, you can create quite startling sound textures of your own. Analogue synths are useful because of the ease with which sounds can be manipulated manually, but in the context of creating custom samples, a guitarist's wah pedal stuck on the end of a GM module can come pretty close. My personal



If you want off-the-wall evolving pads and tones, and are prepared to program to get them, the Emu Morpheus could be the synth for you.

used as beds, breaks or intros rather than for playing chords or obviously musical parts. This makes keymapping easy, because in most cases, a single sample is mapped onto the whole keyboard — even though you'll probably only ever use it over an octave or so. If you need the ability to hold down a sustained pad, you'll need to loop the sounds, but with textural pads, a longish crossfade loop will generally do the trick.

favourite synth for creating weirdness is the Emu Morpheus, but the Kawai K1 is also capable of producing curious textures and atmospheric rhythms. The bottom line is that it doesn't matter too much what you have as a starting point — it's how you use and process it that really matters.

• **EFFECTS:** Custom samples tend to rely heavily on effects, so a multi-effects unit of some sort is essential. At the budget end, I like the original Alesis Quadraverb/Quadraverb Plus because it includes ring modulation (see box 'How Ring Modulation Works' for an explanation) and resonant chord programs. The now-discontinued Boss SE50 and SE70 are two units which are also useful, as they both have a vocoder function, which can be an immensely powerful tool for welding two sounds together to create a new one. Cheap effects such as guitar pedals (particularly distortion boxes) are also useful allies in the battle against mundanity.

Going upmarket somewhat, those with access to a Lexicon PCM70 or PCM80 will find their high-quality resonant programs useful, and there are numerous other Lexicon treatments that lend themselves to sample creation.



With a little work, the Kawai K1 can also generate some peculiar, distinctive sounds — and it's a cheaper option than a Morpheus.

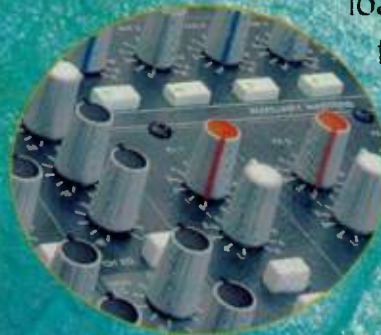
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CREATING CUSTOM SAMPLE TEXTURES

- ▶ • **NATURAL SOUNDS:** As a rule, samples from synthetic sources have a certain electronic sameness to them, so I like to add in natural sounds. Unpitched or vaguely-pitched sounds such as bamboo chimes and rainsticks take on quite a different feel when you add effects, while heavily-treated electric guitar can often produce a more organic result than a synthesizer. Everyday sounds such as



Korg's AX30G — one of the budget (sub-£400) effects processors to offer ring modulation.

washing machines, vacuum cleaners and power tools take on quite a different timbre when played back at different speeds — and don't forget the human voice.

LAYERS

Perhaps the easiest way to build up a sound texture is to record the parts onto tape, in layers, just as you would for a conventional multitrack recording. The choice of whether to add effects to the sounds as you go or to add all the effects in the mix is up to you; obviously, adding the effects last gives the greatest flexibility, but if you want to add different effects to each track, you may have to lay some effects to tape as you record. For sounds that need

to be started in sync, it helps to trigger all your MIDI sources from a sequencer.

It's probably best to aim to get a minute or two of material onto your multitrack — that way you can pick the best bits to make up your loop. If you need to change the pitch of a natural sound by more than the varispeed range of your recorder, simply sample the sound into your sampler, play it back at the new pitch and record it back to

tape. Similarly, if you want to reverse one of the sounds and you're not working with analogue multitracks (in which case you could simply turn the tape over), you could sample it, do a reverse sample operation and then record it back to tape.

If you're using a synth pad as the basis for your layer, the choice of pad will depend on whether you're creating a one-shot sample, or whether you want something you can loop. With memory costs falling and modern samplers offering very long recording times, creating a 30-second, stereo

one-shot sample is quite feasible, but if you want something you can loop indefinitely, keep in mind what will happen at the loop points. For example, if you include a slow downward filter sweep, it'll need to sweep back up again to the same timbre as it started at if the loop point is to be successful.

One way of giving a shifting, evolving character to a sound is to layer two or more pad patches and then vary their levels so that they all take turns in being loudest. You could simply do this by moving the faders on your console, but it's more flexible to drive the synths from a sequencer and use Controller 7 (volume) information to modulate the levels. For example, if you have three pads going at once, you could create a triangular level modulation (like a very slow tremolo), using the graphic interface provided by most modern sequencers, or you could enter controller values manually. The same controller data could then be copied to the other two tracks, but with different delays, so that the mix between the three layers is constantly changing. The same techniques can be used to build panning into stereo samples.

By using sounds that have some timbral similarities, such as string pads and choirs, or voices and woodwind, you can create slow morph-like effects, where the sound mutates from being predominantly string to predominantly choir, and then back. On top of this, you might get a real singer to sing a simple phrase or sustained note. Pseudo-ethnic 'nonsense' languages are currently quite popular. Because you're aiming for a stand-alone texture pad that you can play from one key, you can opt to either make everything play the same note, or you can create a chord. In the latter case, it's an idea to create both major and minor versions, which will give you more flexibility in the types of musical structure where you can use the sample.

You can often give a pad a more haunting sound by including bamboo chimes, muted bells, or other gentle percussion in the background, and even if these sound a bit routine when you first record them, you'll be surprised what changes you can make with effects. Used in the background, and soaked in reverb where appropriate, such sounds can really lift a sample out of the ordinary. Similarly, natural environmental sounds such as wind, rain, sea, running water, insect noises, birdsong, and so on, can all help create a mood.

GUITARS

As I said earlier, the electric guitar is a great source of sound. If you have a small practice amp, you could get your guitar to feed back on one note and then record that as part of your layer. Adding a little gentle, slow vibrato can help make the sound more human, and using lots of overdrive and/or compression should ensure that just about any guitar will feed back. Use your fingers to damp any strings not feeding back to make sure they don't join in; the third string is always a good bet for feedback effects. You might also like to experiment with chopping up the drone sounds using a gate triggered from a drum machine or similar rhythmic external source. ▶

"Samples from synthetic sources have a certain electronic sameness to them, so I like to add in natural sounds."

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- ▶ If you have an E-bow (an electromagnetic bow that creates indefinite sustain on single notes), you'll find making controlled feedback drones far more predictable; by changing the tone controls on the guitar, amp or recording preamp, you can get a whole range of sounds, from soft flute-like notes (or whale sounds using the vibrato arm), to harmonically rich, eastern-sounding effects. Filter sweeps can be recreated using a simple wah



An e-bow can considerably extend the tonal palette of your electric guitar, yielding some fascinating, almost synth-like evolving tones.

pedal, though an old analogue synth with an external audio input, such as the Sequential Circuits Pro One is rather more versatile. Alternatively, a modern, stand-alone MIDI-controlled filter (such as those from Peavey, Waldorf, or Mutronics) offers creative potential plus the repeatability provided by MIDI control.

EFFECTS & EQ

Having recorded your material, what can you do with it? The simplest effect is EQ — taking the top end off a digital pad can leave it far smoother and more musically useful. Guitar preamps with speaker simulators are also good for smoothing out sounds, and if you want to be more radical, you can process your recorded sounds through a fuzz box and then use EQ to shape whatever comes out!

In one of my own experiments, I layered eight different E-bow sustained notes playing root, octaves and fifths, used a guitar preamp with a speaker simulator to smooth off the rough edges, and then added an effect from my Quadraverb, which combined chorus, stereo delay and a long reverb. The eerie chordal drone that resulted was surprisingly rich and dynamic — unlike synth chords, you can hear the various guitar notes drifting in phase — and because the level is nominally constant, it's also quite easy to achieve a seamless crossfade loop.

Where sounds are less even in level, a healthy dose of compression before sampling makes looping easier, and if there are just one or two elements in your layering scheme that are causing trouble, try compressing just these rather than the whole sample.

SHOCK TREATMENTS

- **REVERB & ECHO:** Long, grainy reverbs and dancing stereo echoes are often very effective in giving a sound an unearthly feel, and to really create a sense of distance, you can leave out the original sound altogether and just use the effects output. However, there's more to effects than reverb, chorus and delay. Only a few budget effects units include ring modulation; the Sony HRMP5, the Korg AX30G and the Alesis Quadraverb are some of those that do have it, and though the operation on the latter is fairly limited, it can still produce some unusual sci-fi effects.

- **RESONATOR EFFECTS:** The other Quadraverb effect I really like is the Resonator program, which comprises five delay lines, each with a very short delay time and variable feedback. With the feedback turned up to 99, the resonators ring whenever a percussive sound is played in, and the pitch of the ringing depends on the delay time set up. Now comes the interesting bit: the pitch of the resonators may be controlled via a MIDI keyboard so that, for example, a drum part would set the resonators ringing to sound like a chord of up to five notes. Subjectively, the result has much in common with the vocoder, another of my favourite toys. Any sound with a percussive element can be given a completely new character, and even harmonically rich pad sounds produce good results, with some notes being subdued and others rising mysteriously out of the background whenever they coincide with the resonator pitches. Drum or percussion loops also make good source material and you can play any MIDI note or chord you like to control the resonators — providing it doesn't have more notes than your effects unit has resonators. The Lexicon PCM70 and 80 also have Resonator programs.

- **VOCODERS:** A vocoder can also be used to give one instrument the character of another. The usual example is modulating a keyboard pad using the human voice, but you can just as easily modulate drums using a harmonically-rich keyboard pad or modulate one continuous sound with a completely different sound. A vocoder uses the frequency spectrum of one sound (the Modulator input) to filter the other (the Carrier input), so using a modulation source that changes over time produces the best results.

- **FLANGING:** This is yet another common effect that works well in samples, because you can use it on selected layers of the sample to create movement. For example, over your basic evolving sound, you could add something like heavily delayed or reverbed wind chimes, shakers or oddball percussion, then flange the result to create movement. Long, bright reverbs work well with flangers, as there are plenty of harmonics to pick out.

HARD DISK EDITING

Most professional sample authors use hard disk editing systems because they provide a convenient ▶

CIRCLE LINES: HOW RING MODULATION WORKS

A ring modulator, so called because it was originally produced using a circuit composed of a ring of diodes, is a device that processes two input signals to produce a new signal corresponding to the sum and difference of the input frequencies. If you put in two sine waves, then you'd simply get two new pitches out, but if you used harmonically rich waveforms, you'd get a whole new spectrum of harmonics not related to the original input in any musical way. The classic example here is ring-modulating the human voice with a 50 or 60Hz sine wave — the result is a Dalek. The Alesis Quadraverb has a built-in sine wave oscillator which can be varied up to 300Hz, but unlike most ring modulators, there's independent control over the level of the sum signal and the difference signal. What you get out of a ring modulator is largely a matter of experiment, but percussion and bell sounds can be altered in drastic ways to create new noises that bear no resemblance at all to the original.

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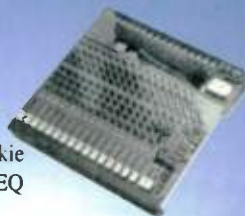
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CREATING CUSTOM SAMPLE TEXTURES

- way of editing the basic sample before piping it into the sampler — a multitrack system with level automation offers the most flexibility in moving and mixing the various elements within a sound. However, even with a stereo audio editor, you can start with a two-minute texture, decide which 30 seconds is best, select your loop points and even reverse



Want to sound like a Cylon off *Battlestar Galactica*? The vocoder on the Boss SE70/SE50 can help you (and make your samples sound much more interesting too).

the entire sound if you want to. Finally, the sample level can be given some overall EQ, if required, and then normalised to make the best use of the sampler's dynamic range. Similar facilities are available using 'Audio + MIDI' sequencers, though it's obviously best to use a system which saves the file in a format that can be transferred into your sampler digitally, either via MIDI (which is painfully slow), or via SCSI.

If you don't have access to a hard disk system, you can load the sample into your sampler via the analogue audio inputs — you won't lose much in the way of sound quality. It's usually best to mix samples onto DAT and then have a separate session for loading and editing the finished samples. Once in the sampler, you can decide what sort of attack to give the sample, apply dynamic filtering if your sampler has the capability, and optimise those loop points. Again, the pro would use a software sample editor to make the job easier, but providing you have a little patience, you can do all that needs to be done from the sampler's front panel.

SOUNDS INSPIRATIONAL

As you can imagine, there are endless things to try, but layering natural with unnatural sounds, and then using effects to modify the basic character of the sound, is a good way to go. You don't need banks of synths or racks of effects — all that's required is a few basic bits of gear, a sampler, and plenty of imagination. Just remember not to include any copyright material

in your own samples if you're looking for a commercial release. Instead, keep your ears open for unusual sounds — the gurgling from the back of the freezer, the creak of an iron gate, or the boom of a metal garage door. Even top film designers rely on everyday objects for their inspiration — the laser guns for *Star Wars* came from hitting a steel pylon support cable, not from a synth, while that famous TARDIS take-off noise, familiar to all *Doctor Who* fans, started life as a key being run down a piano string! (If you call Assistant Editor Matt Bell, he'll probably be able to tell you whether it was a Yale or a Chubb key, and probably what the serial number was too!).



“Everyday sounds such as washing machines, vacuum cleaners and power tools take on quite a different timbre when played back at different speeds.”

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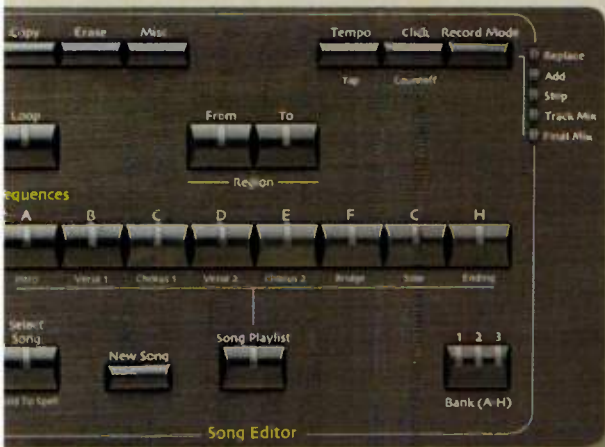
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Access

Modern synths are undeniably powerful, but for many users that power remains locked in by non-intuitive digital parameter access editing. PAUL WHITE and PAUL NAGLE check out a pair of knob-equipped hardware programmers that could reveal hidden depths for Microwave and Matrix 1000 owners.

all Areas?

ACCESS MICROWAVE & MATRIX 1000 PROGRAMMERS

When the technological changes of the '80s made digital access, LCDs and alpha dials the norm for editing synthesizers, it seemed that the ability to be truly creative was becoming submerged under dozens of pages of software and a multitude of multi-function buttons. For many seasoned synth programmers, the prospect of creating or tailoring sounds by altering a single parameter at once was a painful process when compared to the control offered by a handful of knobs, sliders and switches. And with the ever-improving quality of factory sounds and the blossoming industry of third-party patches, so the perceived need to be original diminished. These days it's almost amusing that so many modern synths try desperately to recapture the magic of the instruments they were supposed to consign to the scrap heap. Perhaps the old ways had something to offer after all?

Of the few companies still providing 'hands on knobs' facilities, Roland found probably the most successful compromise: hardware programmers. Bought separately to the instrument itself, these were small boxes laden with physical

controls for the synth. They were an optional extra which allowed the musician to have the best of both worlds — a practice all too rare. Now a German company, Access MIDI Tools, have spotted this gap in the market and have produced hardware controllers for a couple of modern classic instruments: the Waldorf Microwave and the Oberheim Matrix 1000.

MICROWAVE PROGRAMMER

The Microwave programmer is small (355 x 185 x 666mm), weighs 1500g, and requires an external 9V power supply (not provided). Its construction is solid, and the feel of the pots reassuringly smooth and positive. It may be incorporated into any system, slotting into the MIDI chain after the main keyboard but before any computer/sequencer, thus allowing all synth edits to be recorded. Alternatively, it could be connected directly between keyboard and Microwave, or patched in via a MIDI patchbay when required. All incoming MIDI information is merged with the System Exclusive data generated by the pots and switches. On power-up, it defaults to 'lock' mode, which effectively disables all functionality, its output becoming a simple MIDI Thru. This prevents accidental production of SysEx, whilst also improving MIDI throughput.

IN USE

As the programmer features only 26 rotary pots and nine on/off switches, Access have had to make some tough choices about which programming options to include. Three of the switches render some of the the controls multi-functional, but considering that a typical software editor for the Microwave could have more than 140 separate objects just to perform voice edits (more when wavetable creation, multi mode, user tuning and velocity tables are included), some compromises have inevitably been made for the purposes of this unit. The most obvious of these are in the modulation and envelope departments. No routings or amounts



can be set for the two LFOs without turning to the Microwave itself: you can alter their rate and shape but that's all. This is probably due to the synth's extensive modulation matrix, but I would have liked some of the more obvious routings, such as VCF modulation and vibrato, hard-wired. The filter and volume envelopes fare slightly better but share the same knobs as the 8-stage wave envelope. Having taken time to create a complex wavetable sweep, it is annoying to lose the settings when you switch to tweak the filter or amplifier ADSR. Any subsequent return to your wave envelope is a laborious process, and the only real solution to the problem would be the provision of dedicated controls, with whatever price increase this would entail.

The control panel is laid out like a conventional analogue synth, with oscillators (complete with wave and noise source mixer, detune and transpose), filter and output settings, complemented by the more esoteric wavetable selection, wave envelope amount, and wavetable start position. A useful pointer to the Access design philosophy is the inclusion of three buttons: TRI, SQU and SAW, which select these waveforms from the current table but also turn off any wavetable modulation. This is useful partly as a preliminary to experimentation with the wave envelope, but also because it effectively transforms the Microwave into a straightforward analogue-style synth. It is then a simple matter to produce all kinds of traditional analogue sounds very quickly, using filter cutoff, resonance, envelope amount and ADSR. I created many worthwhile patches during the review period using just this

method. The downside of this simplification is that it becomes easy to overlook the Microwave's many other options, which you have to edit using the synth's front panel, as before. Actually, this is the biggest danger of using this programmer: you might discover that the majority of your new sounds could easily have been produced by a lesser instrument, with many of the Microwave's unique properties remaining hidden.

All is not lost, though. Wavetable Selection, when combined with the Startwave parameter, is perhaps the programmer's most creative and powerful function — the ease of access to both the start position within the table and the table itself provides unparalleled control over the Microwave's unique synthesis method. Unfortunately, the LCD is not updated as you select new tables, so if you want to see the new values you must scroll to the appropriate page, then hit Enter for each change you make. Yuck! Using the three function buttons, wavetables are selected from three sets: internal factory; user and card; and the Microwave's new version 2.0 tables. I was unable to test this latter option, as the Microwave supplied for the review was pre-2.0.

Six of the programmer's rotary pots have a notched '0' position at 12 o'clock. These pots are (sensibly) Wave 1&2 Env Amounts, Oscillator 1&2 detune, VCF Env amount and VCF Keyboard amount, which are all designed to have negative or positive values. Instrument Select Mode is a unique feature of the Access unit which could easily be overlooked, especially with its minimal

pros & cons

ACCESS MICROWAVE PROGRAMMER £369

pros

- Knobs provide quick access to many basic functions.
- Solid construction.
- SysEx data can be recorded into a sequencer.

cons

- LCD does not update as values change.
- Still necessary to use on-board editing for all but the most simple functions.
- Wave envelope shares knobs with conventional filter and amplifier ADSR.
- PSU not provided as standard.

summary

A worthy attempt but lacking in sufficient options to fully exploit the full wattage of the Microwave. More knobs is the only answer.

SOUND ON SOUND

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ACCESS MICROWAVE & MATRIX 1000 PROGRAMMERS

pros & cons

ACCESS MATRIX 1000 PROGRAMMER £369

pros

- Easy to use.
- Good for quick, basic patch customisation.

cons

- Doesn't provide full parameter access.
- More expensive than a universal software editing system.
- Real-time control can be 'steppy' or 'glitchy'.
- You have to buy your own PSU!

summary

A really neat hardware editor that's easy to use for patch tweaking, but of limited use for building complex patches from scratch.

SOUND ON SOUND



► coverage in the manual. It permits editing of individual patches in a Multi (up to eight patches, each with their own output routings, MIDI channels, and so on), but best of all, allows you to work on multiple instruments simultaneously, resulting in some gargantuan layered patches achievable by no other means. You need to remember to store the patches afterwards, but fear not — the Microwave's eight edit buffers will always come to your rescue.

CONCLUSION

Whilst I applaud all efforts to make modern synthesizers more accessible, the Access Microwave Programmer is only a partial solution to the complexities of mastering this powerful instrument. Its main strengths are in 'quick and dirty' patch editing, bringing conventional synthesis easily within reach. Unfortunately, its handling of wavetable synthesis merely scratches the surface of what is possible, and its inability to tackle the complex modulation possibilities on offer is a lost opportunity. Nevertheless, it provides a tantalising glimpse of what's possible and could certainly help a new Microwave user create some devastating patches very quickly, or provide a fresh perspective for even a long-time user.

Although initially disappointed with the number

of options on offer, I did come to appreciate them in combination with the synth itself. I think it's true to say that editing several instruments at once in multi mode produced some of the biggest sounds I have ever heard. If you are prepared to accept the limitations of using the programmer as your hammer and the synth itself to chisel out all the subtle nuances, then this unit could make you very happy. Personally, I think Access MIDI Tools have shown us what all electronic instruments really need — control! *Paul Nagle*

MATRIX 1000 PROGRAMMER

Oberheim's Matrix 1000 is a hugely powerful, 6-voice analogue synth, but because it can't be edited from the front panel, most users rely on the wealth of presets included with the machine. As a Matrix 1000 owner myself, I can confirm that once you've called up a preset, you invariably get the urge to tweak it a little, but without some form of editor, you're stuck. If you have an editor/librarian computer package that includes a module for the Matrix 1000, you can go ahead and customise your patches, but for the non-computer user, the Matrix 1000 has been, until now, a closed book.

The Matrix MIDI Programmer is a dedicated Matrix 1000 hardware editor (though it can be switched to talk to Matrix 6s and 6Rs too), taking the form of a compact desktop control unit adorned with various knobs and buttons. It has a MIDI In to allow you to merge your keyboard data with the SysEx data generated by the editor, and a MIDI Out to send the combined data stream to the synth. As the Matrix 1000 is one of those synths that doesn't have a SysEx device ID, you can only connect one Matrix 1000 at a time when editing — I have two of the things but found that simply switching one of them off did the trick.

Behind the deceptively simple 1U facade of the Matrix 1000 lies a powerful synth based on the far more expensive Matrix 6, but if you were hoping this editor would allow you to create monster Matrix 6-style patches from scratch, I'm afraid that

MATRIX 1000 EDITABLE PARAMETERS		
• LF01 Rate/Shape	• DC02 Frequency	• Env 1 Attack
• LF02 Rate/Shape	• Shape	• Env 1 Decay
• LF01 Amplitude/VCF FM Amount	• Pulse Width	• Env 1 Sustain
• LF02 Amplitude/FM Env Amount	• Noise On/Off	• Env 1 Release
• DC01 Frequency	• Wave On/Off	• Envelope Select
• Shape	• Pulse On/Off	Env 1/Env2
• Pulse Width	• DC0 mix	• Env 2/3 Attack
• Sync On/Off	• VCF Cutoff	• Env 2/3 Decay
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WRB

More years ago than I care to remember, I was introduced to multitrack recording after reading a leaflet issued by Tascam. It boldly announced the imminent release of their 144 Portastudio, the world's first affordable 4-track recorder based around the humble compact cassette. Some time after this groundbreaking event, I managed to save enough money to buy the by-then-upgraded 244 machine. I carried this home from the shop with my flares flapping in the breeze, sure in the knowledge that it would rocket me to recording stardom.

Years on, after cutting my teeth on these 4-track wonders (and still no stardom), portastudios and

rear panel, and allows options of on, off and sync (which disables the dbx on channel 4 only). Although the 424 MkII's grey casing is an all-plastic affair, the overall look is very smart and construction seems reassuringly robust. The only slight reservation I have is the feel of the rotary pots, which appear to be almost loose in the casework because of the way they are mounted. However, they did not prove problematic in use and were fairly even in feel.

INPUT CHANNELS

Signals enter the 424's mixer section either through the four balanced mic inputs, or via the unbalanced jacks on the rear panel. The

Porta Power!

With the advent of digital portastudios, manufacturers are busily revamping their analogue machines and packing them full of more features. ANDY DAVIES checks out Tascam's latest cherry...

TASCAM PORTASTUDIO 424 MKII

their clones seem to be as popular as ever. For anyone new to recording they offer a user-friendly, all-in-one introduction to the multitrack process, and for the more experienced user a form of musical notepad to try out ideas. Many companies have come and gone in this introductory sector of the market [*anyone remember the Cutec, Clarion and Amstrad 4-trackers? - Ed.*], where competition is at its most fierce. However, the Tascam name is still considered synonymous with the portastudio concept (they invented it, after all) and new models keep emerging in different guises on a regular basis. The newest kid on the block is the Portastudio 424 MkII, an upgraded and improved version of the earlier 424.

DEJA VU?

Although the cassette multitracker has taken many diverse forms, the basic shape and layout has become more or less standardised. The 424 is no different in this respect, following the tradition of a standalone unit, with the controls roughly divided into two equal areas. On the left-hand side is the mixer section, with four fully-featured mono channels and the bonus of two stereo channels; the latter offer simple level controls only, but are welcome just the same. To the right is located the cassette door, associated transport controls and the display area, which is reasonably big, bright and informative. As an aside, on the rear panel, Tascam have fitted a pair of Sub In sockets to receive signals from an external mixer, making the 424's integration within a sequencing setup even easier.

Most of the various ins and outs are positioned on a sloping rear panel, which makes access easy for any repatching that may be necessary during a session. The only sockets contravening this are the four tape track outputs, stationed on the very rear panel, and a headphone and remote punch in/out socket, which are sensibly placed on the front edge. A 3-position switch, for the onboard dbx noise reduction system, is also located on the



informative owner's manual warns you not to use both of these inputs at the same time, but mysteriously omits to tell you what would happen if you did! As is now convention, the signals then pass through the input gain control, which Tascam prefer to call a 'trim'. It is here that the first of the MkII upgrades appear in the form of improved mic input circuitry, and indeed noise only starts to rear its ugly head when the Trim controls are in the last quarter of their travel. Directly below this is a 3-way input routing switch, which allows selection between mic/line, channel off or tape return, for monitoring of the final mix.

The signal then passes through the improved EQ section, which consists of a high shelving control at 10kHz, a sweep mid section centred from 250Hz to 5kHz, and a fixed low frequency control at 100Hz. These frequencies seem to be well chosen and fairly flexible, allowing you to get at most areas for general tonal tweaking. The three gain controls are all centre-detented and offer a generous amount of cut or boost.

Next up are a pair of auxiliary circuits. Both Effects 1 and 2 have separate send controls, but unfortunately no dedicated return sockets. This

means tying up those extra stereo inputs mentioned earlier, although I'd rather do that than not have the facility in the first place. Effect 2's send control also doubles as a tape cue (via a dedicated switch) to allow the monitoring of signals coming back from tape when overdubbing.

Last in line is a centre-detented pan control and smooth, but short, fader. As with nearly all cassette multitrackers, the fader tends to be quite abrupt towards the end of its travel, which can lead to a curtailed fade if care is not taken.

MASTER

The simple master section is situated to the left of the tape transport controls and occupies the unused space of the stereo input channels 5-6 and 7-8. Here we find a single stereo master fader, which Tascam have sensibly made longer than those used on the inputs. The various monitor options are also assembled here and include switches to listen to the left and right busses, as well as any signals going to effects send 1 or 2. Finally, an overall volume control is included to adjust the signal level sent to the monitor outputs and headphones.

pros & cons

TASCAM 424 MKII £499

pros

- Plenty of inputs (10 on remix) including four good quality mic ins.
- Varied range of locate and auto features make rehearsal and drop-ins a breeze.
- The price.

cons

- Slightly offputting feel to the pots.
- No others at the price.

summary

Good value for money package which epitomises the 'portastudio' concept — easy and quick to operate, with plenty of flexible features to maximise its creative use.

SOUND ON SOUND



Tascam 424 MkII

TRANSPORTATION

Besides the normal cassette transport, counter reset and return-to-zero controls, Tascam have provided a number of locate and auto tape functions, which tend to make life much easier when searching for a specific area on tape. Two locate points can be set up anywhere along the tape path and the machine can be asked to fast-forward or rewind directly to these locations. Pressing the Repeat button, you can even cycle between them to create a playback loop whilst rehearsing a certain part.

If you need to correct a mistake in the middle of a recorded track, it is no longer necessary for nifty footwork to drop in, because there is an automatic facility for doing so. It is wise to rehearse the part that needs replacing and by pressing the Rehearse button, the 424 MkII allows you to set up punch-in/out points, which switch the monitoring from tape signal to 'live' instrument. This allows you to practice the new part without erasing the existing one, until you are ready to record. If you need a lot of practice, like me, the facility can be indefinitely repeated and the pre-roll time is user-definable. When ready, a simple push on the Auto in/out button will then switch any selected tracks into record mode and permanently overwrite the existing gaff.

The 424 MkII will run at both high and low tape speeds, selectable via a front panel switch. For improved recording quality when multitracking, it is advisable to use the 9.5cm/sec setting. The 4.8cm/sec speed should only be used for less critical projects and when listening back to normal cassettes, which of course can be played. Also incorporated within the transport controls is a tape varispeed function, with a generous range of 12% either way.

IN USE

After the initial learning curve necessary to understand the multitrack process, operating a cassette-based machine is a doddle and the 424 MkII is no exception. Once your tape is inserted under the clear perspex door, simply connect a mic, or instrument, to an input channel. Select the channel's Mic/Line switch and set the Pan control to the desired buss (remember left for track 1 and 3, or right for 2 and 4). Place your nominated track into record-ready mode, using the Record function buttons, and set up your monitor section by selecting either left or right from the monitor switches. External effects processors can either be monitored when recording, or printed to tape along with the main signal, by utilising the extra stereo input channels. After setting the recording level with the channel input and master faders, you're ready to go. As with all multitrack machines, it is important to place the newly-recorded track back into safe mode once recording has finished, to prevent accidental erasure.

To overdub, it is necessary to hear tracks already recorded and this can be achieved by

switching to 'tape cue' in the monitor section and turning up the Cue level control on the relevant channels. Once you have finished track-laying, all channels can be set to mix mode and more effects can be added, via the two auxiliary circuits if required. For most users the ability to bounce tracks will be a necessity, with only four available, and this is as easy to accomplish on the 424 MkII as on any other multitracker.

In general, sound quality on the 424 MkII is very good; even after bouncing, things remain quite crisp. As long as you look after the recording levels and use reasonably good quality mics, far more noise is generated by the cassette tape itself than by the electronics. On the subject of tapes, Tascam recommend the use of high bias 'Type II' cassettes — so no cheapies please, it's false economy. The EQ section is quite flexible for a machine of this price, although if pushed it can tend to sound slightly peaky and, because of the tape format, the high frequency control can accentuate tape noise on quiet passages, if care is not taken.

CONCLUSION

We are now truly in the digital age, with hard disk recording offering exceptional sound quality and unlimited creative choice. The downside to this, however, is the fact that the instruction manual for such beasts often weighs more than the product and creativity can sometimes get lost in the technology.

The portastudio, on the other hand, offers a budget platform where ideas can be directly printed to tape, quickly and without the paraphernalia of more upmarket systems. The 424 MkII makes recording even easier, thanks to its locate, rehearsal, and auto in/out features. Musicians wishing to utilise the 424 within a sequencing setup will find the sync facility makes it possible to run sequenced keyboard and drum parts along with guitar and vocal tracks recorded on the 424. By using multitimbral modules, these 'live' tracks could even be returned through the stereo input channels, without recourse to a separate mixer.

It's difficult to find anything to criticise about the 424 MkII. Yes, it would be nice if there were dedicated effects returns or longer-throw faders. The tape counter display could have been in minutes and seconds, or the EQ section might have featured a bypass switch. But when you consider my first guesstimate price for this unit was £200 higher than the recommended retail, it makes these minor whinges pale into insignificance. All in all, I have to admit that the portastudio concept has come a long way since the days of my old 244.

"...sound quality on the 424 MkII is very good; even after bouncing, things remain quite crisp."

FLEXI-ROUTING

Tracks are placed into record mode by using their own dedicated Record function switches, located directly above the transport controls. There are three positions on each of the four switches labelled 'direct', 'safe' and 'buss'. Safe is self-explanatory, while the buss setting is the typical arrangement of the left buss carrying signals to tracks 1/3 and the right to tracks 2/4. This would normally restrict the number of simultaneously recordable tracks to two, but Tascam have cunningly included a direct setting, which allows each of the 424 MkII's four inputs to be routed to their corresponding tape tracks, to allow recording on all four tracks at once. All in all, a well thought out and flexible arrangement.

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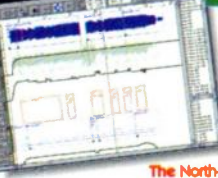
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MS1202-VLZ



MicroSeries 1202-VLZ	
Total Channels	18
Busess	2+Alt 3/4
Mono Channels	4
Stereo Channels	7
Mic Pre-Amps	4
EQ	3 band + low cut
Aux Sends/ch	2
Aux Returns	2
Tape Outs	2 TRS/ 2 RCA
Channel Inserts	4

MS1402-VLZ



MS1402-VLZ	
Total inputs	20
Busess	2 + Alt 3/4
Mono Channels	6
Stereo Channels	7
Mic Pre-Amps	6
EQ	3 band + low cut
Aux Sends/ch	2
Aux Returns	2
Tape Outs	2 RCA
Channel Inserts	6
Faders	60mm

CR1604-VLZ



CR1604-VLZ	
Total Channels	26
Busess	4 sub + main LR
Mono Channels	16
Stereo Channels	5
Mic Pre-Amps	16
EQ	5 band w/sweepable midrange & low cut
Aux Sends/ch	6
Aux Returns	4
Tape Outs	stereo RCA
Channel Inserts	16
Direct Outputs	8
Main Outputs	TRS Left, Right & mono
Faders	60mm log taper

SR Series



SR Series		SR14-4	SR12-4
Total Channels		34	42
Busess		4	4
Mono Channels		20	28
Stereo Channels		7	7
Mic Pre-Amps		20	28
EQ (mono chs)		3 band swept mid	3 band swept mid
		+lo cut	+lo cut
EQ (stereo chs)		4 band	4 band
Aux Sends/ch		6	6
Aux Returns		4	4
Tape Outputs		8	8
Channel Inserts		20	28
Faders		60mm	60mm
Width (in.)		31.00"	39.25"

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8-Bus Series		18-8	24-8	32-8
Total Channels		48	56	64
Busess		8	8	8
Mono Channels		16	24	32
Mic Pre-Amps		16	24	32
Tape Returns		16	24	32
EQ (mono chs)		3 band swept mid	3 band swept mid	3 band swept mid
		+lo cut	+lo cut	+lo cut
EQ (mon)		2 band	2 band	2 band
Aux Sends/ch		6	6	6
Aux Returns		6	6	6
Tape Outputs		8	8	8
Channel Inserts		16	24	32
Faders		110mm	110mm	110mm

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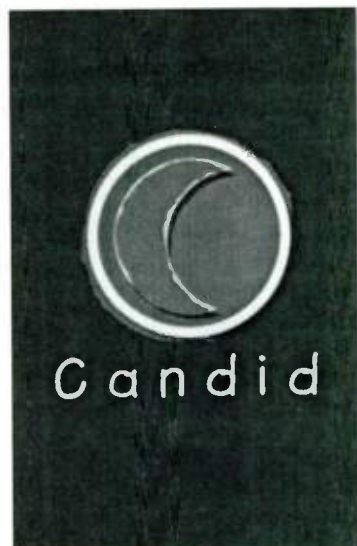
CANDID

Recording Venue: Home.

Recording Equipment: Foxtex B16 16-track, MTR 16:8:2 desk, Atari running *Mastertrax*, Yamaha FX500 and SPX1000 effects, AKG condenser microphone.

This tape was "recorded in a flat in Edinburgh", writes Duncan Roberts. He also adds that the songs are more suited to the continental market "as many of my influences are French". Well, there's a strong historical link between Scotland and France, but it doesn't often come out in the demos we receive from over the border. It seems to me that there's a strong folk influence, too, in the accordion and fiddle sections of the first song, 'The Bombmaker'. This song swings between definite accordion- and

fiddle-led instrumental sections, and light-rock choruses, where the electric guitar takes the counter-melody to the sung chorus. A clever key change emphasises this movement from one section to the other and keeps the frenetic pace going. The continuity between different parts of the arrangement is provided by acoustic guitar and voice.



Nicki Ross provides the intimate female vocal performance on 'Winona', and her voice blends well with Duncan's when they sing in harmony too. The production is well handled, with a lightweight, almost jazz-orientated bit of drumming played into the sequencer from Simmons pads, with minimal (if any) quantisation. The ride cymbal and brush-hit snare of the Alesis D4 are a good choice and work well with the acoustic bass, vibes following the melody, and synthesized musical saw! The original sound of the production is occasionally given a dynamic wallop by some heavily-overdriven guitar chord punctuation. This is mixed just right — you can't tell what it is at first, but after a few listens you can just catch what instrument it is and be surprised!

Good songs, good production ideas, and nice touches on the mix in places make this Top Tape for the month. □

DAVE WHYTE

Recording Venue: Home.

Recording Equipment: Tascam 80-8 recorder, Tascam 644 MIDiStudio, Atari 1040ST running *Cubase*, Midiman sync box, Boss SE70 effects, AKG C3000 mic, Alesis 3630 compressor, Behringer Ultrafex enhancer, Tannoy monitors, Yamaha AX500 power amp.

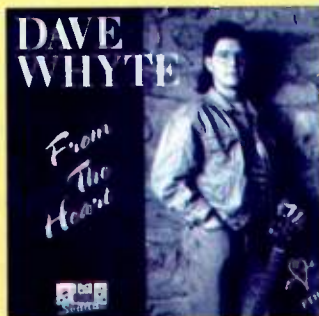
Dave brings up a few interesting points in his letter about his CD. One is to do with the mastering levels of DATs intended for transfer to CD. His problem was that although the DAT peaks on his tape were recorded to within two or three decibels of clipping, the overall level of the CD seemed to be low. One

reason for this could be that the average level of the program is too low and that the peaks are way above average. Your average signal level should be above -12db, and higher if possible. One way to achieve this is to use a limiter on the mix (as explained in my book *Tips for Recording Musicians*), with a threshold set at -2dB on the DAT. This will allow you to master at a higher overall level without overload. Alternatively, be more careful with the recorded sounds as you build up the sound picture, and make sure that there are no instruments which really stick out in the mix. Some compression on recording, or even at the mixing stage, can be useful for sounds that are prone to get out of hand. Finally, most digital editing systems have something called 'normalisation', which is useful as a post-production tool to bring up the average signal level.

It's fair to say that there are a few spiky guitar sounds on this CD which could easily have provided peak signals. And the backing drums and bass underneath them are pretty heavily

compressed — too much on the snare, about right on the bass and kick drum. Aside from this, the production is pretty minimal, with guitar and voice clear in the mix, occasional keyboards, bass and programmed drums. The playing and programming is good, and Dave has a decent, workmanlike voice, though he sounds as though he may have sung some of these songs a few times too many and lost the fire in places. Also the voice could do with some more body in the sound — a slight boost at 500Hz would be a start.

The country-rock tracks on this self-financed album are decently handled and should do well if they get to the right ears in the business. Some of the choice of covers is questionable, such as 'Don't let me be misunderstood' — the Costello version of this Benjamin/Marcus/Galdwell song is a hard act to follow. However, I found myself warming to the lazy swing and twang of 'Johnny B. Goode', a song I normally can't stand — perhaps it was the guitar playing, excellently handled by Dave himself. □



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demo DOCTOR

▶ QUICKIES

All the way from Spain, **RK TOMS'** production, 'El Jardin' features solo acoustic piano on side one, with a synthesized orchestration accompanying the piano on side two. On side one, the sound of the piano has been well recorded but would benefit from slightly more reverb in the mix, although the choice of reverb, a short hall, seems about right as regards decay time and EQ. It's

important, when recording acoustic piano, to make sure that there are no weak notes, and I couldn't spot any problem in this area. However, the 'E' above middle 'C'



THE FENCE MENDERS

Recording Venue: Home.

Recording Equipment: Atari 1040 STFM running *Cubase v2*, Atari ST1040 STE running *Replay 16*, RAM micro mixer, Alesis Quadraverb GT effects, Yamaha SPX50D effects, Aiwa F220 cassette deck.

Recording direct to cassette seems to be increasingly popular, at least for sequencer-based systems. The high quality of digital sound sources and lack of any instrumentation that is

The Fence Menders tape is a case in point. All the sounds are clear and well balanced, even using minimal mixing equipment, so I guess some use must have been made of the MIDI mixing power of the sequencer. The sampled ethnic vocal chants and female soul vocals on the opening track, 'Lamu', are well done and fit nicely over the programmed dance beat. An unusual, simple, sixteenth-note bass line is underplayed in the mix, but this is a good thing for the overall sound, which would otherwise have been messy with such a busy part. Some of the distorted guitar power chord samples are a bit abrasive in places, and a little HF cut wouldn't have done any harm. Otherwise, it's a well conceived and produced track that is perhaps a minute too long for its own good.

'Sky Blue' is the title of the second track, and this one is more laid-back in approach. It relies on a rhythmically echoed, short-release synth sound to bring the track in, and then a carpet of heavy, swelling strings for the main body. The drums are also echoed, but provide occasional dynamically lifting breaks that prevent the track from becoming boring. The last track on side one has the best mix, with a full sound created by a fat bass line and use of echo and reverb on the drum track. You might almost believe that the sound sources were analogue! Again, strings are used, but this time in the form of sampled chords, interspersed with atmospheric pad chords. □

THE FENCE MENDERS

THE FENCE DEMO

likely to introduce high levels of background noise (guitar amps, for example) are the main reasons for this. Most readers will probably also say that cost is a big factor, but with the price of digital cassettes and recordable Minidisc players falling, a change to digital mastering is bound to follow. Yet the calibre of some demos mastered to cassette never ceases to amaze me, especially given the vagaries of cassette machine playback!

sounded slightly out of tune, giving the piano a slight bar-room feel in this area of the keyboard. The orchestrated version is obviously synthesized, with little attempt to make the sounds 'natural', but the backing is sympathetically arranged and well played.

KIMBERLEY AND O'NEILL started to record this tape on a Tascam 24-track with Dolby S, but the studio they were working in changed to



ADAT halfway through. In retrospect, I wonder if these two lads are still happy with that decision. Nevertheless, the session struggled to a

conclusion and resulted in the two mixes on this demo. The first is unashamed jingoistic England support, whether on the football, cricket or Rugby pitch. It must be tongue-in-cheek, as the supporting Colemanball on the cassette cover demonstrates: "Winning doesn't matter as long as you win" (Vinnie Jones). The samples — all great sporting moments or schoolboy patriotism drawn from movies — are appropriate, and the rock backing track thunders along. This is much better than the second track, a slushy ballad that is the musical version of that Euro '96 penalty kick, a palpable miss. Still, I'm a Celt, so don't expect me to be sympathetic!

CONTROL Z have been favourably reviewed in other publications, and also played by Kiss FM, so I looked forward to hearing their dance mixes of 'No Control'. The first is definitely a product of the handbag house era,



bearing all the hallmarks — bouncy bass line, built-up snare breaks, four-on-the-floor spongy kick, occasional soul strings, sampled vocals treated with reverb and echo. My feeling was that it was well put together but lacked the real invention of the full mix later on the tape. Here, modulation has been used occasionally on the synthesized chords, with more modulated filter effects creeping in here and there. These are left out of the short mix, for some reason, which then suffers from being too 'safe'. The vocals on the first mix also have too much reverb and not enough echo,

and this places them too deep in the sound picture. In contrast, the second song, a soul ballad, is well handled, with some good singing and clean guitar touches from Alviolent. The heavily-treated vocal ad libs work well on this track too, and all the sounds sit together in the mix. In fact, the production sound is really warm and moody — it's nice to hear something without loads of treble heaped on it for a change.

GOG's tape is another direct-to-cassette master, as far as I can judge by the minimal slip of paper accompanying the demo. The quality of the recording is excellent, in terms of both mixing and choice of sounds. After the big, Pink Floyd-style intro, the opening track, 'Stumpy Jumbo', develops into a collage of dance, echoed synth, and guitar with so many effects that it blends seamlessly into the keyboards. Echo and modulation are the main effects used on the guitar, but the playing also really allows it to merge into the rest, with echoed, sequencer-style lines in the upper part of the guitar fretboard that sit well against the sleepy flute loops



and phased strings. The movement from this track to the second, 'Man in a Field', is seamless. Sampled crows are kept low but

effective in the mix, and the lone piano notes are left to hang, using copious amounts of reverb. The atmosphere builds, using echoed clean guitar and drone synth in a manner suitable for film and TV soundtracks. Maybe they should think about pursuing this line.

ELEMENT 303 thoughtfully provide a list of sources for their samples, which range from *Blackadder* to Johnny Ball. The sound of the tape is dark, with the emphasis on a weighty bass drum that's a little overcooked in the mix. Even so, obviously synthesized string and pulse-wave lines provide disturbing melodies that are in sympathy with the mechanistic way the samples are used. You could say that Element 303 sound like a more modern Kraftwerk in places, because of the use of samples. I also like the grainy nature of the open and closed hi-hats, which help give the tape its low-bandwidth, underground feel. Unfortunately, this low-bandwidth element also works against the sound in places, and a little post-production sweetening in the presence area would not spoil the sound. □

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Planet Rock

ROLAND JUPITER 6 ANALOGUE POLYSYNTH

On its release in the mid-'80s this characterful synth was overlooked by many in favour of its better-known brother, the Jupiter 8, yet it still has much to offer. STEPHEN BENNETT does a spot of space exploration...

I think it was the mid '80s. I had just given up my job and was about to try and break into the music business. I had always had a soft spot for Roland synthesizers, even going so far as to make an external case for my Wasp and painting 'ROLAND', in the company typeface, on the back. (I spelled it 'RONALD' but no one noticed). So it was 1985, or thereabouts, I had six hundred hard-earned pounds pressed against my thigh and I was going to buy a Roland synthesizer. Unfortunately, it wasn't the one described in this article.

I went in, paid out the dosh for the cheaper machine, and then spent the next two hours playing the Jupiter 6. It was a sort of cut-down Jupiter 8, but to my eyes it looked even better, and to my ears, sounded just as good.

Now, it's 10 years on, and I'm looking over my monitor at the Jupiter 6 sitting on my

keyboard rack. Physically, it's impressive, about four feet long and one and a half feet wide, and covered in sliders, knobs and flashing lights. Having sold the tape machines and mixing desks in my studio, the Jupiter 6 is the only 'wow!' factor I have left to impress new clients.

SIMPLY POWERFUL

The Jupiter 6 is a simple yet powerful analogue synth. As its name implies, it's a 6-voice polyphonic machine with 12 oscillators, and it fell just below the Jupiter 8 in the Roland product line. Unlike the Jupiter 8, however, it has MIDI. No-one quite knew what to do with MIDI in 1985, and the Jupiter 6's limited specifications reflect this. Fortunately, these days there are one or two updates available from Roland and third parties.

All the synth's parameters are accessible from the front panel via sliders and switches. Some of these are the typical Roland 'LED-in-a-switch' types, but on the Jupiter 6 they're much more visible than on newer Roland synths. The other push-buttons are small, lego-like widgets with an internal, gently-lit red neon. The synth can store 48 patches in six banks of eight and as these are selected, the red neons change to their new settings. This looks brilliant!

A patch is the basic sound unit on the Jupiter 6 and is made up of filter settings, oscillator waveforms, envelope generator parameters, and so on. The next level up is Patch Preset mode, where you access functions such as keyboard splitting and arpeggiator programming. All parameters

except those on the performance panel (such as pitch-bend and LFO2), can be stored within the synth.

INTUITIVE PROGRAMMING

The Jupiter 6 is a very intuitive synthesizer to program. You can either choose an existing patch to modify, or go into manual mode and start from scratch. In manual mode, the sliders and buttons work in 'real time', their positions reflecting the actual settings in the synthesizer. This can be the source of some lovely accidental sounds, derived from random tweaks performed on existing patches. Editing an existing patch is slightly different. The slider position does not necessarily reflect the actual position stored in the synth, and when the

SECOND TIME LUCKY: USED JUPITERS

A mint-condition Jupiter 6 will probably set you back between £600 and £650 today, against a release price of around £2000. If you're looking to buy a second-hand Jupiter, check obvious stuff first, such as whether all the sliders work, and make sure that the machine looks in good condition. The Jupiter 6 is very well built, and if it looks scarred, it's probably taken quite a beating. The only problem I had with mine was that the internal battery, which

maintains the patches, failed. I rang Roland, they sent me a battery, and I fixed it myself. This instrument is more than 10 years old, after all, and the manuals do warn that the battery will only last this long. The machine takes about five minutes to warm up, and during this period, the oscillators can sound out of tune. If, after this time, the Auto Tune button doesn't bring them into line, just walk away — or re-negotiate the price!

slider is moved, nothing will happen until you reach the stored value. When this is reached, the slider becomes active and the parameter can be adjusted, then the patch light flashes to indicate that an edit has been performed.



MIDI UPGRADES

The original MIDI specification of the Jupiter 6 was very primitive. It could only respond to MIDI note on/off information and Patch Preset changes — not the patches themselves — and the synth was also in permanent omni-on mode. Roland UK (01792 702701) still supply an upgrade which allows you to set individual MIDI channel reception, though it loses this setting on power down. Jupiter 6 owners simply have to send £15 to Roland; they send you the new ROM, and if you return your old System ROM to them, they send

you £7.50 back! So the upgrade essentially costs as little as £7.50. In addition, American company Synthcom Systems have developed a MIDI upgrade which provides numerous improvements, including local on and off; patch dumping over MIDI; MIDI SysEx control of front panel buttons and sliders, excluding pitch bender and master volume control; assignment of various MIDI controllers to sliders; transmission of arpeggio notes over MIDI; and sync'ing the arpeggiator to MIDI Clock. Other new arpeggiator

features provided by the mod include additional time divisions and programmable arpeggio rhythms. Contact Synthcom Systems at 16275 NW Schendel, Unit E, Beaverton, Oregon 97006 USA. email: root@synthcom.com.

These upgrades are provided on an easily-fitted chip. Just remember to earth yourselves before you touch any semi-conductors, and don't bend the pins! The Jupiter 6 is very well built and was designed with servicing in mind, so it comes apart easily. Bear in mind, though, that opening the synth will void any warranty you may have.

There's no parameter value display but it's not really needed — ears are enough! Patches can then be stored, and there's the usual memory protection switch to make sure they stay stored. Externally, patches can only be dumped to cassette tape — no SysEx here (see 'MIDI Upgrades' box, though).

FINE FEATURES

It would be a pointless exercise to go through all the Jupiter 6's parameters here, but I'll single out some of the most noteworthy. The oscillators are voltage controlled (VCO) and are very stable, with a warm tonal quality. They provide four waveforms, and three can be used at the same time. They can be modulated separately by the LFO, sync'd together for those searing lead sounds, or cross-modulated for FM-type clangs.

“In Unison mode, all 12 of the oscillators are stacked and detuned, for a monster monosynth noise.”

The two envelope generators are of the ADSR type, with either routable to the VCF (Voltage Controlled Filter), Envelope 1 routable to the VCO Modulation or Cross Modulation controls and Envelope 2 routable to the VCA (Voltage Controlled Amplifier). The filter itself is very flexible, with a choice of high-, low- or band-pass types with frequency and self-oscillating resonance. It's a typical Roland analogue filter, clean and versatile. If you really want the filter sounds of an Oberheim or Moog then the JP6 is, perhaps, not for you. In general, the synth is a fully specified polysynth of the period and follows

the facilities and signal path laid out in early polysynths such as the Sequential Prophet 5.

Jupiter 6 patches can be organised into Patch Presets, as mentioned at the start of this article. There are 32 of these, which are similar in function to 'Performances' on some modern synths. A Patch Preset can consist of up to two patches, which can be split across the keyboard in various ways, but not layered. Portamento and glissando can be applied, and there are various key modes. With these, you can play the Jupiter 6 polyphonically; in solo mode, where it acts as a monosynth (great for bass and lead lines); and in unison mode, where all 12 of the oscillators are stacked and detuned, for a monster monosynth noise. The Jupiter 6 has a powerful bass end, so watch your speakers!

The rather nice arpeggiator provides an arpeggio rate control, up and/or down buttons, and a range of up to four octaves. There's also a hold button, so you can go and fiddle with something else while the Jupiter 6 arpeggiates away. The arpeggiator can also be triggered by a (non-MIDI) clock input.

The performance panel is perhaps the weakest part of the synth. It has the usual Roland bend lever (love 'em or hate 'em) but the modulation (LFO2) is a separate momentary on/off push button. Neither bend or modulation are received or transmitted over

MIDI. On the plus side, each VCO can be bent separately and the filter can be swept with the bender.

OUT OF THIS WORLD

Before I got the Jupiter 6, my main experience of analogue polysynths was with the likes of the Roland JX3P and the Cheetah MS6. Although both sounded fine to my ears, I was unaware at the time of the vast superiority of the Jupiter 6's output. It's not easy to put this difference in quality into words. The bass is deeper, and the sounds stand out more in a mix — it's just *class*!

The Jupiter 6 is perfectly capable of rich whooshes and strings without the benefit of external effects — except, perhaps, a little reverb. The flexible filter, however, makes the production of 'thinner' sounds a cinch. Unlike

“The Jupiter 6 has a powerful bass end, so watch your speakers!”

the Oberheims and Prophets which, to my ears, sound full and fat all the time, the Jupiter 6 can be coaxed into producing techno timbres and ethereal lead lines.

If you like the Roland sound and want an analogue poly, the Jupiter 6 is highly recommended. It's cheaper than the Jupiter 8, has MIDI built in, and Roland still have spares and upgrades available in the UK. Its competitors, the Oberheims, Moogs and Sequentials, are much more of an unknown quantity as far as maintenance and upgrades are concerned. For me, newer synths just don't cut it in terms of quality of sounds, and no rackmount anonymity is going to compete with the sheer pose value of the Roland Jupiter 6.

SOS

JUPITER 6 SPECIFICATION

KEYBOARD	61 key
KEY MODE	Split 4-2, Split 2-4, Whole
VCO1	Waveforms: Sawtooth, Triangle, Pulse, Square; Range: 32', 16', 8', 2' with chromatic adjustment; Cross Mod: ENV1, Manual
VCO2	Waveforms: Sawtooth, Triangle, Pulse, Noise; Range: 32', 16', 8', 2' with chromatic adjustment plus high and low extension; Tune: +/-50 cent
SYNC	VCO1-VCO2 or VCO2-VCO1
VCO MOD	LFO & ENV1 amount; VCO1 & VCO2 selectors
CROSS MOD	Manual & ENV1 amount
PWM	Pulse Width: 50%-0%; PWM Select: ENV1 or LFO
VCF	Mode: LPF/24dB, HPF/24dB, BPF/12dB; Cutoff Freq: 5Hz-30kHz; Resonance: Peak Gain 15dB; ENV selector; ENV, LFO & Key Follow amounts
VCA	ENV2 & LFO Level
ENVI & 2	Attack Time (Max 18s); Decay Time (Max 20s); Sustain Level; Release Time (Max 20s); Key Follow (0-120%); Polarity selector (ENV1 only)
LFO1	Waveform: triangle, sawtooth, square, random; Rate: 0.04-100Hz (0.04-400Hz for Random waveform); Delay Time: 0-2s
LFO2	VCO/VCF amount; Rate: 1-10Hz; Rise time: 50ms-1s

WIN



tweaks made from the front panel controls can be recorded and reproduced over MIDI. For finer control, almost every DrumStation voice generation parameter has its own MIDI controller, allowing you to alter these apparently simple sounds with just a few MIDI controller messages.

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NOVATION DrumStation

Drum Synth Module

Although the sounds of the Roland TR808 and 909 Rhythm Composers exude almost universal appeal, they have, sadly, long since passed into the realms of the absurdly unaffordable for most people. Earlier this year, Novation sought to remedy this problem by releasing the DrumStation. Utilising a combination of the latest Analogue Sound Modelling (ASM) techniques and high-quality samples of the original sounds, this convenient 1U rack module makes 808 and 909 sounds available at a price lower than you might pay today for just one of the original machines.

The DrumStation is fully MIDI-compatible, and offers a staggering degree of control over the drum voice: from its front panel, including the pitch, attack and decay of many of the sounds. Furthermore, all 16

outputs, the DrumStation could form an impressive addition to your MIDI setup — and as luck would have it, SOS happen to be giving one away in this month's competition. To enter, have a stab at the simple questions on the form below, and use your razor-sharp minds to come up with a tiebreaker that exhibits an eloquence as yet unheard of in, well, most SOS competitions, anyway. When complete, envelop the form in an appropriate holder of good quality paper, and affix the higher right-hand corner of the latter with a finely-edged, sticky-backed image of Her Majesty.

Thereafter, launch the envelope such that it glides through the rectangular portal atop the postal collection receptacle nearest your domicile, with the avowed intention of its contents arriving with the stout yeomen of the SOS office no later than the closing date: **Friday, October 4th**. Dead easy, really.

Prize kindly donated by Novation (01628 828888).

the small print

1. Only one entry per person is permitted.
2. Employees of Sound On Sound Ltd, Novation Electronic Music Systems Ltd, and their immediate families, are ineligible for entry.
3. No cash alternative is available in lieu of the stated prize.
4. The competition organisers reserve the right to change the specification of the prizes offered.
5. The judges' decision is final and legally binding, and no correspondence will be entered into.
6. No other correspondence is to be included with competition entries.
7. Please ensure that you give your DARTS® telephone number on your entry form.
8. Prizes must be presented to make themselves available in the event that the competition organisers wish to make a personal presentation.

QUESTIONS

1. The Novation DrumStation contains sounds derived from which drum machines?

- a. Emu SPI300 and Roland TR606
- b. Alesis DM5 and Boss DR550 MkII
- c. Roland TR808 and TR909
- d. Your mum's saucepans (plus lid 'cymbals')

3. Which of the following features does the DrumStation not possess?

- a. Teak handle and solid copper bottom
- b. Easy-to-use front panel controls
- c. Full MIDI compatibility
- d. Six individual audio outputs

2. What sound modelling technology is employed to recreate the DrumStation's vintage voices?

- a. ASM — Analogue Signal Monitoring
- b. ASM — Analogue Sound Modelling
- c. ASM — Abyssinian School Of Motsoning
- d. ASM — Advanced Saucepan Modelling

4. What would you almost certainly not use a DrumStation for?

- a. Killer rhythm tracks
- b. As a cheaper alternative to a TR808
- c. Recreating vintage drum sounds under MIDI control
- d. Mixing condiments to create a barbecue sauce.

Name

Address

Daytime tel. no

TIE-BREAKER

If you had to design an electronic drum unit containing sounds other than those from the TR808/909, which would you choose? Your answer may include the drum sounds from real players' kits, sample CDs, other drum machines, or indeed anything else if it'll impress us and make you win — provided it's not more than 30 words long!

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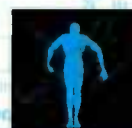


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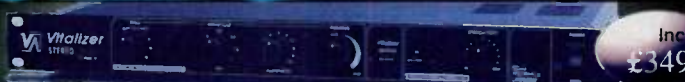


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M88, quality moving coil mic, £150 ono; Yamaha Q2031 stereo 31-band graphic EQ, £200 ono. Dave 0131 557 9142 days, 01875 835580 eves.

ROLAND PC200 MKII synth controller keyboard, £120, or swap for Roland TR606. Leo 0161 448 9778 (Manchester)

ROLAND SC55S Sound Canvas, as new, still boxed, unwanted gift £250. Neil 01384 838938

ROLAND SH101 cared for like a baby, but no instructions, £175 ono. Patrick 01491 872102.

ROLAND SH1000 analogue synth, average condition, with hard case, £130 ono; SH101, £250 ono; International Musician mags, 1984 onwards, £50 ono. Mark 01782 849019

ROLAND U20 vgc, heavy duty custom built flight case, but not giggerd!, £395 ono. Richard 0181 366 4108

ROLAND U220 multimbral sound module, excellent condition with manual, £320. Greg 01457 870595 (Manchester).

SEQUENTIAL PROPHET 5, Control Synthesizer Deep Bass 9, Mackie 1202 mixer, Sony TCD D7 DAT, Steinberg Cubase V3, Atari STE 1Mb, Ultimate Support A-frame keyboard stand. Offers. 0113 263 3179

TECHNICS KN3000 superb home keyboard, never used due to illness, £1795 ono. Paul 01380 830828

YAMAHA CS70M dual channel polyphonic analogue synth, complete with voice cards and manuals. Classic keyboard, good condition. Duncan 0589 148868 (London)

YAMAHA DX5, like two DX7s with 76-note keyboard, includes owners manual and 2 ROMs, £350. 01274 620004 (Bradford)

YAMAHA MU50 synth sound module, 737 sounds, 22 kits, 3 effects sections, 160 performances, GM/XG etc, as new, £270. 01933 878608

YAMAHA PF100 piano, £800 ono; Hammond B200 with Leslie, £700 ono; Yamaha R100, £90 ono. Alistair 01706 843956

YAMAHA PFP100 piano, £699; Roland MC500 sequencer, £249. 0181 883 8414

YAMAHA PFP100 digital, weighted 88-note stage piano, stereo samples, many master keyboard functions, as new, £1050 ono. 01903 694807

YAMAHA SY77 vgc, combines AWM with FM synthesis, ideal keyboard for keen programmer, £600. Steve 0116 237 6634

YAMAHA SY85, £700, Moog Source, £300; Bit 99, £250; Alesis D4 drum rack, £150, XR300 SMPTE sync box, £100. All vgc, boxes, manuals. Tim 01535 600882 days

YAMAHA W5 synth workstation, vintage board fitted, 76-note keyboard, 100,000 note software style sequencer, really versatile and reliable. Excellent sounds, immaculate condition, boxed, manuals, long warranty. £899. 01952 260064

YAMAHA W7 workstation 6 months old, studio use only, £750 with stand. Possible trade for DA30 DAT or similar. 01728 603638 (Suffolk)

RECORDING

ACES 24-BUSS MIXER 48 inputs, modular, 5-band EQ, 5 aux sends, LED and VU meters, patchbay, prof reliable desk, £1600. Consider p/ex outboard, FX, mics or guitars. 01482 448767

AIWA XDS110 DAT machine, full size, 3 motor transport, remote, very little use, good condition, box, manual, £550. Steve 01273 709029 (Brighton)

AKAI MG614 pro cassette multitrack, with 6-channel mixer, equivalent to Tascam 464, LED metering, digital counter, auto locator, bargain at £345. Patrick 01491 872102

AKAI DR4D boxed with manuals, mint condition, £900 ono, Soundcraft Spirit Studio 16-track, 8-buss mixer, boxed with manuals, mint condition, £800 ono. 01782 610365

AKAI DR4D 4-track hard disc recorder

with MIDI interface, 213Mb hard disk, mint condition, with manual. 0171 251 1920

AKAI STEREO Graphic EQ £65; Yamaha TX812 synth module with editor, 1000s of sounds, £180; Yamaha DR100 reverb, £65; Casio CSM10P piano module £60. All vgc, manuals. 01256 468208

ALESIS 30-BAND GRAPHIC EQ stereo, £130; Alesis 1622 mixer, £330; Trantec 177MHz receiver, £95; Trantec 175MHz receiver, complete system, £235; Technics 7-band stereo EQ/analyser, £75. All as new. Joe 01609 748339 (N Yorks).

ALESIS QUADRAVERB, £200; Digitech Vocalist, £400; Peavey De-Esser, £100; Peavey Parametric EQ, £100. All home use only. Robb 01623 514777, 0115 965 4121 eves (Notts)

ALESIS ADAT 8-track digital recorder in very good condition, £1500, Gibson Epiphone Strat guitar with three hotrail pickups, only £150. 0114 288 2236

ALLEN & HEATH GS3V 16:8:2, with MIDI mute and VCA automation, timecode interface and automated software to drive Atari or PC, £1350. 01428 656178 (Haslemere)

ART SGE II excellent effects, surplus to requirements, £200. 01752 702139

BEHRINGER PRE-Q 2-channel mic/line pre-amp, brilliant for stereo recording, direct to DAT, £160; Tascam 103 3-head semi-pro rackmount cassette deck, light use only, £180. Oliver 01425 274422 (Hants/Dorset)

BEYERDYNAMIC S250 wireless mic and receiver. Boxed, manuals, never giggerd, £350. 01822 852274

BOSS RC100 micro rack digital chorus, as new, cost £120, sell for £45. Patrick 01491 872102

DIGITECH VOCALIST II as new, boxed, £350. Mick 01788 570195

DRAWMER DF320 noise reduction unit, boxed as new, £275. 0116 2743108

FOSTEX 160 4-track cassette multitracker, one track faulty but can still be used as sync track, includes 4-track mixer facility, £80. Gary 0121 445 5274

FOSTEX 280 multitrack, as new, boxed, £390. 01736871447

FOSTEX 280 4-track and 8-channel mixer, excellent condition with box and manual, home use only, £300. Keith 01707 333868 (Herts)

FOSTEX 812 mixer, 12 mic/line and 12 tape/line inputs, six aux inputs, eight sub-groups, very flexible routing, home use only, original packaging and manual, £500 or best offer. 01788 571623 (Midlands)

FOSTEX 2016 LINE MIXER use as 16:2 or two 8:2 mixers, 4 aux, gain & pan, boxed with manual, £160. 01943 873121

FOSTEX A8 8-track reel to reel, low hours, superb condition, boxed with remote, loom, spare head, rackmount kit, £375, Tascam 34 4-track, £175. 01522 530605

FOSTEX A8 multitrack recorder, vgc, regularly serviced, boxed with manual, £450; Tandberg TD20A stereo 1/4" recorder, £300; Roland MC202 with manuals, £280. Phil 01489 577050 (Southampton)

FOSTEX E16 flightcased, £1500; Studiomastrer Mixdown Gold 16:8:16:2 with MIDI muting, £950; Tascam 32 quarter-inch open reel, £400; Zonal half-inch alignment test tape, £50. John 01822 854389

FOSTEX RB with remote control and 2 eight way looms, As new, boxed with manual £650; JL Cooper PPS100 SMPTE/MIDI synchronizer £120. Both for £750. Sean 0171 221 7274

FOSTEX R8 good condition, manual, £650, Fostex 2016 line mixer, as new, £150, Yamaha RBX 350 bass guitar, £175. Roger 01450 870225

FOSTEX M20 2-track quarter inch, centre track for time code, remote control, excellent condition, 20 hours max - offers? Celfyn 01222 864243

FOSTEX M80 8-track reel to reel, very

good condition, home use only, £420. Andy 01992 560341 (Essex)

FOSTEX M80 8-track, very good condition, £590; XRI XR300 SMPTE/MTC synchroniser, £90; two Fostex 2.5 metre looms, £49. Luke 01252 710244 (Farnham)

FOSTEX R8 plus 820 mixing desk, includes all looms, 10 reels of Ampex tape, boxed as new, inc manuals, home use only, £1550. Jason 01375 360117 (Essex)

FOSTEX X26 4-track, effects send, Dolby, sync, two mic inputs, four channels out, six inputs, monitor out, boxed, manual, leads, lovely machine, heads kept demagged, £150. 0171 702 7990 (London)

FOSTEX X28 4-track cassette, built-in 8-channel mixer, PSU, manual, vgc, £200, Roland MT32 sound module, plus 100's sounds on disk, £100. 01283 210414 (Burton on Trent)

MACKIE CR1604 mixer and Rotopod, as new, boxed, £500. 01732 361442 (Kent)

MXR RACK DIGITAL DELAY, 2 outputs, flanging, chorus, ADT, long delays and much more, immaculate, £250. 01482 448767

ROLAND DM800 digital professional studio, interface for ADAT/SA88, SMPTE, monitor output, full automation, 1Gb hard disk, £1950, Sony M7, £390, Roland SRV200, £330. Alain 0171 720 7744

SECK 18:8:2 desk, £650; Fostex 16-track analog tape machine, £975. Mr. Stevens 0181 905 4370

SONY TCD D7 DAT recorder, excellent condition, includes battery charger, carrying case, earphones and DAT tapes, only 4 months old, hardly used, £325 ono. 01772 433418 (Preston)

SPIRIT AUTO 16:8:2 VCA fader automation, need more inputs, swap Spirit Studio 24/Behringer non auto, or £1350. 01253-829978 (Blackpool)

SPIRIT FOLIO 12:2 mixing desk, vgc, PSU manual, chinagraph pencil(!), excellent guide book by Paul White, superb mixer, high spec, £260. Dave 0191 3722621 (Durham)

SPIRIT FOLIO 4 monitor section needs repairing, can still be used perfectly for home recording, £350. Ian 01322 409106 (Dartford)

SPIRIT FOLIO SI 18:2 sub-mixer, ideal for MIDI set-up, pristine, boxed with manual, £250. Martin 0151 726 9327

SPIRIT FOLIO S118:2 stereo input keyboard mixer, perfect condition, hardly used, £300. Marc 0973 767074

SONY 701 digital stereo mastering processor, the same quality as top professional DAT machines, perfect working order, 100% reliable, world class sound, £150. 01482 448767

STUDIOMASTER 24:8:2:3 aux sends, wired for multicore, pro flightcase, £500 or may swap for Rac Pac or Mackie CR1604 - I need a rack mixer for live work. Steve 01387 720133

STUDIOMASTER DIAMOND 8:2 stereo mixer, boxed, home use, £120. Nik 01482 844556 (Hull)

SOUNDRAFT SERIES II 24:8 console, PPM meter bridge, Penny & Giles faders, sweep EQ, stand included, full patchbay, one owner from new, used to record Undertones - offers. Dave 01767 600398

STUDIOMASTER SERIES II 24:8:2 mixing desk with full MIDI muting, 4-band EQ, 6-aux sends and meter bridge. Bargain at £650. Paul 0115 962 0131

STUDIOMASTER SERIES S 16:8:2 mixing desk, recently serviced, excellent condition, £600 ono. Can deliver locally. Tony 01787 228061 (Colchester)

STUDIOMASTER SESSION MIX 16:2, 3-band EQ, sweepable mid, 4 aux sends, flightcased, £350. 01752 702139

STUDIOMASTER SESSION MIX 16:2, parametric EQ, four effect sends, channel inserts, direct outs, excellent desk, home use only, boxed with

instructions, £495. Phil 01489 577050

STUDIOMASTER SESSION MIX Gold 8:2 mixer, flightcased with manual. Excellent condition, £225. Peter 01827 880091 (Leics)

TASCAM 22-2 2-track quarter inch reel to reel, seven inch reels, 15ips, light home use, splicing kit, £180, no offers. 01536 520969 after 6pm

TASCAM 38 8-track open reel, good condition with remote control, tapes and leads only, £550. Rob 01442 391363

TASCAM 85/16B 1" 16-track, with full function remote plus drop-in, dbx, tapes, XLR transformer, many features, perfect working order, easy to move, bargain, £1850. Tim 0171 951 4035 (Bristol)

TASCAM 238 8-track, recently serviced by Tascam, £575, Korg Poly 61 analogue synth, with case, £185; Goldstar PC soundcard, 32-note polyphony, £50. Dave 01210 872619

TASCAM 238S 8-track cassette deck with brilliant Dolby 'S' noise reduction system, excellent condition, very low hours, boxed with instructions, £750. Mark 01746 710477 (Midlands)

TASCAM 424 portastudio, home use, manual, boxed, £320. Nik (Hull) 01482 844556

TASCAM 488 8-track, excellent condition, four groups, high speed, dbx, 10 inputs, lovely machine, footswitch, leads, manual, boxed, £600. 0171 702 2990 (Whitechapel)

TASCAM 488 8-track portastudio, excellent condition with JL Cooper PPS2 sync unit, manuals, £600. Brian 0161 445 2485

TASCAM 488 MKII best portastudio on the market, forced reluctant sale, with 8 months guarantee, £850. 01580 892333

TASCAM IF88AE SPDIF and AES/EBU breakout box for Tascam DAB8, £475. Julian 0191 549 5252

TASCAM MM1 MIDI keyboard mixer, 20 inputs, MIDI muting, 4 aux sends and returns, rackmountable, £395

Alesis Quadraverb plus, £265. 0181 8834098

TASCAM MSR245 Dolbys 24-track with remote and trolley, very good condition, £3800 ono. Luke 01252 710244 (Farnham)

TC ELECTRONIC 2290 with 0144 foot controller, 64 sample, 32 seconds delay, flightcase, £1200; Pentium P150, 15Mb RAM, 11.4Gb hard drive, speakers, monitor, modem, etc, £1350. 01829 271255

TECHNICS RSDC10 DCC machine, 20Hz-20KHz, digital ins and outs, full size, boxed with remote and manual, £145. Tim 01484 656317

VESTAX MR44 rack-mounting 4-track cassette multitracker, compact, easy to use, simple mixer offers good routing, one aux send, global graphic EQ, all connections on front, with manual and PSU, good condition, £160 ono. 01843 587098

YAMAHA MT120S 4-track, boxed, manual, mint condition and virtually unused, 40Hz-18KHz, dbx, double or standard speed, very well kept, £265. Dave 0191 372 2621 eves

YAMAHA MTBX just a few hours recording, unmarked, boxed with manuals plus Kudos 6:2 mixer, 2 aux sends, balanced/unbalanced operation, XLRs on every channel, £850 or may split. Scott 01732 850892

YAMAHA MV802 8:2 rackmount mixer, 2 aux sends per channel, £150; Yamaha P2040 power amp, 4x20, rackmount, £150. £275 for both. Nick 01604 792224

SAMPLERS

AKAI S950, £725; Roland Alpha Juno 1, £250; Yamaha TG33, £225; Alesis Midverb 2, £80; Atari 1040ST with monitor, £200. Nathan 0181 3484915 after 7pm or weekends

AKAI S1000 6Mb RAM, digital card, £1400, Mackie CR1604, loom, leads, £550; Novation Bass Station,

upgraded, PSU, case, £300; Zoom 9120, £175; Ibanez DM1000 delay £100; 21U rack £50; CIS rack £100; Atari 1040STE, mono monitor, printer, £260; Laney Linebacker 65 amp £100; Kramer Focus 3000 guitar £200. Jamie 0161 861 7761

AKAI S1000KB master keyboard, 8Mb SCSI, 8 outputs plus lots of samples, £1600 ono. Tim 0181 2923 3408

AKAI S1100 and S1100 expander, with 52Mb RAM, digital interface SCSI, and SMPTE, excellent condition, £3000 ono. Chris 0171 924 0211

AKAI S2000 6Mb, 6 months old, home use only, boxed with manuals, £700, no offers. Adam 01993 850755

AKAI S2000 brand new sampler, 6Mb and sample CD, £895; Roland A30 mother keyboard, 76 weighted keys, 4 months old, £175. Nick 01423 679168

AKAI S2800 manual, MESA for Mac v2.00, 4 output including effects, with box, mint, home use only, £1000; Roland JV880, mint condition, manual, £400. Pascal 0181 368 1877

AKAI S3000 2Mb, £1250; 8Mb boards, £225 each; 18104 digital board, £100. 01923 267733

CASIO FZ1 expanded memory with new disk drive, £500; Atari 1040 and Replay 8 sampler, £180. Guy 01903 211962 (W Sussex)

CASIO FZ10 sampler, plus 100s of disks, £590. Brad 01633 873118, or 01633 865758 eves and weekends

EMU EMAX II sampler, 2Mb plus disks, £850; Roland R5 drum machine, £225; Studio Research mixing desk 12:2, £250. All boxed including manuals, home use only. 01472 884064

EMU EMAX II turbo sampling keyboard, 8Mb, loads of processing, 16-track sequencer, £1500 ono. 01580 763094

EMULATOR II+ with memory upgrade, boxed, £750; Oberheim DPX1 sample replay unit, plays Akai S900, Emu II, Mirage and Prophet 2000 disks variable filter etc, rackmount, £295. 01726 66715

EMU EMULATOR 4 1.2Gb internal Quantum drive, 32Mb RAM and CD ROMs, awesome machine, extremely reluctant sale, mint condition, 1 month old, boxed, £3650. 01480 385059

EMU ES132 sampler, £850; Tascam 38 1/2" 8-track with reel and looms, £700; TS1 sync box, £80; Seck 12:8:2 mixer, £400; Atari 1040ST, monitor, mouse, Cubase V3 and more, £250. All very good condition. 01373 812674

EMU ES132 32Mb, boxed, manual, mint, discs, reluctant sale, £1350 ono; Sony DTC750, needs service, hence £200 ono, XR300 SMPTE sync, £100 ono. 01873 860316

EMU ES132 boxed as new, immaculate, 8Mb upgrade, £1200; Akai S950, fully upgraded, never giggerd, £800 ono; Tascam DA20 DAT machine, remote control, brand new, boxed, bargain, £700. 01275 871167

EMULATOR EXIIP TURBO 32Mb RAM, SCSI, 8 analogue outputs, hard drive, 32 note polyphony, digital I/O, rarely used, home use, immaculate, £2800 ono. 01344 51616 (Bracknell)

ENSONIQ ASR10 stereo sampling keyboard, boxed as new with manuals + sound disks, 3 months old, £1550. Toby 01789 450 297

ENSONIQ EPS16+ sampler, fully expanded, SCSI interface, disc library, boxed and manual in perfect condition, £850 ono. 0181 802 3932

PEAVEY SX sample expander, makes samples for MIDI sample dump compatible synths, such as the Yamaha SY85, TG500, Peavey SP, etc, with power supply, £95. 01933 678608

ROLAND S10 sampler, 8- octave velocity sensitive keyboard, MIDI, including discs, £275 ono, or swap for Novation Bass Station. 0131 2294820

ROLAND W30 sampler, sequencer, manuals, flightcase, home use only, £500 \Rightarrow Paul 01527 853761.

ROLAND W30 sampling workstation, 16-track sequencer, 8 outputs, lots of discs, manuals, stand and flightcase, everything for £690 \Rightarrow 0181 657 1058.

ROLAND W30 sampler, resonant filters, on board sequencer, equivalent to MC50, as used by Prodigy, 8 separate outs, new, boxed with manual, £700 or swap for basic Akai S2000 \Rightarrow 01744 631 731.

SEQUENTIAL PROPHET 2002 digital sampler with analog filters, these rare beasts hardly ever come up for sale and this one is only £350 \Rightarrow 01472 824196.

COMPUTERS & SOFTWARE

ALCHEMY V2.5.1 for Mac, leading sample manipulation software, £60 \Rightarrow Rich 01494 763774.

AMSTRAD PC1640 IBM compatible computer, 3 5" and 5 25" disk drives, mono monitor, keyboard, mouse, manual and disks, £200 \Rightarrow 01977 791770 (Pontefract).

APPLE POWER BOOK 540/C 200/500Mb, modem, hi res screen, excellent condition, £2450, Opcode MIDI Translator II, £40, Korg KM530 MIDI-tape synchroniser, £130 \Rightarrow Dan 0171 482 0610.

APPLE POWER BOOK 5300 500Mb HD, 8Mb RAM, grey scale monitor with external video support, £1250, extra 24Mb RAM card, £290 \Rightarrow Tim 01484 656317.

APPLE QUADRA 840AV 16/500/CD including 14" monitor, keyboard and mouse, £1200 or will swap with £1000 cash for an Akai S3200XL sampler \Rightarrow Andy 0151 336 6657.

ATARI 520ST FM upgraded to 4Mb, 14" hi res monitor, including mouse and all leads, £250 ono \Rightarrow 0181 998 5325.

ATARI 1040STE 2Mb with hi res monitor and Cubase v3.1, £325 \Rightarrow 01858 575353 anytime.

ATARI 1040STE 4Mb upgrade with hi res monitor, Steinberg Pro 24 sequencer, loads of disks, samples, games, mouse, joypads, everything perfect, £375 ono \Rightarrow John 01964 624067.

ATARI 1040STE 4Mb, external drive, monitor, second serial MIDI port, disks, joysticks etc, all very good condition, £295 ono \Rightarrow Nick 0141 945 0715.

ATARI 1040 STFM with Marpet memory expansion board, upgraded to 2.5Mb, Atari SM125 hi res mono monitor with swivel base, £240 \Rightarrow 01354 695239.

ATARI MEGA4 ST SM144 14" mono monitor, 500Mb hard drive, Sound Tools system, Cubase v3, genuine reason for sale, immaculate condition, £875 ono \Rightarrow Matt 01629 636572.

ATARI SOFTWARE Hi Soft Lattice V5, £45, AT ST Basic, by Metacomco, £5, Mandarin STOS games creator, STOS Compiler, STOS Sprites 600, £30 the set. All boxed, originals with master disks \Rightarrow 01354 695239.

ATARI ST 1Mb, with hi res monitor, leads, accessories, was used with Cubase, etc, £210. Other Atari bits for sale \Rightarrow 01884 257487.

ATARI ST computer with hi-res monitor, sequencing software, word processor, mouse, double-sided drive, extra discs, all leads, connections, boxed vgc, quick sale, £240, Roland PC200, £100, 8.2 mixer, vgc, £120 \Rightarrow 01252 370550.

ATARI STE 1Mb, £85, STFM 1Mb, £75 \Rightarrow Nick 01273 208099.

ATARI STE hi res monitor loads of accessories, excellent condition, home studio use only, £210 ono. Memory upgrade available \Rightarrow 01884 257487.

ATARI STE computer with hi res monitor, mouse, leads, excellent for sequencing, only used at home, £240 \Rightarrow 01234 355307 (Bedford).

CADENZA music sequencing software for IBM compatible PC, 3 5" and 5 25" disks plus manual, still boxed, £100 \Rightarrow 01977 791770 (Pontefract).

C-LAB EXPORT MIDI expansion interface for Atari, £50 \Rightarrow Tony 0181 888 6830.

DIGIDESIGN SESSION v2.0 software for Macintosh/Power Mac, brand new, unopened, disks still sealed, unregistered. Unwanted gift, £130 ono \Rightarrow David 0121 449 6603.

DIGIDESIGN SESSION 8 with Steinberg Cubase Audio PC, four months old, hardly used, immaculate condition, £1650; Aiwa XDS1100 DAT, mint with 19" rack kit, £380. All offers considered \Rightarrow 01394 388693.

DX250 overdrive, £55; Yamaha TX302 GM synth, £100; Mitsumi FX100 CD ROM, £20 \Rightarrow Jeff 01925 291805 (office answerphone).

EMAGIC LOGICV2.5 for Mac, £249; Logic Audio module, £200; Logic Audio AV Mac module, £45 or £475 together \Rightarrow Steve 0171 594 7523.

MIDIQUEST MIDI CARD for PC, 16 channel with software, sold due to upgrade, £45 ono \Rightarrow Richard 0181 366 4108.

OPCODE STUDIO VISION Pro/Galaxy v3.0 1, £200, Opcode Vision/Galaxy v3.0 3, £100, Opcode Galaxy Plus editors v3.0 1, £100 \Rightarrow Andy 0151 336 6657.

PENTIUM P120 32Mb, 2.1Gb drive, Adaptec SCSI, Zip drive, SB16, 6X CD drive, 15" monitor, Pipeline 600dpi laser printer, Windows 95, mouse, keyboard, 2 months old, £1800 \Rightarrow 01480 385059.

ROLAND SMPU 2-in/2-out MIDI interface and Cakewalk v3 Windows, £120, Waveblaster daughterboard, £30, CMS 401-II, 2-in/2-out MIDI interface, and Cadenza V2 Windows, £100 \Rightarrow Nick 01482 844556.

SAMPLITUDE STUDIO Windows 3.11/95 compatible, £250 \Rightarrow Paul 01352 754320.

STEINBERG AVALON 16-bit D/A stereo converter plus Steinberg Avalon universal sample editor software for Atari ST/STE computers with key and manual, cost, £700 sell for £295 \Rightarrow 0181 883 4329 or 0956 339577.

STEINBERG CUBASE AUDIO V2 for Apple Mac, £250 for quick sale \Rightarrow Jay 0171 426 0340.

STEINBERG CUBASE AUDIO 3XT Mac, £500, MOTU MIDI Express, £250, Aiwa XDS1100 DAT, £400, Mackie CR1604, £600, Novation Bass Station, £250, Akai PE06, £150, Akai S3200, 32Mb, 340Mb hard drive, £3000, three ISO Patchbays, £100 \Rightarrow Wil 01273 697025.

STEINBERG CUBASE AUDIO for PC, full boxed version, new and unregistered, £150 \Rightarrow 01204 885538.

STEINBERG computer music starter kit, basic PC Soundcard/MIDI interface plus Cubase Lite software, unregistered, worth £129, sell for £55 ono \Rightarrow Patrick 01491 872102.

STEINBERG TIMELOCK sync box, sync Cubase on Atari ST to tape, reads/writes SMPTE, plus extension lead, £60 \Rightarrow 0171 252 0703.

SEQUENCERS

ALESIS DATADISK MIDI sequencer, v2.0, MIDI sync, ideal for live playback sequences, can store sample data, £150, no offers \Rightarrow 01705 679594 (Portsmouth).

ALESIS MMT8 sequencer, boxed with PSU and manual £70 \Rightarrow Tony 01222 236036, 238670.

KAWAI Q80EX sequencer, 32 tracks, 2 MIDI outs, independent track looping, tape sync, plays MIDI files, ideal for live, as new, £400 \Rightarrow 01472 824196.

ROLAND MC500 MKII with manuals and flightcase, £275 \Rightarrow Steve 0151 727 5716.

ROLAND MV30 16-track sequencer/sound module with 220 editable sounds and filters, automated mixing and tape sync, excellent condition with manuals disks and tutorial video, £500 \Rightarrow 01943 873121.

YAMAHA EMQ1 disk-based sequence replay device, split pub duo, £75; Sony PCM 701 converts a video into a DAT machine vgc, £175 \Rightarrow Tony 01579 382850 (Cornwall).

YAMAHA QY10 excellent condition, for use as sequencer or composer, £100 ono \Rightarrow Gary 0121 445 5274.

YAMAHA QY20 portable sequencer, includes power supply and instructional video, boxed vgc, £225 \Rightarrow 0171 843 4410 (Croydon).

DRUM MACHINES

ALESIS D4 with pads, £270, Roland SC88, £350, Tascam DA20, hardly used, £650, Cubase Audio PC, £350, Spirit Folio 10.2, £280. All ono \Rightarrow 0113 293 8955 evs.

ALESIS SR16 drum machine boxed as new, manual, power supply, extra patterns on cassette. Never used, £150 \Rightarrow 01763 838722.

ALESIS HR16 drum machine, 49 digital samples, 100 songs, manual and adapter, £75 ono \Rightarrow Alex 01483 480562.

EMU PROCUSSION drum module, mint condition, boxed with manuals, £350 ono \Rightarrow Paul 0181 505 0637.

KORG S3 RHYTHM WORKSTATION PCM samples, velocity sensitive pads, multi digital effect, 8-track sequencer, SMPTE reader/generator, ROM & RAM cards, instruction manual, £235 ono \Rightarrow Patrick 01491 872102.

ROLAND OCTOPAD 2 with manuals and stand attachment, £350 \Rightarrow 0171 701 0539.

ROLAND OCTOPAD 2 eight MIDI pads, all fully programmable, 64 memories, immaculate and as new with manual, £350 \Rightarrow 01482 448767.

ROLAND R5 drum machine, superb editable sounds, including 808, human feel and nuance functions, 6 outputs, boxed with manual and PSU. Home use only, £150 \Rightarrow 01362 687749.

ROLAND SPDB with clamp and stand, boxed with manual, £210 ono \Rightarrow Matt 0181 5218100.

ROLAND TR626 individual outs, adjustable volume, pan & pitch for all instruments, built-in MIDI/tape sync, trigger out for syncing SH101, TB303, etc to MIDI, bargain at £65 \Rightarrow Patrick 01491 872102.

ROLAND TR626 boxed with manual, perfect condition, £100 \Rightarrow 01726 833593.

ROLAND TR808 rhythm composer, excellent condition, complete with instruction manuals. Home use only, £595 \Rightarrow 0171 794 0847 (NW London).

ROLAND TR808 absolutely as new, in pristine condition, includes owners manuals, reluctant sale, £500 \Rightarrow 01274 620004 (Bradford).

ROLAND TR909 rhythm composer £600 ono \Rightarrow Nick 01382 730551.

SIMMONS SD59 brain, very comprehensive, fully MIDI controllable, built-in echo, delay times, has own sound, sample capability, absolutely immaculate, as new, with manual, £225 \Rightarrow 01482 448767.

YAMAHA RY30 with manuals, £225 \Rightarrow Andy 0973 400801 (Nottingham).

YAMAHA RX21 drum machine, £40 ono \Rightarrow 01502 513914.

MISCELLANEOUS

AMPEX 10 5- and quarter-inch empty alloy NAB spools, immaculate, £4 each, Revox and Teac NAB adaptors, £15 pair, one pair of unknown make, £9. All excellent condition \Rightarrow 01482 448767.

CARLSBRO COBRA keyboard amplifier 90 watts, includes cover and reverb footswitch, £210 \Rightarrow 01977 791770 (Pontefract).

CROWN MACRO TECH PA amp, 600W per channel, recently serviced, £650 ono; Steinberg Cubase Lite PC, boxed, manual, £40, four 256K SIMMs, £12, two Korg DDD/DRM series ROM cards, £15 each \Rightarrow 0121 622 2743.

FREE BACK ISSUES MT most issues 1989-92, in binders. You collect or will deliver locally \Rightarrow Andrew 01454 772237.

GRAFF SAPHIRE 16X high speed cassette duplicator, glass heads, copies each side separately or simultaneously, excellent condition, Chrome master/ferroc copy, £575 \Rightarrow 0121 474 2149.

H/H VX900 stereo amp, 450W per channel, both channels can be linked giving 900W into 4Ohms, fan cooled,

powerful and sturdy, £450 \Rightarrow 01752 702139.

H/H STEREO SIX MIXER fitted with jacks and XLR, ideal keyboard sub-mixer or small PA, £100 \Rightarrow 01752 702139.

HUNDREDS OF MUSIC MAGS looking for home, 1986 onwards, H&SR, SOS including first 3 issues, phone for details and make me an offer \Rightarrow Nick 0141 9450715.

KLYNSTROM 3/2 WAY active crossover, low 120hz, high 3Khz, 1U high, very light & compact, £175 \Rightarrow 01752 702139.

LESLIE ROTARY SPEAKER 400W, very good condition, £295; Digitech Vocalist wanted \Rightarrow John 01484 546062.

MAGAZINES FOR SALE 216 editions HSR, E&MM, MT, RM and SOS, Some back to 1984 25p each or, £50 the lot. Buyer collects \Rightarrow 0181 855 8263.

MPC SYNC TRACK syncs pre-MIDI Roland gear to multitrack tape, runs off 9V battery. If you don't need MIDI, then you need this, only £20 \Rightarrow 01354 695239.

PEAVEY APB32 audio patchbay, £60; Peavey Impulse sub woofer, £100, nine studio acoustic foam tiles, would suit home studio, £60 \Rightarrow Gerald 01266 44480.

PEAVEY DELTA 528 stereo amp, 250 watts per channel, weighs only 10lbs, 1U high, £350 \Rightarrow 01752 702139.

PEAVEY KB300 keyboard combo, 3 channels, 3 band EQ, reverb, compression 15" spacer and horn, pull gain switch, £300 \Rightarrow John 01484 667317 (Huddersfield).

PEAVEY BANDIT 100W, £220, Yamaha MR 16.4.2, £600, Studiomaster Gold 12.2, £400, two Shure SR10G amps, Reflection Arts monitors, offers, Fender Squier Strats, £100; Premier Resonator drum kit, £705 \Rightarrow 01424 813140 (Hastings).

RACK FLIGHT CASE 19", 30U, aluminium finish, front and back removable, ball corners, butterfly catches spring handles, mounted platform, castors with brakes, excellent condition, £190 \Rightarrow 01208 893649.

SCOOP BASS BINS Celestion loaded, 400W each, plus custom active crossover, suite PA or studio, serious bass extension, but too big for my room! £500 ono \Rightarrow Gary 01873 860316.

SORABJI two rare, out of print books by excellent composer: 'Around Music', 1932, 'Mi Contra Fa' (in wrapper), 1937. Both clean, complete. Serious offers \Rightarrow 01354 695239.

WASHBURN SBF80 electric guitar, ebony black body, 'semi-acoustic' sound, active tone controls, excellent for recording, hard carry case, mint, £240; Fender Squier Telecaster, Silver series, sunburst, solid body, made in Japan, mint, £165 \Rightarrow 0181 346 8418.

YAMAHA WX7 breath controller, manual, case, all accessories, offers \Rightarrow Alan 0181 959 0971.

PERSONNEL

HOUSE, TRANCE AND HARDBAG tracks wanted by talent scout. Sounds, blurb, photos to: Starspotters, 8 Perseverance Place, Richmond, Surrey TW9 2PN.

NATIVE AMERICAN NEEDED for collaboration and advice on an album about NA \Rightarrow Tim 0181 292 3408.

PREFERABLY FEMALE VOCALIST 20-30 sought: by original writer/keyboard player to provide voice and musical/lyrical input to songs. Sheffield based but \Rightarrow 01904794021 (eves/weekends and leave message).

TRANCEMISSEION RECORDS seeks talented trance/techno/hardcore etc artists. Submit your demo plus info to: Trancemission Records PO Box 4314, 6202 VA Maastricht, The Netherlands (Please enclose IRC for sure reply).

VOLATILE RECORDS looking for any interesting, electronics music for future compilations. Volatile Records, PO Box 493, Bristol BS99 7BP.

WANTED

AUTO ACCOMPANIMENT software

for Atari ST- Bank in a box (Versions) session partner (NewTronic/Freestyle (Frohlic) feeling partner (MPI-version 1.6) all up to, £50 each \Rightarrow 01923 779824 (Watford).

BEHRINGER COMPOSER can pay, £150; S760 sampler, valve EQ unit. All items in vgc, please \Rightarrow Ian 01432 266752.

"BLACKOUTS" BY ASHRA on CD - must be in mint condition \Rightarrow 01292 316608.

BOSS MICRORACK RAD10 19-inch rack shelf (2 required) or BMR5 micro rack unit. Cash waiting for right price. \Rightarrow 01354 695239.

BOSS DE200 rack ears wanted: are there any left anywhere? Cash waiting for right price \Rightarrow 01354 695239.

BOSS SE70 Juno 6 & 106, Jupiter 6 & 8, Prodigy, Morpheus, Korg MS20, Oberheim Xpander, Yamaha SY85, Lexicon PCM70 \Rightarrow Simon 0171 731 4004 or 0956 343909.

BSS DPR502 NOISEGATE wanted, cash waiting \Rightarrow 0181 883 4329 or 0956 339577.

CASIO DHS00 professional digital horn in good order, please can someone help? \Rightarrow Pete 01582 416405.

EMU EMAX II keyboard sampler, at least 4Mb, preferably 8Mb - swap for Roland Jupiter 6, immaculate condition or £750 \Rightarrow Lee 01273 297135 (Brighton).

EMU SP12 sampling drum machine wanted in good condition, can pay, £400 \Rightarrow Ian 01432 266752.

GERMAN MUSICIAN pays for TB303, £500, TR808, £250, TR808 MIDI, £350, TR909, £500, SH101, £150, MC202, £150 \Rightarrow 0049 5152 6176 or fax 0049 5152 8179.

MONITOR FOR MAC, any size considered, plus extended keyboard, cash waiting \Rightarrow 01354 695239.

ROLAND JUNO 106 \Rightarrow 01491 872102.

ROLAND JV1080 wanted, MC202 wanted, can pay, £200 \Rightarrow Ian 01432 266752.

ROLAND JX8P with PG800 programmer, cash waiting for right price \Rightarrow 01843 587098.

ROLAND MKS70 must be in excellent condition will pay, £400 or with PG800, £500 \Rightarrow 01454 772237 (Bristol).

ROLAND PG800 white BIT99, MSB Mk2, sensible prices please \Rightarrow Gordon 01670 523363.

ROLAND R8 MKII Korg KM530 sync box, Casio FZ1, Oscar synth, Roland SH09, Roland MC202, Casio FZ1 \Rightarrow 01444 871260 after 7pm.

ROLAND SH101, MC202, TB303, TR808, TR909, JDB00, System 100M, Akai sampler, Emu, Korg, Yamaha keyboard, sound modules, effects, DAT etc, cash, no dealers \Rightarrow 01252 375025.

ROLAND SH101 preferably red or blue, Juno 106 and Boss SE70 \Rightarrow Chris 01872 71688.

ROLAND TR606 Drumatix wanted, cash waiting \Rightarrow 01354 695239.

ROLAND TR909 drum machine wanted, will pay £550, TB303, will pay £500, Oscar, £450, Jupiter 8, £600, Wasp, £100, Hohner Clavinet, £200 \Rightarrow 0114 248 2760 (eves).

ROLAND U220 PCM cards, Voco Micro organ module, Yamaha MDF2 MIDI player \Rightarrow Jon 01522 750846.

SONY ECM PB1C parabolic reflector microphone, new or used but good condition, will pay cash and collect. \Rightarrow 0973 320803 (days, 01730 814531 (eves).

WANTED D50 can pay £300, Sequential Pro 1 £200, JDB00, £800, TR808, £225, TR707, £75, MC202, £180, Moog Source, £325, VC10, £175 \Rightarrow Ian 01432 266752.

WANTED STEINBERG SMP24 or SMP2, MIDI muting unit, 32 channel, Wurliizer piano, 32 pair multicore \Rightarrow 01792 844634.

WANTED VKP1 valve pre-amp will pay, £225 or similar, TR606, can pay £70 \Rightarrow Ian 01432 266752.

YAMAHA TG500 module wanted cheap \Rightarrow 01354 695239.

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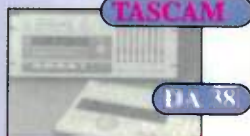
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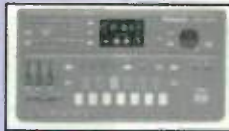
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Anatek Pocket Products to

At *SOS*, we have regularly found ourselves referring readers to one or other of the Anatek Pocket range of MIDI accessories to solve their all too common MIDI interconnection and transmission problems. Trouble was, Pocket Products were previously hard to find... until now!

POCKET SYNC

- 'Smart' FSK Tape-to-MIDI synchroniser • Starts anywhere in song • MIDI In to Out merging • Automatic read/write switching • 'Jam Sync' protects against tape dropouts • Records tempo changes • MIDI and FSK status LEDs

POCKET SYNC is the way to expand the capabilities of any multitrack studio. No longer is it necessary to allocate more than one tape track for sequenced parts. Now, shuttling to different points in the song is quick and effortless. POCKET SYNC writes a special FSK sync tone on one track of tape that is converted to MIDI Clock and Song Position Pointer on playback. Merging of data from the MIDI input to the output allows new sequencer tracks to be added while remaining synchronised to tape.

Automatic switching between write (recording FSK) and read (playback FSK) cuts downs on confusing switches and buttons. Tape oxide dropouts are no longer a problem with POCKET SYNC's variable dropout protection. The sequencer can continue playing over a dropout for a short time, even if FSK code is completely lost!

Order Code: PP003

£69 inc VAT.

Postage: UK £2.50 Europe £4.95 ROW £8.95

POCKET MAC

- Economical Macintosh MIDI interface • No external power supply required • 1 MIDI In, 2 MIDI Outs • LEDs indicate MIDI In/Out data • Uses serial or modem port • High speed CMOS design • Improves signal to minimise data errors.

POCKET MAC opens up a whole new world of MIDI programs for the Macintosh computer user. With many Macintosh programs simultaneously supporting both the serial port and the modem port, one POCKET MAC could be connected to each allowing access to twice as many MIDI devices.

Order Code: PP004

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POCKET CURVE

- Modifies MIDI velocity response • Controls keyboard sensitivity • 6 tapered curves • 6 velocity increase curves • 6 velocity decrease curves • 6 constant levels • Special DX7 velocity curve

POCKET CURVE is a necessity for master keyboards that require velocity scaling control. With it, a keyboard's response to harder or softer playing styles can be modified to suit the player and their MIDI setup. DX7 owners can especially benefit from POCKET CURVE! A special curve is available to boost the DX7's low velocity output, so that missing dynamic potential can be recovered. Use POCKET CURVE to allow a lighter touch during performance on a heavily weighted keyboard controller. For ease of programming, a quick reference to the many curve possibilities is permanently printed on the sides of the unit.

Order Code: PP005

£69 inc VAT.

Postage: UK £2.50 Europe £4.95 ROW £8.95

LONG DISTANCE MIDI

- Enables extra-long MIDI cable runs • Easy to connect to existing 3 conductor wiring • 4,000 feet capability • Balanced XLR connectors • Dual transceivers allow 2-way MIDI communication • Handy data input and output LEDs confirm presence of MIDI signal

The problem with MIDI is that you are likely to encounter data errors when running more than 50 feet of MIDI cable. These can be embarrassing errors such as hung notes, mysterious program changes or worse in the middle of a performance.

The cost-effective solution is MIDIMATCH by Anatek. Two identical units convert MIDI data to balanced signals that can be transmitted through up to 4,000 feet of

cable. The balanced MIDI signal is virtually immune to the problems that have previously plagued studio owners and sound contractors over long MIDI runs.

MIDIMATCH works through ordinary balanced microphone cable so you can connect keyboard controllers to MIDI sequencers or lighting controllers to dimmer packs through your existing snake! Studios already wired for audio can connect MIDI through the cabling already in place. MIDI signals could even be run through a balanced patchbay!

The price includes transmitter and receiver. (Please note: requires two 9V AC adaptors.)

Order Code: PP001

£115 inc VAT.

Postage: UK £2.50 Europe £4.95 ROW £8.95

POCKET MAPPER

- Remaps MIDI controllers • Maps Pitch Bend to Aftertouch • 'Set and forget' programming • Supports 15 controllers • Allows unconventional routings • Updates older keyboards.

POCKET MAPPER allows modulation routings to be customised to suit a particular need. Controller data such as Pitch Bend, Aftertouch, Breath Control and others is received and can be retransmitted as a different controller. For instance, DX7 Breath Control modulation can be rerouted to MIDI Volume to modulate synths that do not accept Breath Control. POCKET MAPPER is the most convenient and cost effective way of rerouting MIDI modulation. Now, MIDI wind instruments can remap mouthpiece Breath Control to Aftertouch quickly and easily.

Order Code: PP006

£69 inc VAT.

Postage: UK £2.50 Europe £4.95 ROW £8.95

POCKET MERGE

- Merges 2 MIDI signals into 1 • Handles System Exclusive • Merges on all 16 MIDI channels • Merges Clock and MIDI Time Code • Merges all controllers • Handles large volumes of data • Stackable for 3 or more inputs

POCKET MERGE is an essential tool for sequencing or live use. Operating as a 2-In, 1-Out MIDI Merger, several Pocket Merges can be stacked to merge more than 2 inputs. Now any controller can be a 'master'. In live setups, POCKET MERGE allows any two controllers (keyboard, drum pads, guitar synth, etc) to share a sampler or sound module. Use one keyboard as a master, while using a favourite pitch bender from another, or combine two keyboards for a multi-tiered, organ-style controller. In the studio, POCKET MERGE is a must for sample dump editors, allowing a keyboard and a computer to be connected to the sampler at the same time. POCKET MERGE handles data very quickly, making buffer overflows a thing of the past.

Order Code: PP007

£59 inc VAT.

Postage: UK £2.50 Europe £4.95 ROW £8.95

POCKET FILTER

- Filter on all MIDI channels • Filter controllers, System Exclusive and real-time data • Combine data types/channels • DIP switch selectable filtering • Select channel from any keyboard • Filter all data on selected channels

POCKET FILTER is a vital tool for problematic setups. With MIDI data becoming increasingly complex, POCKET FILTER can unclog the MIDI data stream, sending only the most useful info. Use it to remove unwanted clock messages or System Exclusive data or memory-intensive aftertouch and controller information. POCKET FILTER frees-up unused MIDI Channels from multitimbral synths, making them available for other modules. In addition, it can be used to channelise older synths that only receive in Omni mode.

Order Code: PP008

£69 inc VAT.

Postage: UK £2.50 Europe £4.95 ROW £8.95



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Compatible with everything, WIND MACHINE interfaces to Korg, Roland, Yamaha, Ensoniq and the rest! No longer are you forced to use your Yamaha breath controller with only one brand of MIDI synth. Any MIDI keyboard that will respond to MIDI Volume, Aftertouch, Modulation, Breath Control, Pitch Bend, Expression, Foot Controller, or Pan can be controlled via your breath controller and WIND MACHINE.

Blowing into a mouthpiece is the most natural way to enhance keyboard performance. Wind instruments have been designed around this principle for centuries. Alone, keyboard Aftertouch isn't as effective because when you release the keys, the effect goes away. Modulation and Pitch wheels alone aren't as effective because they don't allow you to play chords. But when combined with WIND MACHINE, all of these can be used to create vastly improved expression capability.

A flexible input/output configuration means that WIND MACHINE can fit seamlessly into any setup. The simplest way is to use it to send control signals to the MIDI In of a keyboard synthesizer. If the MIDI setup involves a master keyboard and external modules, WIND MACHINE can combine incoming signals from the master with its control signals and then pass them on to a sequencer or sound modules. WIND MACHINE can transmit the most popular



control parameters to keep it simple. Most MIDI keyboards respond to Modulation, Aftertouch or Volume so you won't have any problem finding one compatible with your synth. Any one of the 16 MIDI channels can be selected as well. All control parameters are set by switches on the lid that retain settings even when power is disconnected.

Order Code: PP002 **£85 inc VAT.**
Postage: UK £2.50 Europe £4.95 ROW £8.95

POCKET PEDAL

- Sends on multiple MIDI channels • Supports 1 continuous controller • Supports 1 momentary footswitch • Sends pitch-bend, modulation, portamento time, and MIDI Volume • Sends sustain, portamento on/off, susstentuto, and start/stop • Auto pedal/footswitch calibration • Forward/Reverse pedal operation • 3 mode pitch-bend operation • Combine data types

POCKET PEDAL is an indispensable controller for the performing musician. Use it with an ordinary volume pedal and footswitch to send MIDI volume, modulation, and sustain controls on all 16 MIDI channels simultaneously. For owners of multi-effects processors, POCKET PEDAL provides a convenient cost-effective way of providing dynamic control over effects parameters. It is also a handy controller for automated mixdowns, converting any resistive input into MIDI Controller messages for VCAs. Connect a photocell to POCKET PEDAL and control MIDI parameters with a light source!

Order Code: PP009 **£69 inc VAT.**
Postage: UK £2.50 Europe £4.95 ROW £8.95

POWER PACK

- 'Phantom' powers all Pocket Products • Functions in-line with MIDI signal • Powered by most AC adaptors • Automatic polarity switching • Fully regulated supply • Passes all MIDI data • Alleviates hook-up problems • Boosts MIDI signal

POWER PACK provides power to Pocket Products in instances where upstream devices from other manufacturers have neglected to meet MIDI specifications, or in any instance where power is unavailable. POWER PACK can be placed anywhere in the MIDI chain and accepts power from a standard AC adaptor (not included). It provides additional power when more than 4 Pocket Products are used in a row or allows POCKET PEDAL and POCKET FILTER to retain their channel settings when the master device is turned off. What's more, POWER PACK can be used to boost the MIDI signal and extend the maximum distance between two devices.

Order Code: PP012 **£29 inc VAT.**
Postage: UK £2.50 Europe £4.95 ROW £8.95

POCKET SPLIT

- 8-Zone Keyboard Splitter • Range from 1 to 127 notes • Fixed boundaries • MIDI Channel/Zone assignment • Footswitch controllable • Floating split point

POCKET SPLIT is an 8-zone keyboard splitter. Each zone has its own MIDI Channel, and has a range of 1 to 127 keys wide. Zone boundaries can be set for hard or soft (overlap or splits) Use POCKET SPLIT to maximise the performance of your master keyboard, or create interesting performance possibilities with your guitar controller. An added feature is an 'intelligent' 2-way floating split that automatically tracks the keyboard player's left and right hands. Now any MIDI device can have the features of a sophisticated MIDI controller at a fraction of the cost!

Order Code: PP013 **£69 inc VAT.**
Postage: UK £2.50 Europe £4.95 ROW £8.95

POCKET TRANSPOSE

- In-line 16 Channel transposer • +/- 5 Octave transpose range • Switch between normal and transposed modes • Separate intervals for each channel • Transpose key signature and octave simultaneously • All non-transposed MIDI data is passed • Harmonisation mode • Footswitch controllable.

POCKET TRANSPOSE is a performance-orientated transposer that supports separate transpose intervals for each MIDI channel. Although many keyboards have a transpose function, it's usually too cumbersome for live use. POCKET TRANSPOSE makes transposing easy. Intervals can be set while playing, and the user can select the normal or the transposed setting from a footswitch. Guitar synth players can use the POCKET TRANSPOSE to set intervals on 6 separate MIDI channels, or use it to transpose all strings by a certain amount. POCKET TRANSPOSE provides an easy way to try different arrangements without altering sequencer data. You can even set it so that the drum machine channel remains intact.

Order Code: PP011 **£69 inc VAT.**
Postage: UK £2.50 Europe £4.95 ROW £8.95

POCKET CHANNEL

- Remaps Receive channel • Remaps Transmit channel • Sends multiple MIDI channels • Velocity-switch mode • Footswitch controllable

POCKET CHANNEL takes data from any MIDI channel and remaps it on to one, several, or all 16 MIDI channels. Up to 16 different channel assignments are possible. A unique velocity-switch feature allows automatic switching between two different sound modules depending on the key velocity. Use POCKET CHANNEL to organise channel assignments for a multitimbral sound module, or send a controller's output to two or more MIDI channels. With POCKET CHANNEL, for example, two drum machines or two samplers can share the same note assignments and be set to two separate MIDI channels.

Order Code: PP014 **£69 inc VAT.**
Postage: UK £2.50 Europe £4.95 ROW £8.95

POCKET THRU

- 1-In, 3-Out MIDI Thru box • High-speed CMOS design • Very low power requirements • Buffered outputs clean up data • Handles all MIDI data • Stackable for more outputs

POCKET THRU is an essential building block for any MIDI setup and an excellent companion product for all Pocket Products. POCKET THRU provides 3 buffered outputs from a single MIDI input. Use POCKET THRU to minimise MIDI delays, or expand the outputs of a POCKET MERGE unit. POCKET THRU also allows POCKET FILTER to be placed anywhere in the MIDI chain, when using it to channelise older synth. Up to 4 POCKET THRU's can be combined to provide a total of 9 outputs.

Order Code: PP010 **£35 inc VAT.**
Postage: UK £2.50 Europe £4.95 ROW £8.95

ABOUT POCKET PRODUCTS
Pocket Products are handy MIDI accessories designed to solve the problems arising from incompatibilities between MIDI products from different manufacturers. Compact and sturdy, Pocket Products can be placed anywhere in the MIDI signal chain.

HOW TO ORDER

Join the group of satisfied customers worldwide who have found the solution to their MIDI problems with Pocket Products from Anatek, now available direct from SOS.

To order, just fill out the Order Coupon at the back of the Mail Order section (remember to add postage for each product) or simply call our Mail Order hotline on 01480 461244.

DON'T DELAY ORDER TODAY!

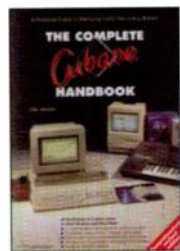
Please allow up to 28 days delivery on Pocket Products.

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THE COMPLETE CUBASE



HANDBOOK

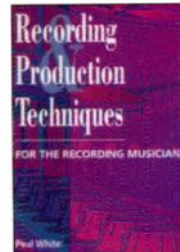
2nd Edition

by Udo Meyer
After a short break, the definitive Steinberg Cubase Handbook is back in print. This new edition is once again filled with real world applications and down to earth explanations of how to use all the

powerful features offered by Cubase in all its many forms. The book is now relevant to all three platforms (Atari, Mac and PC), and the main attraction of the revised text is its focus on Cubase Score. The Complete Cubase Handbook is a not-to-be-missed purchase for users of Steinberg's highly popular software.

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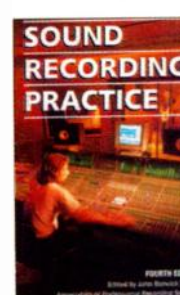


by Paul White.
This highly informative book by SOS's own Editor demystifies the techniques used by professionals in the recording of contemporary music.

It reveals how to make full creative use of all manner of studio effects and signal processors. These techniques can be utilised both in the home and commercial studio. The book concludes with an invaluable section on master tape formats and an overview of the various processes and vinyl records.

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by John Borwick
This now classic text reaches its Fourth Edition, and has been enlarged and revised to cover up to date developments in the recording industry. The contents of this 600+ page is too diverse to summarise in such a short space. Suffice to say that every

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RECOMMENDED READING

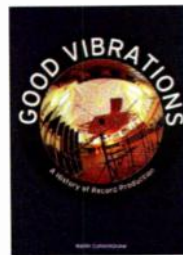
INTRODUCING DIGITAL AUDIO

2ND EDITION

by Ian R Sinclair
Explains digital audio - CD, DAT and sampling - non-mathematically. The updated 2nd edition adds information on oversampling and bitstream techniques, plus a glossary of technical terms.

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GOOD VIBRATIONS

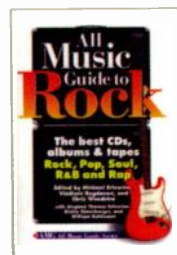


by Mark Cunningham
Good Vibrations — A History of Record Production features a foreword by BRIT award-winning Best Producer of 1996, Brian Eno. The book chronicles the development of recording techniques and music technology, from the

invention of sound-on-sound (multitrack) tape recording in 1949, to the current dramatic advances in digital technology. Also highlights the changing role of the producer and engineer, with quotes from George Martin, Brian Wilson, Tony Visconti, Trevor Horn, Hugh Padgham and Pete Waterman. Recording discussed in detail include 'The Beach Boys' 'Pet Sounds, The Beatles' 'Sgt Pepper's Lonely Hearts Club Band, Pink Floyd's 'Dark Side Of The Moon, Queen's 'Bohemian Rhapsody, David Bowie's 'Heroes, and U2's 'Rattle and Hum. Includes around 100 photos and illustrations, many previously unseen, plus extensive reference section.

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by Gabriel Jacobs & Panicos Georgiades
Forward by Vangelis. A thorough guide to creating music with today's music technology. Covers music theory, MIDI and electronics principles, computers, what gear to use in your MIDI studio, and most modern MIDI production techniques. Ideal for beginners and advanced readers alike.

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FOR MUSICIANS

by David Miles Huber
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MULTI-EFFECTS FOR

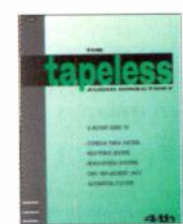


MUSICIANS

by Craig Anderton
Occasional SOS contributor Craig Anderton adds to his long list of music technology-based books with this comprehensive look at multi-effects units. The book helps you with what to look for when buying a new unit, how to use it when you've got it home, and provides a collection of tips to help you get the most out of your device. 137 Pages.

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TAPELESS AUDIO DIRECTORY



(4th Edition) by Yasmin Hasnu
Completely updated, this 4th edition is the only international buyers guide to over 200 professional digital audio workstations and systems aimed at cart replacement and broadcast automation.

The comprehensive listings include target markets, hardware and software specifications, operational features, networking and file translation, future development plans, training and customer support, costs and suppliers details for USA, Europe and Far East. The Directory not only covers all existing systems, but those soon to be launched and those on which development has been halted. It also provides a comprehensive explanation of the terminology, with useful tips for potential purchasers.

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TECH TERMS - A Practical Dictionary for Audio and Music Production



by George Petersen and Steve Oppenheimer
This is a concise collection of definitions of electronic music and recording terms; 300 words and phrases are given quick accurate definitions in plain English. So if you're new to recording, synths, samplers and MIDI, this book could be a

big help in getting your mind into the terminology.

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THE SECRETS OF MUSICAL CONFIDENCE - How to Maximise Your Performance Potential



By Andrew Evans
Written by a musician and psychologist, this is claimed to be a first for musicians: a book aimed at maximising performance potential and increasing confidence. A series of questionnaires and exercises allow you to analyse your abilities and needs and allow you to deal with stress, creativity and career management, amongst other topics.

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AUDIO

by F A Wilson

Volume 6 of the Elements of Electronics series, *Audio* offers a comprehensive guide to the physics of sound, its recording and its reproduction. There is a lot of physics used in the book - in fact, this aspect makes the book a good basic text for those with a serious interest - but the text in between the formulae is clear and informative. Not bad value for £3.95 - a total of 308 pages.

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SOUND FOR PICTURE



Edited by Jeff Fortenza and Terri Stone
Covers all aspects of film and TV sound, dialogue, music, effects recording, and editing and assembling the result into a final soundtrack. Technical and creative aspects are all covered, and a comprehensive glossary is provided. A

good proportion of the book is also taken up with a selection of case studies (including Malcolm X, The Abyss, Northern Exposure and Twin Peaks) that provide hands on information.

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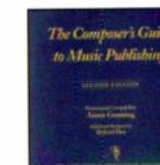
STUDIO MUSICIAN'S JARGONBUSTER

by Godric Wilkie

If the terminology of musical technology and recording leaves you gasping, then this is the book for you! With clear explanations of 1500 terms and concepts, amidst illustrative graphics, the whole work is extensively cross-referenced, and worth its weight in gold.

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MUSIC PUBLISHING (2ND EDITION)

written & compiled by Annie Gunning
This book has been produced by the Association of

Professional Composers and examines the business of musical copyright and music publishing from the composer's point of view. It aims to educate composers of all kinds of music in the operation of the music publishing business to help them obtain, negotiate and benefit from publishing agreements and avoid expensive mistakes. Apart from publishing, the book also covers copyright legislation, performing and mechanical rights, the royalty administration societies, music in film, broadcasting, theatre and ballet and commissioning agreements. There is also advice for composers setting up their own publishing companies. An exhaustive and useful book.

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by Paul White
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Soundproofing, Acoustics and Monitoring is designed to take the mystery out of studio design, whether you run a bedroom studio or a commercial recording facility. In plain English, it explains how soundproofing works, how you can change your room acoustics to give the optimum monitoring environment and how to choose and use your monitor system.

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1st Edition
New from Sypha is the Nonlinear Buyers Guide. Known especially for their definitive digital audio-focused Tapeless Directory (look out for the 4th edition in the future), Sypha have applied the same comprehensive approach to digital video systems.

The first edition of The Nonlinear Buyers Guide is the only international source of information on over 150 nonlinear video systems. Products included in the Guide are nonlinear editing systems, mixed mode editing systems, plug in cards and software for editing, disk recorders and servers. The information is provided in an easily accessible format and includes operational and technical specifications, future developments, costs and suppliers details. The Guide also gives useful pointers to those considering investing in a system.

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Compact Mixers
by Rudy Trubitt
Journey through the design and features of mixers so you can maximise the use of this essential and very flexible audio component. Using Mackie's wildly popular MS1202 and CR1604 mixing desks as a foundation, the book explains general concepts as well as model specific operating tips. Topics include: mixing basics, real world applications, hooking things up, mixing tips, block diagrams and a glossary.

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HOW TO SET UP A HOME RECORDING STUDIO

UPDATED & EXPANDED
By David Mellor
If you are thinking of setting up a home studio, a project studio or a DJ studio, this book is the place to start. It takes a highly practical 'nuts and bolts' type of approach to help you produce an efficient and productive studio. It covers soundproofing, keeping the sound in and the noise out, acoustics, studio layout, and studio equipment, and advice on the kit you are likely to need. The book ends with an invaluable questions and answers section, a glossary of terms and a list of contacts.

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THE MUSICIANS GUIDE TO HOME RECORDING

The Musician's Guide to Home Recording
by Peter Melan & Larry Wickham
(Revised and Updated)
This is the book every serious songwriter, musician, and home recordist needs, with a new chapter on MIDI and the latest digital recording technologies. A problem-solving guide as well as an instructional text, it is designed to explain in simple terms how professional recording techniques can be applied at home.

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Tips for Recording Musicians
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Today's studio equipment is affordable but sophisticated, and it takes a lot of know-how to use all this technology effectively. This book details the equipment you need - mics, effects, tape machines, etc. It has separate sections on recording of vocals, electric guitar, drums and acoustic instruments, as well as the use of MIDI in the recording process. You will learn how to get the best from delay and reverb, as well as effects like compression and gating. There are some useful tips on using the mixing desk and post production work. All in all it's a handy guide that will improve your recording techniques at a stroke.

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Practical Studio Techniques
by Tom Misner
This book and audio CD package comes from the School of Audio Engineering's Tom Misner. It's an excellent source of basic recording facts and figures, and if you want concrete examples of the subjects discussed, then listen to the free mixdown demonstration CD.

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Recording Techniques for Small Studios
by David Mellor
This well written, user-friendly book is designed to offer accessible and helpful tips on how to get the most out of the equipment in your studio. Chapters cover: mic techniques; musical arranging for recording; 4-track recording; the mixer; preparing for an running a session; recording drums; recording vocals; integrating MIDI; using effects and signal processing; location recording, and digital recording. The book is rounded off with an 'any questions?' section, a glossary and a list of recording studios in the UK. As you would expect from a book based on an SOS series, this is a *must have!*

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The Master Tape Book
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The definitive guide to the creation and management of audio master tapes. With 'Master Tapes' literally flying around the world being copied, cloned or re-cut for seemingly endless variations of compilation albums, it is terrifying to think that there is no standard set of procedures for labelling and maintaining master tapes. Until now, that is.

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MUSIC PUBLISHING
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This book demystifies music publishing, explaining what it's all about and what it means to a songwriter. Learn what your publishing options are, from a single song contract to a staff writer to a self-publishing operation. By the time you have finished this book you will never make an uninformed decision about publishing your songs that you will later regret.

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SONGWRITER'S MARKET 1996
To get your songs published and produced, you must know who the music industry's players are and how to approach them. This directory identifies those seeking the work of songwriters. Lists 2500 lyric and music markets, clubs, associations, contests, workshops and songwriters publications. Includes 'The A & R Roundtable', where pro discuss their role in a songwriter's career, business side of songwriting, music industry trend report, and interviews with music industry professionals.

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Writing Better Lyrics
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SUCCESSFUL LYRIC WRITING

SUCCESSFUL LYRIC WRITING
by Sheila Davis
Superb guide to the art of writing words to music. Learn how to create a memorable song title, choose the best music form for each idea, apply writing principles and avoid common pitfalls, write with both sides of your brain, find your voice. Includes songwriter's bibliography and lists over 60 songwriting organisations to help you connect with your chosen marketplace.

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SOS Book Shop

THE SONGWRITER'S GUIDE TO COLLABORATION

by *Walter Carter*
This book describes what to expect when entering into a co-writing situation and how to make the arrangement work. Covers the pros and cons, how to find a partner, publishing your songs, who writes what, money matters, sharing success and rejection, growing together or apart plus co-producing and pitching.

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CREATING MELODIES

by *Dick Weissman*
Learn how to create memorable melodies, from love ballads to film scores and jingles. Using lots of examples of popular songs and styles by top-name musicians, Weissman covers the full range of melody writing. Learn how to marry music to lyrics, relate rhythm to the message of your song, read and write musical notation, write instrumentals for films, TV, commercials and theatre, and put together a demo tape.

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CAN YOU SING A HIGH "C" WITHOUT STRAINING

by *Thomas Appell*
This book features extensive coverage of the vocal cords and explains clearly how to sing high notes without going into falsetto, and without straining. You'll learn how to extend the range of your voice, and why most singers either strain or "break" into falsetto when attempting to sing above their normal range. It comes with 2 CD's jam-packed with over 2 hours of vocal examples and exercises that you can practice with. Many singers have increased their range by several notes after the first week of practice. If you can't sing high notes without straining, but would like to know how, then this book is for you. 122 pages.

CODE B319 £24.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

THE WHITE BOOK INTERNATIONAL PRODUCTION DIRECTORY 1996

This is the latest edition of the essential source of contacts for artists, performers, venues, services and facilities associated with music, concerts, shows, festivals, film, TV, video, conferences, exhibitions and corporate hospitality - there's even a comprehensive international section. The layout is logical and an index makes fact finding an easy task - altogether an indispensable 864 pages. The new edition once again comes with a complementary copy of The Little White Book, which distils the contents of the larger volume to a pocket-sized list of names and phone numbers.

CODE B259 £46.00
Postage: UK £4.75, Europe £8.50, R.O.W. £16.95

THE MUSICIAN'S GUIDE TO READING & WRITING MUSIC

It's an entertaining but practical introduction, well, to reading and writing music. This is as friendly as it comes. Learning to read and write music isn't easy, but at least the process is lightened up with considerable doses of wit.

CODE B224 £8.99
Postage: UK £1.50, Europe £4.95, R.O.W. £7.50

THE ARC MUSICIANS' DIRECTORY



The new Musicians' Directory from Arc Publishing aims to provide all things to all musicians: whatever your style of music, the comprehensive listings offer you the contacts you need, whether it's labels, studios, venues, music shops or management - and that just scratches the surface of the dozens of topics covered by the book. Apart from being a directory proper, the Handbook also includes a selection of useful articles, including subjects such as how to be a session player (by SOS's very own Paul White), music publishing, releasing your own record, copyright protection, accounting, legal advice and more. The Musicians' Directory offers over 380 information-packed pages for little more the price of a new CD.

CODE B219 £14.99
Postage: UK £2.50, Europe £6.95, R.O.W. £9.50

NETWORKING IN THE MUSIC BUSINESS



by *Dan Kimpel*
Think of this book as a popular psychology course for musicians. If you feel you could benefit from developing a positive attitude to getting ahead in your area of the music business, then *Networking* is for you. There's nothing like it for good, sensible advice: it's often not enough to have talent. To be successful, you'll need to persevere, have good "people skills", and exercise good networking skills. Success depends on what you know, who you know, and perhaps most importantly, who knows you. An essential book, and a snip at £11.95. Hardback.

CODE B251 £11.95
Postage: UK £1.95, Europe £1.95, R.O.W. £7.50

THE SONGWRITER'S MARKET GUIDE TO SONG & DEMO SUBMISSION FORMATS



From the Editors of *Songwriter's Market*
If you've got the songs and you've got the contacts, this book will help you to choose a format that will get your demo heard as well as overall packaging and presentation and dealing professionally with publishers, A&R reps and other industry people. Plenty of example documents (lyric sheets and letters) are given, and the book is nicely rounded off with a glossary and index. Hardback.

CODE B258 £12.95
Postage: UK £2.50, Europe £5.95, R.O.W. £9.95

SONGWRITER'S WORKSHOP



Edited by *Harvey Rachlin*
If you want to work systematically at improving your songwriting skills, then try this book: it's divided into four individual "lessons", each of which is backed up by audio material on cassette. This allows you to listen in the car or walk around with your personal stereo and still absorb useful information. The four sections are: On Songwriting by Janis Ian (yes, the Janis Ian!); Making Demos by John Barilla; Understanding MIDI by James Becher; and The Art of Pitching Songs by Teri Muench (ex-A&R director with RCA and publisher). Also included is an intro, a quick and breezy glossary and an index. Includes two cassettes.

CODE B260 £15.95
Postage: UK £2.50, Europe £5.50, R.O.W. £8.50

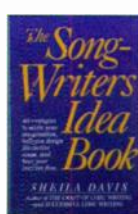
MUSIC BUSINESS AGREEMENTS



by *Richard Bagehot*
Written by a practising music business solicitor, "Music Business Agreements" can be seen as a legal textbook for the UK music industry. Don't let the formal tone put you off: this book is a mine of information with reference to real-life problems and examples, and a helpful question and answer appendix. Expensive, but invaluable. 522 Pages.

CODE B303 £58.00
Postage: UK £2.50, Europe £5.50, R.O.W. £8.50

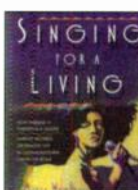
SONGWRITERS IDEA BOOK



by *Sheila Davis*
If you want a textbook, this is it: 250 pages of serious, intelligent insight into songwriting. Loads of good advice and a friendly tone make this a useful read to anyone, whether beginner or seasoned pro. The focus is firmly on lyrics rather than music, and the prominent references to poetry terminology shouldn't really be a surprise. Use Davis' 40 strategies and you could soon be "designing distinctive songs". Hardback.

CODE B250 £9.95
Postage: UK £2.50, Europe £5.50, R.O.W. £8.50

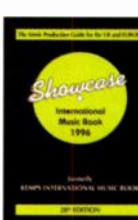
SINGING FOR A LIVING



by *Marta Woodhull*
The title says it all. If you're already a singer, this book gives you everything you need to know in order to exploit your talent further: looking after your voice and voice exercises, business advice and marketing and audience interaction are all covered in this straightforward book.

CODE B252 £12.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

SHOWCASE INTERNATIONAL MUSIC BOOK 1996



The music industry equivalent of *Yellow Pages*! over 500 pages crammed with all the latest information, including new phone and fax codes for record companies, recording studios, music publishers, equipment manufacturers, artist management, producers, PA and lighting hire, and more. Plus a USA section.

CODE B192 £32.00
Postage: UK £2.50, Europe £6.95, R.O.W. £9.50

ALL YOU NEED TO KNOW ABOUT THE MUSIC BUSINESS



by *Donald S Passman*
This book is a must: the author manages a portfolio of high profile clients and teaches music business law at the University of Southern California, and has produced a clear overview of the music business. He starts at the beginning of your career, with advice on choosing a manager, lawyer and agent, and moves through getting a record deal, songwriting and music publishing and finishes with details of copyright, mechanical royalties, songwriter deals, films and more. An exhaustive and entertaining read. 415 Pages.

CODE B302 £19.99
Postage: UK £2.50, Europe £5.50, R.O.W. £8.50

88 SONGWRITING WRONGS & HOW TO RIGHT THEM

by *Pat & Pete Luboff*

This is a real workbook for songwriters, dealing with both the craft and art of songwriting. Song structure, rewriting, matching lyrics to music, collaboration, making the right demo, pitching the final result, and business matters.

CODE B254 £11.95
Postage: UK £2.50, Europe £5.50, R.O.W. £8.50

BEGINNING SONGWRITER'S ANSWER BOOK

by *Paul Zollo*
If you're just starting out as a songwriter or haven't progressed very far, perhaps you have questions about the art and business of songwriting that you can't find answers for. Chances are, they're covered in this book. Over 200 of the questions songwriters most often ask are answered in this book. There are 11 chapters, covering subjects such as lyrics, theory, song structure, collaboration, demos, publishing and the music business. Some answers - such as "What makes a professional-sounding demo?" are actually mini-articles - and an index allows you to target subjects without wading through the text. A friendly, informative read.

CODE B253 £10.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

THE BROADWAY QY10

by *Peter L. Alexander with Bobby Maestas*
Charts and musical examples for re-creating Broadway songs with your QY10 using only the internal patterns. Includes useful set-up information. 77 pages.

CODE B263 £3.95
Postage: UK £1.50, Europe £4.95, R.O.W. £7.50

TG33 QUICK OPERATIONS

by *Bobby Maestas*
Instant access to Yamaha's neat little Vector Synthesis sound module. Loads of examples, well illustrated. 115 pages.

CODE B264 £8.95
Postage: UK £1.50, Europe £4.95, R.O.W. £7.50

YAMAHA SY55 GUIDE

by *Bobby Maestas*
A good helpful look at this arguably overlooked instrument; technicalities are explained in context of music throughout. 153 pages.

CODE B268 £9.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

MIDI INFORMATION

MAKING THE MOST OF MIDI



by *Paul Overaa*
This is a MIDI book unlike any other. It explains the fundamentals of MIDI and MIDI sequencing for the beginner, and it goes much further, dealing with issues that will be of help to more established users. Advice on MIDI

fault finding, help for musicians using sequencers with live bands, MIDI messages and MIDI files, plus programming material. So if you are a keen first time user or a MIDI veteran, there will be something in this book to interest you.

CODE B321 £14.95
Postage: UK £2.50, Europe £5.50, R.O.W. £8.50

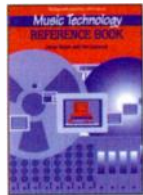
THE MIDI COMPANION



by *Jeffrey Rona*
A breezy run through MIDI that would suit the absolute beginner, this book is well-illustrated, clearly expressed and explains the technical bits in as close to non-technical language as the subject matter allows.

CODE B234 £9.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

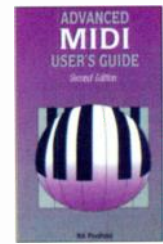
MUSIC TECHNOLOGY REFERENCE BOOK



by Peter Buick & Vic Lennard
Written by Peter Buick and Vic Lennard (author of SOS's Atari Notes column), this book offers information at your fingertips and is an indispensable reference source for the musician or sound professional in the recording, broadcast, live, video, computer, multimedia, post production and theatre industries. It includes comprehensive MIDI spec, General MIDI, MTC, MSC, and SysEx information. It also includes charts, check lists, useful hints, tips, and ideas, plus a glossary, list of contacts and a comprehensive indexed, it is also organised into convenient sections. 150 Pages.

CODE B305 £12.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

ADVANCED MIDI USER'S GUIDE (2nd Edition)



by RA Penfold
Most MIDI users do no more than scratch the surface of MIDI's potentialities. But dare to dig a bit deeper and you'll find a whole new world of creative possibilities.

With the Advanced MIDI User's Guide, you'll learn how to optimise your MIDI system to get the best results from your particular setup, and you'll find out how to use gadgets like switchers and mergers to enhance your system. If you want to incorporate a multitrack tape recorder into your MIDI system there's a section on synchronisers, SMPTE and MIDI time code, and retro freaks will learn how to hook up that dusty old analogue synth to their MIDI systems.

CODE B152 £10.95
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

MIDI SYSTEMS AND CONTROL

By Francis Rumsey
This revised edition has been expanded in an number of topic areas, to provide even more comprehensive coverage of every area of MIDI. Contents include: an introduction to principles and terminology; MIDI timecode; librarians and editors; different approaches to sequencer software design; practical systems design.

CODE B007AM £19.95
Postage: UK £2.50, Europe £6.95, R.O.W. £9.50

PRACTICAL MIDI HANDBOOK (3rd Edition)

by RA Penfold
This book is completely updated, and features a section on General MIDI. It provides a "straightforward, non-mathematical introduction to MIDI", and features a full glossary of MIDI terms.

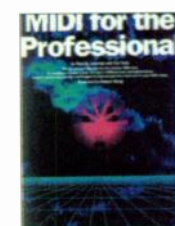
CODE B273 £8.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

A BEGINNERS GUIDE TO MIDI

by RA Penfold
The title says it all: all aspects of MIDI are explained, and many common beginner's problems are discussed.

CODE B287 £4.95
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

MIDI FOR THE PROFESSIONAL



by Paul D Lehman and Tim Tully
Co-written by SOS contributor Paul D Lehman, this substantial, exhaustive work covers pretty well any aspect of MIDI that you could think of. As an overview of what MIDI is and does in 1994, this

239 page book couldn't be better.

CODE B227 £11.95
Postage: UK £3.95, Europe £7.50, R.O.W. £14.50

MIDI SURVIVAL GUIDE

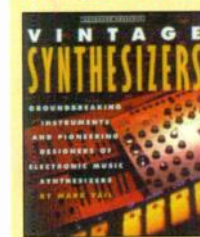


by Vic Lennard
Whether you're a beginner or a seasoned pro, the 'MIDI Survival Guide' shows you the way. No maths, no MIDI theory - just practical advice on starting up, setting up and ending up with a working MIDI system. Contains over 40 cabling diagrams, and how to: connect synths, sound modules, sequencers, drum machines and multitracks; how to budget and buy secondhand; using switch, thru and merger boxes; transfer songs between different sequencers, get the best out of general MIDI, and understand MIDI implementation charts.

CODE B196 £6.95
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

SYNTHESIZERS

VINTAGE SYNTHESIZERS



By Mark Vail
This well-illustrated, 300 page book covers synth history, interviews with designers and overviews of important instruments. Mark Vail's book could be the most entertaining

and useful synth book yet - check out the definitive history of the Minimoog, complete with pre-production designers' sketches. While not strictly a buyers' guide, there is a comprehensive section on sourcing, valuing, upgrading and servicing classic instruments.

CODE B199 ONLY £16.95
Postage: UK £2.50, Europe £6.95, R.O.W. £9.50

KEYFAX 2

by Julian Colbeck
1989 version of Keyfax provides individual summaries and specifications of the last of the great mono synths, digital pianos, and classic polysynths like the Roland JX10 and Prophet VS. Forerunner of the SY22 and Wave Station. Early Keyboard and rack-mount samplers are covered in this indispensable guide. Still a great buy.

CODE B096 ONLY £5.99
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

KEYFAX 4

by Julian Colbeck
The new Keyfax book (1993) is the most comprehensive guide to professional keyboards yet compiled. Keyfax 4 spotlights synthesizers and expander, and MIDI keyboard controllers. From classic analogue machines right up to the latest synth/sampler hybrids. Reviews include technical tour on a practical, need-to-know basis. Everything you need to decide which instrument is best for you.

CODE B201 £12.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

THE MUSEUM OF SYNTHESIZER TECHNOLOGY



by Martin J Newcomb
If you liked our feature on the opening of the Museum of Synthesizer Technology in October, but haven't got the time or the cash to visit in person, then the next best thing has to be the museum's guide book. This 118 book is printed on glossy

paper and contains full-colour pictures of a large selection of exhibits from the museum, together with some descriptive text and company backgrounders. The text reads a little like a fanzine, but the hardcore synth fanatic will want this book for the pictures. In these pages you will glimpse instruments that you are unlikely ever to experience in the flesh: an exceedingly large Roland System 100 modular set-up, an EMS Synthi 100, an ARP 2500, a large Emu modular and what must be the comprehensive collection of Moog equipment anywhere.

CODE B291 £12.95
Postage: UK £2.50, Europe £6.95, R.O.W. £9.50

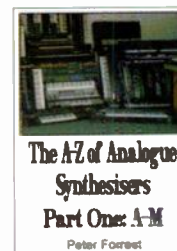
KEYFAX 5



by Julian Colbeck
The latest instalment in the intrepid Keyfax series offers potted specifications and concise mini-overviews of digital pianos, home keyboards, General MIDI modules, stage organs and computer sound cards. Look out for company backgrounders, contact details and cross-references to earlier Keyfaxes.

CODE B231 £12.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

THE A-Z OF ANALOGUE SYNTHS PART ONE: A-M



by Peter Forrest
The author has aimed to make his book a complete rundown of all the major analogue synths and keyboards ever made, and on the evidence of this first volume, he seems to have succeeded. The book is useful and detailed, and shows evidence of

the massive amount of research and effort put in by Peter. He gives pocket company histories and detailed data on the instruments produced - but note that a few entries for a few particularly obscure instruments and companies are limited due to lack of data. The book also provides a comprehensive overview of the qualities of various instruments; charts and tables assess second hand values and maintenance levels necessary to keep a given instrument playable as well as such intangibles as sound quality, collectability and user interface. The A-Z of Analogue Part One, which is limited to 8000 copies worldwide, also features 96 colour pictures of classic instruments.

CODE B294 £14.00
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

DRUM MACHINES

DRUM PROGRAMMING — A Complete Guide to Program and Think Like a Drummer



By Roy F Badnes
Coming from a publisher that has a good range of real drum texts, we'd expect this book to be a little different. And it is: it gives plenty of insights into how real drummers approach their job, and there are plenty of example patterns to help translate these

ideas to a drum machine.

CODE B235 £6.95
Postage: UK £1.50, Europe £4.95, R.O.W. £7.50

DRUM MACHINE RHYTHM DICTIONARY

By Sandy Feldstein
For use with Roland drum machines or any grid-based pattern system. First 75 pages on programming huge range of rhythms in rock, latin, jazz and funk styles. Remainder analyses styles and patterns of world's top drummers - Phil Collins, Billy Cobham, Steve Gadd, Stewart Copeland, etc. Highly recommended.

CODE B110 £16.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

RHYTHMICAL GROOVES & PATTERNS

By Siegfried Heffman
Looks at how drummers compose rhythm patterns to add emotion, swing or groove. Contains examples for you to programme into your drum machine or sequencer.

CODE B115 £11.50
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

260 DRUM MACHINE PATTERNS

By René-Pierre Bardet
Even more drum pattern styles (paso doble, charleston, etc)

CODE B019 £7.95
Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

DRUM MACHINE PATTERNS

By René-Pierre Bardet
200 drum patterns and breaks presented in one-measure grid notation. Funk, R'n'B, ballad, pop, reggae, afro-cuban and many other styles.

CODE B018 £7.95
Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

PLAYING TECHNIQUES

ROCK IN SEQUENCE



by William Lloyd & Paul Terry
The latest book from the authors of Music In Sequence and Classics In Sequence is now available: Rock In Sequence offers detailed scores of 17 rock and pop hits from the '50s to the present day, alongside a collection of helpful sequencing tips. Songs are included from the likes of the Beatles, Led Zeppelin, Abba, Earth, Wind & Fire, and more. Rock In Sequence 112 pages.

CODE B320 £14.95
Postage: UK £2.50, Europe £5.50, R.O.W. £8.50

CLASSICS IN SEQUENCE

by William Lloyd & Paul Terry
Takes concepts behind Music In Sequence and applies them to all-time favourite classical music scores. Authors show how to make fresh, exciting interpretations of classic scores. Info on reverb and effects, interpreting scores, editing synth voices. Highly creative - an ideal workbook for the music classroom. Covers Medieval, Renaissance dance music, Bach's Toccata in D minor, Vivaldi, Purcell, Handel; opera excerpts from Rossini, Verdi, Borodin; Mozart, Schubert, Tchaikovsky, music from Carmina Burana; Debussy, Satie, Steve Reich's Piano Phase and more. Highly recommended.

CODE B193 £12.95
Postage: UK £2.50, Europe £5.50, R.O.W. £8.50

MUSIC IN SEQUENCE

by William Lloyd & Paul Terry
Still one of our best-selling books. Easy to follow, practical guide to making real use of your sequencer, written by people who really understand music and how to create it using today's technology. This brilliant, unique book carries the SOS seal of approval.

CODE B155 £12.95
Postage: UK £2.50, Europe £5.50, R.O.W. £8.50

1000 KEYBOARD TIPS



by J Dirksen & Q Hart
The hi-tech musician's guide to the basics of music, scales, chords and harmonies. 256 pages covering chord relationships, improvisation, suggested drum machine patterns, plus comprehensive chord table. Too good to miss!

CODE B113 £13.95
Postage: UK £2.50, Europe £6.95, R.O.W. £9.50

SOLID GROOVES

By Dieter Peterleit & Herb Quick
128 pages dealing with both bass and drums, the 'heart' of the pop group, together. Although written primarily for drummers and bass players, anyone interested in understanding rhythmical music in popular styles will find this book invaluable.

CODE B172 £11.50
Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

SOS Book Shop

COMPUTERS & MUSIC

THE COMPLETE SOUND BLASTER



by Howard Massey
Explains in simple, non-technical terms: how to install the Sound Blaster hardware and software for use in both the DOS and Windows environments, the two sound processes used by the card, MIDI, the Sound Blaster's MIDI capabilities, and the many different applications for the Sound Blaster, including the various software utilities provided with the card and many of the third party support products that enhance its operation.

CODE B313 £10.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

MULTIMEDIA ON THE PC



By Ian R Sinclair
If you want to know what multimedia is and what it can offer you, then this is the book for you. Much of the information is general enough for everybody, but as the title suggests, the book is aimed at PC users. The book explains the installation and use of a CD ROM drive and a sound card and covers all key concepts behind multimedia. As an added incentive, if you buy this book, you can send away for a free copy of *Picturebook*, a multimedia authoring package.

CODE B272 £11.95
Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

PC MUSIC HANDBOOK 2nd Edition

NEW

by Brian Heavood & Roger Ewan
This book will show you how to turn your PC into a creative music making machine. It explains how you can create very sophisticated music on your PC by running sequencing software, how to create your own sounds with a soundcard, how to use your PC as a sound librarian, or a sample editor, or even use it as a hard disk recorder or a sound sampler. All these things are possible with today's sophisticated PC.

The use of sound in multimedia applications is also covered, and there is a chapter on PC hardware with advice on which type of PC is best for your particular needs.

There's advice too on getting connected to the Internet, where you can contact other PC music aficionados world wide!

CODE B332 £10.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

COMPUTERS AND MUSIC

By RA Penfold
2nd edition. Covers hardware and software applications. Excellent glossary of jargon, and now bang up to date.

CODE B098 £8.95
Postage: UK £1.50, Europe £4.95, R.O.W. £7.50

SEQUENCER SECRETS



Ian Waugh
Ian's book aims to "go beyond the manual" in telling you how to get the best from your sequencer. The book features 29 hands-on sequencing projects and is suitable for use with all software sequencers. The book hopes to help you optimise your MIDI system and use your sequencer to create all sorts of useful effects. A troubleshooting section helps you track down stuck notes, double notes and so on.

CODE B299 £6.95
Postage: UK £1.50, Europe £4.50, R.O.W. £6.50

MUSICAL APPLICATIONS OF THE ATARI ST's



By RA Penfold
Includes a general introduction to MIDI, a handful of MIDI add-on circuits (Thru box, MIDI switcher and so on), plus a collection of programs, in Fast BASIC, that allows you to use the ST's internal sound generator and create little MIDI applications.

CODE B280 £5.95
Postage: UK £1.50, Europe £4.95, R.O.W. £7.50

MULTIMEDIA ON YOUR PC

by Francis Botta
A practical guide to multimedia specifically on the PC. Botta's book is once aimed at users, educators and developers, and comprehensively discusses the hardware required to take advantage of multimedia in a PC environment as well as the hardware and software necessary in a multimedia authoring situation. The book is provide with comprehensive appendices covering a glossary and comprehensive product and manufacturer lists.

CODE B296 £10.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

LIVE SOUND

SOUND REINFORCEMENT HANDBOOK

by Gary Davis and Ralph Jones
From recording to broadcast, fixed installations to touring, this 400 page reference covers live sound setups, equipment, techniques and jargon.

CODE B105 £27.95
Postage: UK £3.95, Europe £7.50, R.O.W. £14.50

CONCERT SOUND AND LIGHTING SYSTEMS

Written by John Vasey
How to set up and operate sound / lighting equipment for the performance of amplified music of any kind of touring production.

CODE B247 £14.95
Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

LOUDSPEAKERS FOR MUSICIANS

CODE B284 £3.95
Postage: UK £1.50, Europe £3.95, R.O.W. £4.50

LIVE SOUND MIXING

by Duncan R Fry
This is a hands on, friendly introduction to all aspects of mixing live. It hails from Australia, and is an SOS Bookshop exclusive. The author is an experienced live sound engineer and has packed his book with loads of information, diagrams and hints to take you from basic principles through to trouble shooting when things go wrong.

CODE B256 £19.95
Postage: UK £1.95, Europe £5.50, R.O.W. £8.50

INTRO TO LOUSPEAKER & ENCLOSURE DESIGN

by V Capel
The book provides both useful background to speakers and enclosures in general, plus practical information on crossovers and full details on constructing the so-called 'Kapellmeister' design of speakers.

CODE B281 £2.95
Postage: UK £1.50, Europe £6.95, R.O.W. £9.50

THE FOCAL GUIDE TO SAFETY IN LIVE PERFORMANCE

Edited by George Thompson
This book provides an authoritative look at safety matters for workers in the live entertainment industry. It is edited by the Standards Officer of PLASA (Professional Lighting and Sound Association), and provides good solid information in an easily digestible, well-illustrated form. Topics covered include audience and crowd control, fire safety precautions and engineering, electrical safety, laser safety, sound levels and noise control and much more.

CODE B271 £19.95
Postage: UK £2.50, Europe £5.50, R.O.W. £8.50

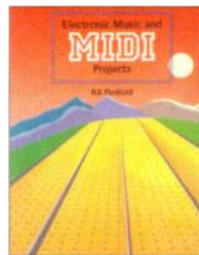
PUBLIC ADDRESS LOUSPEAKER SYSTEMS

by V Capel
All aspects of PA speaker systems are covered in this book, including low-impedance matching, 100V systems, transmission lines and how to install inductive hearing aid loops. At the heart of the book is the Line-Source Ceiling Array, a system that is claimed to improve clarity, even coverage and reduce feedback. Full step-by-step construction and installation details are given.

CODE B283 £3.95
Postage: UK £1.50, Europe £5.50, R.O.W. £8.50

ELECTRONIC PROJECTS

ELECTRONIC MUSIC AND MIDI PROJECTS



by RA Penfold
Want a MIDI THRU box, patchbay or switcher? Well they're all here. And you don't need a degree in electronics either. All the projects are explained in detail, with full instructions on assembly. So if you into MIDI and you want to expand your system without taking out a second mortgage, lean not. Here's the book to help you build up your MIDI system without laying out thousands on hardware.

CODE B203 £9.95
Postage: UK £1.95, Europe £4.95, R.O.W. £7.50

DIGITAL AUDIO PROJECTS

by RA Penfold
A two part book, with the first section looking at the basic principles involved including converting an audio signal into digital form and then converting it back to an analogue signal. The second part contains some circuits - for the moderately experienced only.

CODE B279 £2.95
Postage: UK £1.50, Europe £3.95, R.O.W. £4.50

HIGH POWER AUDIO AMPLIFIER CONSTRUCTION

By RA Penfold
Much useful background to amplifier design, speaker matching and more is included in the first couple of chapters, while the last section contains a selection of high power amp circuits plus suitable PSU circuits. Copper track patterns are also provided to allow you to make your own PCBs. While the circuits aren't too difficult as such, those with limited constructional experience should note that due to the high supply currents and voltages involved, even minor mistakes could be extremely dangerous.

CODE B282 £3.95
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

ELECTRONIC PROJECTS FOR MUSICIANS

CODE B068 £10.95
Postage: UK £2.50, Europe £6.95, R.O.W. £9.50

MIDI PROJECTS

by RA Penfold
A comprehensive collection of simple MIDI projects, including CV and gate converters and a MIDI Thru box. A lot of the book is taken up with interface various obsolete computers to MIDI (Spectrum, CPC464, Commodore 64, BBC B, ZX81 and so on), but the general information is basically sound. Could prove a boon to musicians who are really broke!

CODE B278 £2.95
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

PRACTICAL ELECTRONIC MUSIC EFFECTS UNITS

by RA Penfold
Another selection of musical effects, with more of a guitar angle. Projects include distortion, sustain, parametric EQ, graphic EQ, treble and bass booster, envelope modifier, wah wah effects and more.

CODE B290 £4.95
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

ELECTRONIC PROJECTS FOR VIDEO ENTHUSIASTS

by RA Penfold
Projects for the video and camcorder user, including dynamic noise limiter, automatic audio fader, video laders, video wipe and video crispener.

CODE B288 £4.95
Postage: UK £1.50, Europe £6.95, R.O.W. £9.50

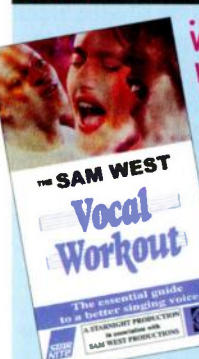
PRACTICAL ELECTRONIC MUSIC PROJECTS

CODE B289 £4.95
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

ELECTRONIC MUSIC LEARNING PROJECTS

CODE B286 £4.95
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

VOICE TRAINING



VOCAL WORKOUT Video
by Sam West
Singers of varying abilities will find this video a great aid in assisting their vocal efforts. It begins by explaining the principles of voice production. Breath control exercises plus general vocal techniques are all explained and visually demonstrated. All the exercises are written out in an accompanying booklet, with piano accompaniment.

VIDEO CODE V067 £22.95
Running time approx 59 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

VOICE BUILDING Cassette/CD
by Sam West
Although geared towards singers of varying abilities, voices and styles, the contents of this recording are often challenging even to the professional singer! The video (code V067) goes into more technical detail, whereas the CD or Cassette concentrate on more intensive practising. First of all the exercises are sung, in various keys and then with musical accompaniment and melody line, so you can concentrate more on your voice while practising (karaoke style).
Vocal exercises can be boring, but this studio recording has been produced and presented to a very high standard, with interesting musical accompaniments to the exercises.

CASSETTE CODE MC001 £6.95
CD CODE CD037 £9.95
Postage: UK £1.50, Europe £3.95, R.O.W. £5.50

OVERNIGHT DELIVERY OPTION: ONLY £5.00! See Order Form for details

ROLAND MS-1 VIDEO



MANUAL

This video manual has been produced by Roland Corporation USA, and has been designed to provide the user with tuition, and examples of how to apply your new found knowledge in various applications. There is also a comprehensive "Tips & Tricks" section to give you that extra edge!

CODE V047 £24.99

Running time: 50 minutes (approx)
 Format: VHS (PAL)
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND GP100

Presented once again by Nick Cooper, this video manual for the Roland GP100 covers every aspect in detail with many practical demonstrations. Everything you need to know is covered; topics include; an explanation of COSM, layout, typical setups, initialisation, global settings, use of the tuner, selection and editing of patches, and use of the FX loop and harmonist.

CODE V062 £19.99

Running Time: 45 Minutes
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND TDE-7K DRUM SYSTEM



Roland's TDE-7K Compact Drum System Comprises the TD-7 Percussion Sound Module, MDY-7 Cymbal Pad Holder, FD-7 Hi-Hat Control Pedal, MDS-7 Drum System Stand, PD-7 Drum Pads & KD-7 Kick trigger. You may have a different configuration to what is shown in the video.

but no matter! Roland Product Specialist Gary O'Toole shows you how the complete kit is put together. Gary concentrates on the TD-7 in detail, showing how the parameters are set up, and giving demonstrations of how the sounds are derived and altered. Good use is made of the visual side in this video with multi-camera shots, a 'birds eye' view of the entire kit shows Gary's playing abilities to the full. As you would expect from a production aided by Roland UK & USA, this video shows you everything you need to know.

CODE V045 £19.99

Running time: 65 minutes
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

YAMAHA PSR6000 ELECTRONIC KEYBOARD VIDEO MANUAL



Yamaha's PSR6000 is a home keyboard with a difference, and offers many professional features plus excellent sound quality. Tim Walter starts at the beginning and makes the instrument look easy and fun. His enthusiasm is catching, and, yes, the PSR6000 is a very capable instrument. The tape runs to 75

minutes, which makes for excellent value.

CODE V029 £19.99

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND GR-1 GUITAR SYNTH

These two video manuals have been produced to help the user get the most out of Roland's sophisticated GR-1 guitar synth, the first covering all the basics from mounting the pickup and getting tuned up to selecting sounds and using the on-board sequencer. Each step is patiently explained and demonstrated by Roland's guitar synth specialist, Jay Stapley.

The Advanced tape takes the mystery out of sound editing, custom tuning, advanced sequencer applications, external sequencer hookups, using other MIDI sound modules, indeed virtually everything the GR-1 is capable of doing. If you own a GR-1 or are thinking of buying one, do yourself a favour and order these indispensable videos.

CODE V014 ONLY £29.99 FOR 2 VIDEOS

Total Running time: 4 hours. Format: VHS (PAL)
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

STEINBERG CUBASE

This manual is presented by Chris West, Steinberg expert. It's very much a practical, 'get up and running' video, showing the novice user exactly how to install and begin using Cubase, whether they're running the program on an ST, Mac or PC computer — there's even a basic background on using the computers themselves! All of Cubase's controls are shown, explained and demonstrated in depth. Once you're familiar with the basic controls, Chris takes you slowly through recording your first session, followed by overviews of the various edit screens. It's rather like having an expert tutorial that you can run again and again in the comfort of your home, until you can use Cubase like a true pro.

Topics covered include; the main screen, customising names and outputs, copying and pasting between arrangements, MIDI filter, cycle mode recording, the tool box, all edit screens.

CODE V011 £29.99

Run time: Hours 30 minutes. Format: VHS (PAL)
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

KORG AX30G TONEWORKS VIDEO MANUAL



The Toneworks series of guitar processors from Korg gets a real work out in this 55 minute tape. Korg's guitar demonstrator Steve Fairclough whizzes through the G1, G2, G3 and the flagship AX30G and provides clear explanations of how each unit works. And to put the units into context, there's lots of footage of Steve showing off the sonic capabilities of each processor (not to mention his prowess as a guitarist).

ORDER CODE V028 £19.99

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

BAND IN A BOX 6.0 BASICS FOR WINDOWS

Designed to get the new user, and those less familiar with Band in A Box, up and running quickly and easily. Experienced users can also benefit from the in-depth tutorials which cover Basic MIDI, MIDI Connections, Custom Patch Maps, Screen Layout, Juke Box, Printing, Recording & Editing Melodies, Importing & Editing Styles, Drum Editor, Masks, Assigning Instruments.

CODE V031 £34.99

Running time: 88 minutes
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

3 CAKEWALK 3.0 VIDEO MANUALS

CAKEWALK 3.0 For Windows

A collection of three videos on the Cakewalk Professional system for Windows, covering just about everything you would need to know to become totally proficient with Cakewalk. If you own Cakewalk Home Studio — no problem! The videos cover everything Cakewalk Home Studio is capable of and more...

BASICS

Basic MIDI, Step & Realtime Recording, Playback Features (on the fly), Editing Features, Graphic Views, The Inspector Menu, Menu Overview, The Control Bar.

CODE V032 £34.99

Running time: 120 minutes
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

BEYOND BASICS

This video explains Customising Cakewalk, Extract Merge, more graphic Views, Advanced Editing, the Settings Menu, Synchronisation, Embedding Wav Files and more...

CODE V033 £34.99

Running time: 113 mins
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

CAL

Programming Fundamentals, Creating a Program, Creating a CAL Program, How to use CAL Programs, CAL Examples, Automating Tasks, Tips on working with CAL, Creating Computer Music, Troubleshooting.

CODE V034 £34.99

Running time: 90 minutes
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95



JUST ARRIVED!

MACKIE ULTRA MIX VIDEO GUIDE

This highly informative video for the Ultramax automation system, clearly demonstrates how to set up and use Ultramax's many time-saving features to get the best from your system. The cost of the video may be redeemed against the purchase price of an Ultramax system, making the video a good way to try before you buy!

CODE V066 £9.99

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND G800



Presented by Roland UK's product demonstrator Sara Revbould, this video covers every essential feature and function of the Roland G800. Sara provides the user with a wealth of knowledge on this sophisticated instrument, with recourse to many practical examples and close-up shots of the LCD screen. The video was produced in

association with Roland USA and Roland UK to ensure that the content is accurate and informative.

CODE V060 £19.99

Running Time: 42 minutes
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND GR09

Presented by Roland UK product demonstrator Nick Cooper, this application-based tutorial video for the Roland GR09, produced in association with Roland USA, covers every function completely. Covered topics include; the GR2A Synthesiser Driver, pickup sensitivity, use of the tuner, what a patch consists of, use of the pedals, patch edit 1 & 2 (including layering and detune, chromatic function, reverb & chorus, edit target, pitch shift), the use of external midi devices, saving to an external sequencer & more.

CODE V061 £19.99

Running Time: 57 minutes
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND JV-1080 VIDEO MANUAL



Roland's amazing JV-1080 synthesizer module is covered in detail in this informative video. Presented by Tim Walter the video guides you through the basics, and leads you painlessly onto the advanced features. The video even shows you how to

fit the expansion boards & gives demonstrations of some of the wonderful sounds they contain. Once again this video has been produced in association with Roland UK & USA to ensure that everything it contains is accurate, and relevant to the new and more experienced users alike.

CODE V046 £19.99

Running time: 80 minutes Format: VHS (PAL)
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND XP-50

This XP-50 video owners manual is produced by Roland Corporation USA and covers all the major features of the instrument in detail. This is an application based video that provides many examples of how your new found knowledge can be applied. Just a few of the 30 separate topic areas covered are: Effects, Choosing Sounds, Loading a Song, Loop Recording, Copying a Track to Pattern, Making an RPS Set, Track Editing, Multitrack Recording, Patch Editing, Creating Splits & Layers in a Patch.

CODE V063 £24.99

Running time: 65 minutes
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

WINDOWS 95: WHAT WILL YOU LEARN TODAY?



This video is aimed at new Windows 95 users and goes from basic to in-depth advice, covering topics such as minimum hardware requirements and common problems, and providing useful tips and tuition. The video also features Labrith's Video Index System to help the user locate particular topics, by means of on-screen timecode and an

index booklet. The video is written by computer journalist Ian Waugh.

CODE V065 £19.99

Running time: 74 minutes
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

EVERYTHING YOU WANTED TO KNOW ABOUT PCs BUT WERE AFRAID TO ASK!



Written by Ian Waugh

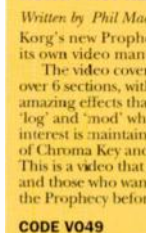
This video has been produced in response to the number of potential PC buyers and existing new users who do not fully understand the jargon and basic operating procedures associated with PCs.

It covers everything from 'What is a PC' to the 'Internet'. There is even a Windows tutorial, and a DOS basics section. (Over 120 different sections.) It includes a booklet listing all the main and sub sections along with their respective TimeCode number for easy access when used as a reference tool.

CODE V048 £19.99

Running time: 91 minutes
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

KORG PROPHECY VIDEO MANUAL



Written by Phil MacDonald
 Korg's new Prophecy Synthesizer now has its own video manual! The video covers all the major features over 6 sections, with lots of examples of the amazing effects that are available using the 'log' and 'mod' wheels. The video's visual interest is maintained by the extensive use of Chroma Key and multi camera effects. This is a video that is ideal for new owners, and those who want to know more about the Prophecy before they make a purchase.

CODE V049 £14.99

Running time: 36 minutes
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

BOSS ME-8



Nick Cooper (Roland UK product demonstrator) explains every single feature and function of the ME-8 in detail. The unit is clearly explained in a logical sequence with examples given of how the functions effect the available sounds, a perfect aid to new users of the ME-8 and those who would like to get that little bit more from it. Just some of the main points covered are: What is a Patch?, Selecting a Patch, Copying a Patch, Edit Mode, Using The Effects, Control Effects, The Tempo Function, Manual Mode, and lots more.

CODE V064 £19.99

Running time: 72 minutes
 Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

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SOS Videos

EMAGIC NOTATOR VIDEO



TRAINING MANUAL

This video manual is detailed and helpful, and is presented in a most friendly and approachable manner by session musician Tim Walter, whose tone throughout the video encourages and inspires confidence. If you are new to Notator and are still in awe of its power,

this is the video to bring you down to earth. An introduction and 28 tutorials take the user from the absolute basics - including plugging in the dongle - to working with Untor and SMPTE, and synchronising to video. As well as actual recording of MIDI data and sequencing, comprehensive coverage is given to using the score layout and printing facilities that are so much a part of Notator. Topics covered include: sequencing page, score editing, lyrics and text, graphic arranger mode, hyper edit, the printer page, using the part box.

CODE V012 **ONLY £19.99**

Running time: 2 hours 20 minutes Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

KORG X3

This video offers an easy way in to this powerful workstation. It starts from absolute basics, including audio connections and volume levels, and the clear and helpful script covers all basic facilities of the X3. The video features a sophisticated use of picture in picture, with the X3's display cut into the main image to show you clearly what Phil is actually doing, and main points are reinforced with on screen text and graphics. The main section headings are:

- X3 Audio Connections
- Getting Around the X3
- Factory Disk
- Disk Drive Modes
- Selecting Sounds
- Global Modes
- Sequencer Mode
- Quick Sound Editing
- Playing MIDI Files on the X3
- Using the X3 with an external sequencer

Note that these are loose headings, with each section also containing information on connected subjects in varying amounts of detail. A lot of ground is covered, and we can recommend the tape to any X3 owner.

CODE V018 **£19.99**

Running time: 55 minutes Format: VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

HOW TO GET A RECORD DEAL

The facts you need from the people who know. How To Get A Record Deal contains vital information and insight that you will not find anywhere else, from artists and executives who have made it and know what it takes.

On this video music industry pros give you the straight facts on how to break into this extremely competitive business. Because sometimes the difference between success and failure is information.

Presented by the National Academy Of Songwriters

CODE V003 **£14.95**

Running time: 1 hour 7 minutes

Format: VHS (PAL)

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

BOSS DR-5 DRUM MACHINE

Presented by Nick Cooper (Roland UK Product Specialist) this video covers all the functions of the DR-5 in a clear and concise manner. Produced in association with Roland UK & USA. By using the information gathered from Roland 'helplines', particular attention has been paid to the areas that many users find most difficult in. This makes it of interest to beginners and experienced users alike. Nick imparts the information with ease and a professional manner, making it enjoyable and entertaining.

CODE V043 **£19.99**

Running time: 57 minutes

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ROLAND JV-90 SYNTH



Roland's JV-90 synthesizer gets the treatment in this informative Labyrinth production. Virtually every facet of the JV-90 is covered, from the basic functions to more advanced programming. Chris Allen guides you through the powerful features this instrument has to offer. Produced in association with Roland UK & USA to ensure that everything it contains is accurate, and relevant to new and more experienced users alike.

CODE V044 **£19.99**

Running time: 70 minutes

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ANALOGUE HEAVEN



Remember our feature on the opening day of the Museum of Synthesizer

Technology which we ran back in October 1994? Wish you'd actually been able to attend?

Well, now you can have the next best thing: the museum has released a fascinating 50 minute promo video that features footage shot on the day as well as a lighting tour of the

facility. The program is hosted by SOS contributor Julian Colbeck. The tape opens with synth pioneer Bob Moog making the inaugural speech and officially opening the museum, followed by a nostalgic run through one of his old modular systems. Analogue Heaven makes diverting viewing for anyone interested in vintage synths, represents good value, and offers the perfect companion to the Museum's guide book, also available from SOS Bookshop.

CODE V026 **£12.95**

Running time: 50 minutes Format: VHS (PAL)

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

MASTER TRACKS PRO 4/5



BASICS FOR WINDOWS & MACINTOSH

All the basic functions of Master Tracks, from installing the software to advanced editing. Everything you need to know to get you started and beyond in easy to understand step-by-step instructions.

Basic MIDI, Track Editor Window, MIDI Settings, Screen Layout, Conductor Window, Transport Controls Window, Inserting Measures, Step & Real Time Recording, Event List Editor, Piano Roll Editor, Quantising, and much more.

CODE V041 **£34.99**

Running time: 105 minutes

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

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PERFORMER 5.0 BASICS

FOR MACINTOSH

Expert tuition covering the basics and more for Performer 5.0. This video will provide you with all that you need to know, covering all the major topics: Basic MIDI, Tracks Window, Multitimbral Operation, Patch Changes, Time Signature & Meter, Real & Step Time Recording, Event List/Graphic & Notation Views, Regional Editing, Quantisation, Transposing, Copy/Cut/Paste/Merge & Erase, Loop Recording, Track Palette, Device Groups, Counter Window, and much more.

CODE V042 **£34.99**

Running time: 87 minutes

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

KORG X5 SYNTH



Korg's new X5 synthesizer, reviewed in SOS' January 1995 issue, now has its own video manual. Presented by Tim Walter in an entertaining and lighthearted manner, and explains all basic aspects of Korg's highly affordable instrument in very clear terms. If you're in any way daunted by your new purchase, or want to get a feel for the instrument before laying out your cash, this is the video for you.

CODE V027 **£19.99**

Running time: 55 minutes

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

YAMAHA QY20 MUSIC SEQUENCER VIDEO MANUAL



by Tom Robinson
Yamaha's popular QY20 portable sequencer/sound source is a deceptively simple device to use; if you think you might like some insight into getting that little bit extra out of the device, then look no further. Produced in co-operation with Yamaha, the video

features mobile musician Tom Robinson showing you how to get the best from this portable marvel. Tom, who has used the QY20 extensively as a writing tool on the road, says: "I never leave home without it".

CODE V016 **£19.99**

Running time: 90 minutes Format: VHS (PAL)

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

HOW TO GET THE MOST OUT OF HOME RECORDING

3 TOP CLASS VIDEOS

A superbly presented set of videos which no home recordist should be without. Have you got your set yet?!

LEVEL ONE



This well presented video explains how to set up and operate a simple cassette-based multitrack home studio. It clarifies all the basic terminology and demonstrates the recording of a song from beginning to end, covering how to record

guitars, keyboards, vocals and drum machines; which microphones to choose; how to patch in effects units and use them well; what makes a good arrangement; what makes a good mix; plus what to master on to and why.

Full of professional tips and clear examples, this superb video offers the musician with no recording experience a fast route to successful operation of a simple home studio.

CODE V005 **£24.95**

Running time: 1 hour 10 minutes

Format: VHS (PAL) HiFi Stereo

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

LEVEL TWO



This is, in our opinion, the best ever guide to the equipment and skills needed to produce high quality results from a home studio.

Full of clear examples and graphic information, the video majors on effects and how to use them well. It also covers the do's and don'ts of track bouncing;

microphones and mic techniques for different applications; getting the most out of multi effects units; plus an analysis of guitar effects with top session guitarist Milton MacDonald and an enlightening interview with ace producer Alan Parsons.

Written/presented by Julian Colbeck packs the programme with professional tips, allowing musicians of all kinds to get the most out of their home studio.

CODE V006 **£24.95**

Running time: 1 hour 45 minutes

Format: VHS (PAL) HiFi Stereo

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

LEVEL THREE



This video is packed with information and professional tips on advanced MIDI applications in the home studio, including interfacing with sequencers, which sync code is best for which application and why. Hit producer Martyn Phillips (Erasure,

London Beat) discusses modern recording techniques, and top programmer Paul Wiffen examines the opportunities and benefits offered by hard disk recording. It offers practical advice on sampling - how to save time and tracks; plus professional tips on advanced arranging and mixing techniques, including spectrum mixing.

CODE V007 **£24.95**

Running time: 1 hour 30 minutes

Format: VHS (PAL) HiFi Stereo

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

GETTING THE MOST OUT



OF THE KORG M1

Written and presented by Julian Colbeck

The Korg M1 is a classic instrument. The range and quality of its sounds has made it one of the most successful synthesizers of all time. But because the M1 is so immediate, it's too easy just to scratch the surface, leaving

many of its exciting capabilities undiscovered. This highly informative video enables M1 owners to unleash the full creative potential of this enormously powerful workstation. With plenty of musical examples, tips and inside information, the video offers clear, concise explanations of the instruments features and operating procedures, helping you to greatly expand your dexterity and creativity across the whole range of this world-beating instrument.

Comes with a FREE exclusive custom library of fabulous new M1 sounds on Atari format floppy disk (100 Programs, 100 Combinations) created by ABWH Yes programmer Chris Macleod.

CODE V002 **£24.95**

Running time: 1 hour 10 minutes Format: VHS (PAL)

Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

OVERNIGHT DELIVERY OPTION: ONLY £5.00! See Order Form for details

4 FINALE 3.0 VIDEO MANUALS

FOR WINDOWS & MACINTOSH

Four superb videos covering the Windows Version and four for the Macintosh version. From Basics through to the most Advanced topics in Power User, these detailed videos will guide you through Finale, giving you the knowledge you need to become a Finale expert with ease.



BASICS

MIDI setup, Tool Palette, Default File, Customising Templates, Drawing Slurs & Expressions, Key & Time Signatures, Metatools, Music Spacing & Allotments, Printing, Measure & Page Layout, and much more.

CODE V037 £34.99

Running time 123 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

BEYOND BASICS

Custom Instrument Library, Font Size, Pickup Measures, Measure Number Enclosures, Chord (midi & manual input), Finale Chords, Guitar Fret Boards, Mirroring, Mass edit Menus, Transposing, Alternate Notation, Moving Layers, and much more.

CODE V038 £34.99

Running time 92 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ADVANCED

Clef Changes, Text Blocks, Tempo Tool, Multi-measure Rests, MIDI Tool, Making an Ossia, Optimising Staves, Custom Score Layout, Page Tool, Multiple Windows, Tiling Pages, and much more...

CODE V039 £34.99

Running time 75 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

POWER USER

More Options Menu, MIDI Tool, Optimising Staves, Using Clip Files, Grouping Staves, Using a Macro Program, Shape Designer, Importing MIDI Files, Multiple Windows, Short Cuts, Hints & Tips, Advanced MIDI Topics, Tiling Pages, and much more...

CODE V040 £34.99

Running time 108 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

THE EMAGIC LOGIC



TUTORIAL VIDEO VOLUME 1

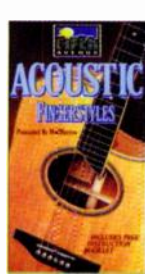
Produced by Emagic themselves, this video once again sees Tim Walter (featured on the excellent Notator video) in the tutor's chair. There are plans for a series of videos which become ever more detailed and informative, but for now Volume 1 takes you through the first steps of getting the software up and running, and covers virtually all the controls you'll need. This video is valid for all versions of Logic, whether being run on an ST, Mac or PC. Presentation is rather intriguing, with a mobile camera that helps to hold the interest more than the average training video and some interesting graphics that aid comprehension and help to quickly find specific tutorials and bits inside tutorials. Contents as follows:

- Tutorial 1: The Arrange window and basic sequencing
- Tutorial 2: Playback parameters & Toolbox
- Tutorial 3: Controlling MIDI data flow
- Tutorial 4: Manipulating sequence data
- Tutorial 5: Moving around in Logic
- Tutorial 6: Windows and key commands
- Tutorial 7: More sequencing
- Tutorial 8: Score
- Tutorial 9: Looking at the Event List
- Tutorial 10: Editing the Event List
- Tutorial 11: Using the Environment
- Tutorial 12: The best of the rest (HyperEdit, Matrix Editor, Gate Mode and more).

CODE V023 £29.99

Total running time 70 minutes Format VHS (PAL)
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

ACOUSTIC FINGERSTYLES



Presented by Mel Reeves
In this video there are 5 major instrumental studies to work through including country, classical and blues. Each style is broken down into small sections allowing you to learn more quickly and efficiently. Each piece is demanding, but great fun to play. The final section looks at styles and techniques used by players such as R.E.M.

The Eagles, Sheryl Crow and Paul Simon, and provides an insight into creating new and interesting fingerstyles of your own.

CODE V059 12.99

Running time approx 90 minutes
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ACOUSTIC BLUES GUITAR

Presented by Mel Reeves
Whether you can already play fingerstyle guitar, or are simply familiar with basic chords, this programme will show you all of the necessary techniques to play great blues guitar. All of the technical aspects are explained in the clearest possible way before getting down to the real business of learning 5 real blues that are great to listen to and terrific to play.

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Running time approx 63 minutes
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PLAY KEYBOARDS NOW! MELODIES

Presented by Mel Reeves
This programme will not only teach you note reading, rhythm, rests, ties and how to move up and down the keyboard with ease, but will also teach you 6 complete melodies familiar to lovers of rock, pop and classical music.

In addition, there is a further look at improvising, making use of melody and scales combined.

Clear computer graphics and the booklet enclosed will mean you won't miss a thing.

CODE V057 12.99

Running time approx 55 minutes
Postage: UK £1.75, Europe £1.95, R.O.W. £6.95

YAMAHA QY300 VIDEO MANUAL



Complete overview of Yamaha's new QY300 sequencer/sound source. Presented by Joe Ortiz of Heavenly Music, the video offers a hands-on tutorial on what is potentially a very powerful piece of hardware. Starts off with a runthrough of QY300 features, followed by a clear, step-by-step tutorial that introduces you to creating your own sequences and styles. As a bonus, the video comes with a free disk loaded with 9 new QY300 styles and 6 demo sequences.

CODE V025 £19.99

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ENCORE 3.0 FOR WINDOWS

The basics of Encore for Windows is covered, with in-depth tuition over 83 minutes. Everything you need to get up & running is here. Basic MIDI, Score Layout, Accidentals, Key Signatures, Note Editing, Step Time Entry, Adding Staves, Cak Setup, Record Setup, Linear View, Quantisation, Editing, Printing, Staff Position & Spacing, and much more...

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CUBASE 2.6 BASICS FOR WINDOWS

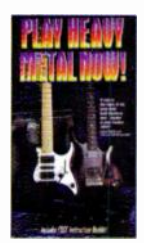
Practical guide to Cubase for Windows covers all the basic functions, ideal for the new user and those who need added insight into this complex system.

Contents: Basic MIDI, Value Selection, Arrangements, Arrange Window, Transport Functions, The Inspector, The Toolbox, Quantisation, Grid Editor, Step Recording, and much more...

CODE V035 £34.99

Running time 85 minutes
Postage: UK £1.75, Europe £4.95, R.O.W. £6.95

PLAY HEAVY METAL NOW!



A concise, easy to follow video guide to real heavy metal playing for guitarists of all levels. A guide to hard rock/heavy metal techniques for guitarists of all levels. The programme covers RHYTHM, SOLOING, and TECHNIQUE. All of the techniques, solos, etc are clearly demonstrated. No need to read music. Free booklet contains

tab, chord and scale diagrams.

CODE V052 £12.99

Running time approx 65 minutes
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START HOME RECORDING NOW!



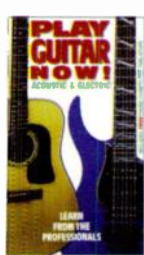
This is the ideal volume one guide to the use of home recording equipment. From the set up of basic 4-track cassette machines to sub-mixing Mel Reeves uses straight-forward language to talk to fellow musicians about the methods used to get the sounds in their

heads onto tape. Includes free instruction booklet.

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PLAY GUITAR NOW!



ACOUSTIC & ELECTRIC
An easy-to-follow video to take you from the basics to a full rock solo.

The programme covers TUNING, CHORDS, FINGERSTYLE, 12 BAR BLUES, BARRE CHORDS and ROCK SOLOING for both electric and acoustic guitars. Includes free chord/tab booklet.

It is not necessary to be able to read music to learn from this video.

CODE V053 £12.99

Running time approx 51 minutes
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PLAY BLUES NOW!



A complete guide to blues guitar playing that shows a variety of blues rhythm and soloing styles — for both beginners and advanced players alike.

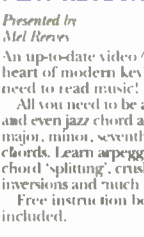
Learn the blues style of Eric Clapton, Stevie Ray Vaughan, Peter Green, etc. The programme not only covers the usual blues shuffles and scales but using 4 complete songs, gives you the resources

and techniques to create professional blues parts and solos in a wide variety of blues styles.

CODE V051 £12.99

Running time approx 50 minutes
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PLAY KEYBOARDS NOW!



Presented by Mel Reeves
An up-to-date video/booklet that gets to the heart of modern keyboard playing with no need to read music!

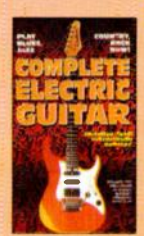
All you need to be able to create pop, rock and even jazz chord accompaniments using major, minor, seventh, sus 4th and added 9th chords. Learn arpeggios, random arpeggios, chord 'splitting', crushed tones, boogie blues, inversions and much more.

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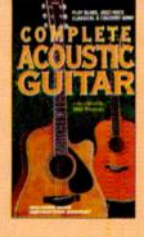


Presented by Mel Reeves
Learn how to create solos and rhythm parts in any style! The programme covers ROCK 'n' ROLL, BLUES, JAZZ, COUNTRY, ROCK and FUSION and much, much more. Plus the clearest possible guide to chord and scale construction, tonal centres and working out parts for yourself. Includes free construction booklet.

CODE V050 £12.99

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COMPLETE ACOUSTIC GUITAR



Presented by Mel Reeves
Whether you only know a few chords, or are already proficient, this easy-to-follow programme will show you all of the main guitar styles, as performed on the acoustic guitar. As well as learning tips and 'tricks of the trade' Mel Reeves will

show you 6 great instruments, step-by-step and take your playing to new heights. Plus, open tuning, the capo, high-strung guitar, reading music and more!

Styles include: Guns 'n' Roses, Bon Jovi, Hendrix Blues, Mississippi Blues, Django Style Jazz, Nuits En Moscow, Classical, Romance, Carter Style, Buffalo Gals and Bottleneck/Slide Style.

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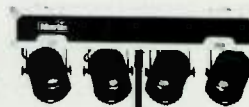
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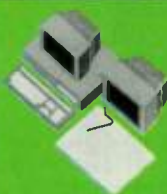
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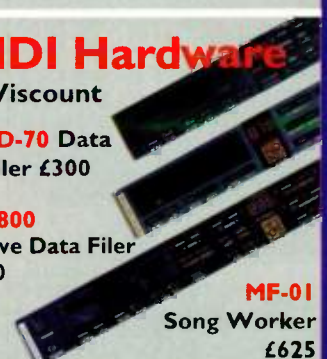
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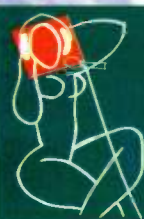
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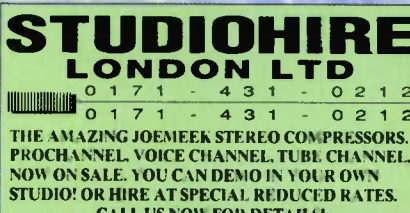
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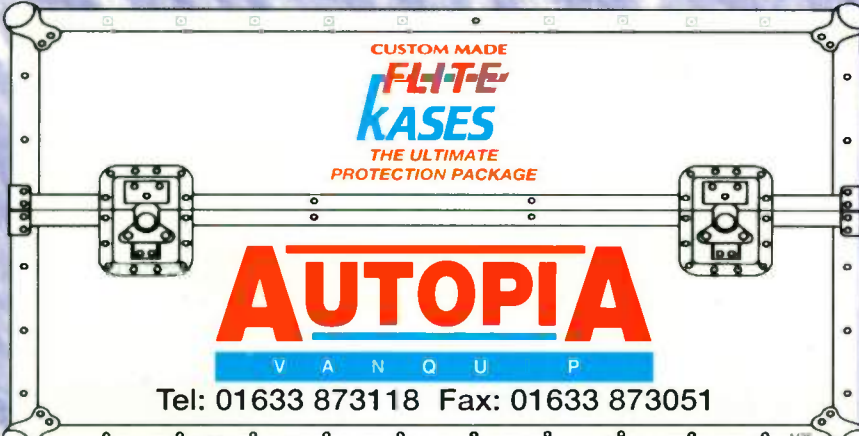
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Stephen Bennett showing the lengths some people will go to get interesting samples.



sounding Off

This month's **Sounding Off** lives dangerously, re-opening the dreaded 'Mac vs PC' debate. With tongue planted firmly in cheek, **STEPHEN BENNETT** prepares himself for next month's onslaught of hate mail from PC evangelists...

OK, I admit it. I own an Apple Macintosh computer. This may not seem like much of an admission, but here it is again — I own a Mac. And what is worse, I actually made a *conscious* decision to buy one. Not an IBM PC clone, Atari or Cray.

I wrote an article for *Sound On Sound* in the June '95 issue describing my passage from a tape-based setup to a hard disk recording system; unfortunately, I happened to mention the fact that I had chosen a Mac to run the system on. Not only that, but I also said that I *preferred* using a Mac. The avalanche of mail (electronic and otherwise) that arrived criticising both my decision and the supposed 'Mac bias' of SOS surprised me. I got the impression that if I had made a racist or sexist statement (eg. 'no Northern Man could understand or use a hard disk recording system') there would have been hardly a

whisper. The article didn't even *focus* on the platform I was using — just on the hard disk systems. Such

'computer evangelism' surprised me, and got me thinking.

I chose to use a Mac because I didn't want to spend much time using the computer in itself. I wanted to make music, draw and write. I use a PC when I need

specific software or hardware, when I want to access the low-level system, and when I have no choice. I also use one when I work at home and need to use the same software I have at work. Incidentally, this often happens; people buy PCs because they use them at work, which then allows them to obtain software such as *Word*, er, 'cheaply'. This explains why the shops are full of books called *Microsoft Excel For People Who Don't Have The Manual* (possibly not exact title). It's one of those things we never want to admit to, like voting Tory or watching *Baywatch*. But we all, at some time in our lives, pirate software. Except me. I can't. I use a Mac.

What I'm really interested in is where these strong feelings come from. Why should we get all gooey over what is essentially an inanimate object? Well, the first Macs were cool to look at, and had graphics from the word go. Early PCs were different. Clunky, ungainly and text-orientated, they were the 'Nigel from *Eastenders*' of the computer world. So, people who like computers for

what they are, loved PCs. People who like computers for what they *do*, loved Macs.

The Mac also has a large dollop of that indefinable thing called 'style'. This is very important in the music biz. Designers' bedrooms and trendy films have Macs in them. Mac owners wear the best clothes and listen to the coolest music. PC users wear polyester, anoraks and are Magnum and Saxon fans. I went to a party recently which was full of computer programmers. An amazingly large proportion of them wore those pear-shaped glasses, heavy metal band T-shirts, jeans and trainers. An even more staggeringly high proportion of them had PCs. Some of them even had them at the party, but hopefully not in the marital sense.

Computer people in general, and programmers in particular, don't like to be confined by the hardware. They like to tweak, to extract every last ounce of performance from their machines. The Mac, because of Apple's domination, doesn't allow this. Apple control the video driver, the input and output, the horizontal and the vertical. Luckily, they do it pretty well, and the Mac is a fast and powerful computer. I like to think that it's like a production Ferrari while the PC is a TVR — zippy and powerful, but with parts sourced from different manufacturers. And with the brake pedal just slightly in the wrong position.

For general applications, like running a word processor, there is little to choose between a PC and a Mac. But we want a bit more than that, don't we? Just as the games PC people play benefit from the lack of 'rules' in PC programming, musicians and artists benefit from the Mac's consistency. The Mac is a joy to use. The PC is still a chore, Windows 95 and all. OK, I admit it — it can be an enjoyable chore, if I'm in a geeky mood (author pauses to don Metallica T-shirt). With my Mac, I just switch it on, load *Logic Audio*, and wait for inspiration. Usually, with inspiration reluctant to leave its abode, I rapidly de-load *Logic*, load *Dabbler* and draw rude cartoons.

In my humble opinion, there is just one final and overwhelming argument for the superiority of the Macintosh over everything else. In the film *The Net*, Sandra Bullock used one. And if it is good enough for her, then so am I.

SOS

Stephen Bennett is a male Northerner who can use hard disk recording systems. He lives in Norwich with three cats and an Apple Macintosh. They are very happy together.

If you'd like to air your views in this column, please send your ideas to: *Sounding Off*, *Sound On Sound*, Media House, Burrell Road, St Ives, Cambs PE17 4LE. Any comments on the contents of previous columns are also welcome, and should be sent to the Editor at the same address.



Røde Classic
VALVE MICROPHONE

Røde NT2
CONDENSER MICROPHONE



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Røde Classic

- No-compromise valve design, based around a 6072 twin triode valve
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- Wide response, low distortion output transformer
- Hand-crafted solid brass case with durable nickel finish
- Nine switchable polar patterns
- Switchable pad and filter
- Aluminium case included

Røde NT2

- Vintage condenser design
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- Switchable cardioid or omni patterns
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- High sound pressure level ideal for voice or instruments
- Aluminium case, shock mount and pop filter included



"This mic instantly justifies all the fuss and hype over valve audio gear and certainly does hit the nerve if you're looking for warmth and grunt factors. Combining all this in a modern, dependable package (and at a price which seems like they may as well have put a few \$100 notes in each mic case) definitely puts the Classic in the winner category"

Australian Digital

Røde Classic Valve Microphone

Beautifully designed and superbly engineered, the new Røde Classic exhibits the smooth, warm sound that, to date, only the very best and most expensive vintage valve microphones could deliver. The capsule is a hand assembled and meticulously tested Dual Pressure Gradient Transducer, using a 6 micron, gold sputtered Mylar diaphragm, and the preamplifier is based around the highly prized GE 6072 twin triode valve. Although out of production for 15 years, Røde has discovered a hidden stock of this most rare of valves, and has commissioned a custom-manufactured Jensen output transformer for the Classic, to precisely match its characteristics. The solid brass, nickel plated body of the Classic is commensurate with the sonic quality of this extraordinary microphone and the separate power supply features vintage rotary selectors for a 2 position high pass filter, -10dB and -20dB pads and no less than 9 polar patterns. Coupled with an excellent dynamic range, this makes the Classic an extremely versatile microphone, ideal for use on both voices and instruments in a wide variety of acoustic environments.

SPECIFICATIONS

Capsule	Dual Pressure Gradient Transducer
Preamplifier	Valve
Frequency Response	20Hz - 20kHz +/- 3dB
Sensitivity	13 mV/Pa
Impedance	250Ω
Max SPL	130dB
Pads	-10dB and -20dB switchable from power supply
Filter	2 position high pass switchable from power supply
Polar Patterns	9, switchable from power supply
Microphone Dimensions	175mm (L) x 67mm (Diameter)
Microphone Weight	1Kg
Cable Length	10 Metres
Power Supply Dimensions	175mm (W) x 165mm (D) x 85mm (H)
Power Supply Weight	1.9Kg
Included	Microphone, power supply, cable, aluminium case, operating instructions



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Sound On Sound

Røde NT2 Condenser Microphone

Again combining exceptional quality with affordability, the Røde NT2 couples the same, large diaphragm, Dual Pressure Gradient Transducer as the Classic with low noise, transformerless circuitry to create a vintage-flavoured condenser microphone ideal for vocal or instrument miking. Cardioid and omni polar patterns are switchable along with a -10dB pad and a filter, enabling the user to change the low frequency response of the microphone. Like the Classic, all internal connections are gold plated and all components have been selected without compromise for high performance rather than low cost. The superbly engineered NT2 has already been purchased by 10,000 users worldwide, and is supplied complete with a high quality shock mount (also available separately) and pop shield, in an aluminium flight case.

SPECIFICATIONS

Capsule	Dual Pressure Gradient Transducer
Frequency Response	20Hz - 20kHz
Sensitivity	16 mV/Pa
Impedance	200Ω
Max SPL	135dB / 145dB with pad
Pad	Switchable -10dB
Filter	Switchable high pass
Polar Patterns	Switchable omni and cardioid
Microphone Dimensions	205mm (L) x 53mm (Diameter)
Microphone Weight	530gm
Power Requirement	48V DC
Current Consumption	3.5ma
Included	Microphone, shock mount (SM-1), windscreens (WS-1) aluminium case, operating instructions



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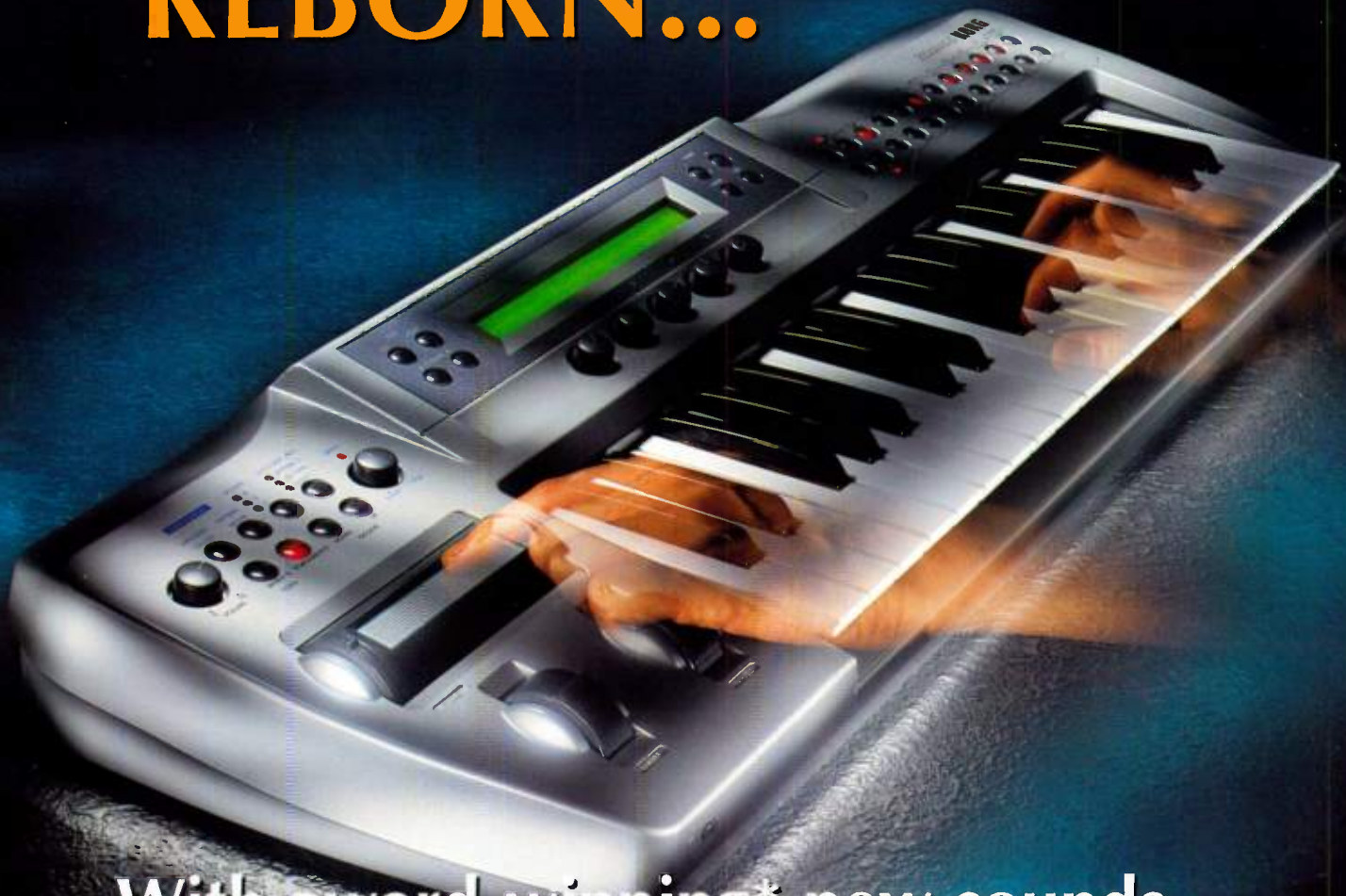
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* Future Music, August '96.



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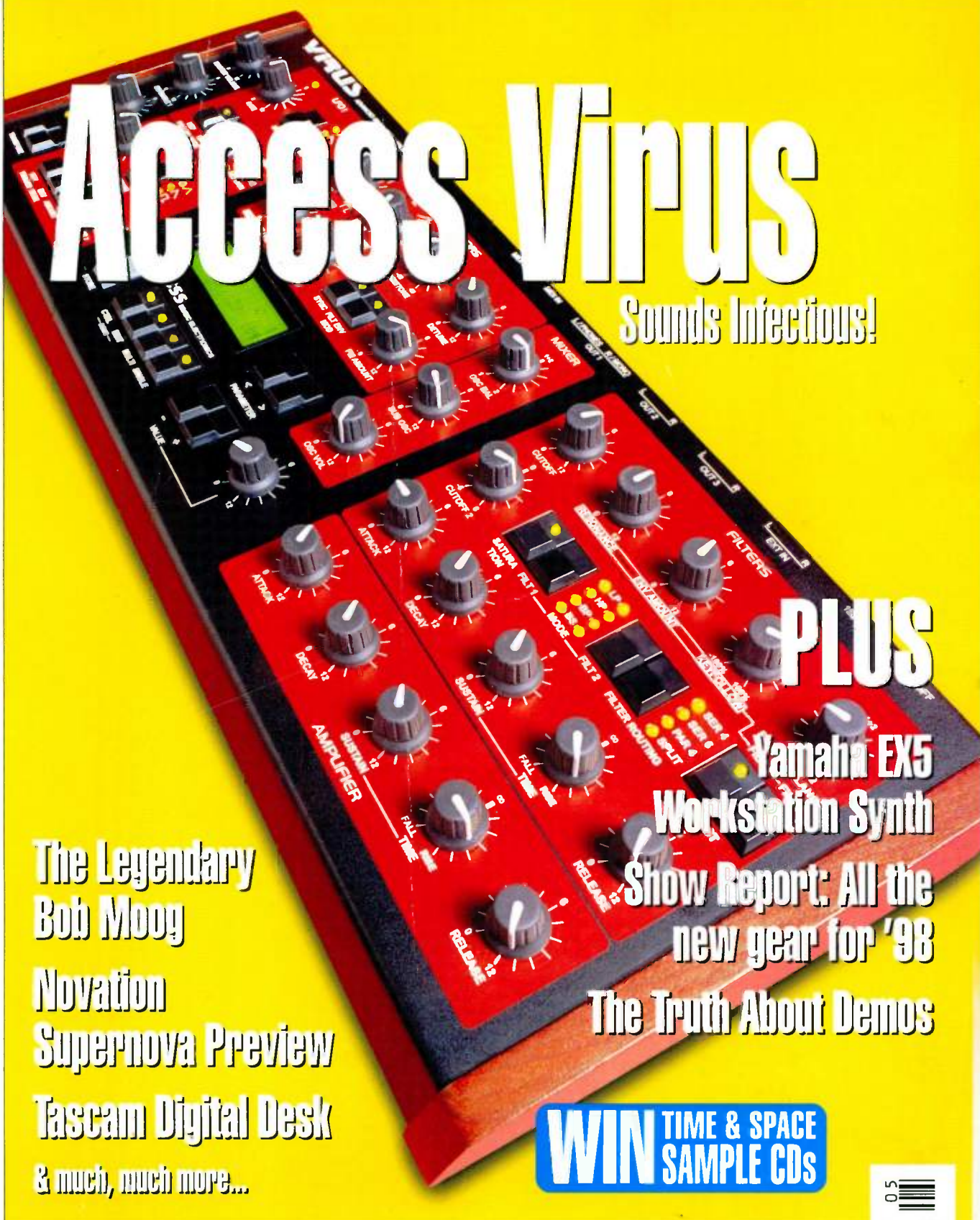


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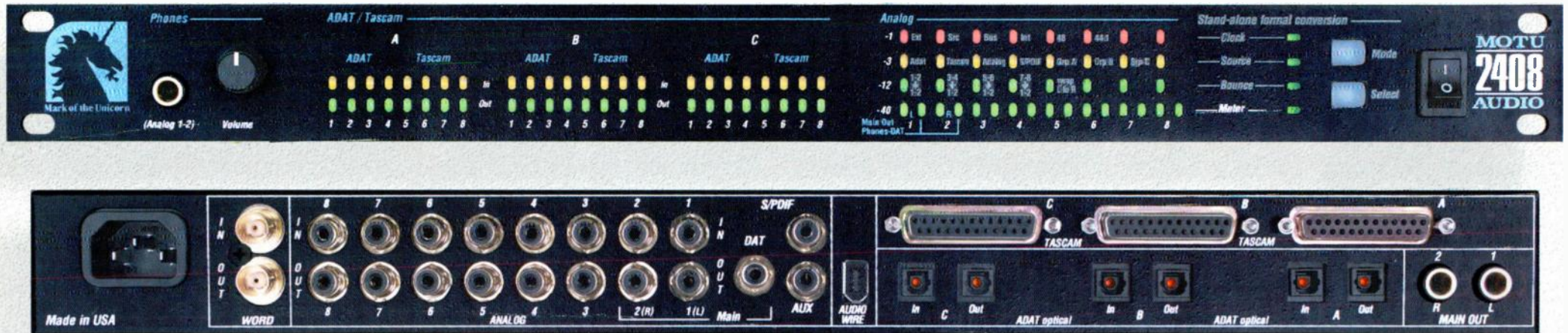
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and the rest of the SOS staff have just returned from the Frankfurt Musikmesse after five days of wandering through endless acres of new musical instruments and recording equipment, and the impression I've come away with is that most manufacturers see techno as the cash cow capable of laying the golden egg. Virtually all new keyboards are stuffed with techno sounds — some are even filled with techno loops, and software is popping up to enable those with no musical experience at all to cut and paste pre-packaged musical elements to make their own techno mixes. And still there are more techno sample CDs than you can shake a stick at. I don't know about you, but it all strikes me as rather sad. Obviously it's sad because musical forms other than techno tend to get neglected, but it's also unhealthy for the techno market itself.

Techno is only one sector of an ever-evolving dance-based musical movement, and though I'll admit there's only so much techno I can deal with in one sitting, the exciting aspect was that it started out as an experimental art form based on largely obsolete technology and relatively simple MIDI sequencing software. Unwanted old analogue synths that could be picked up for peanuts were pressed into service so that spontaneous timbral adjustments could be made during a performance, and though the underlying rhythmic parameters seemed fairly restrictive, there was still a huge amount of scope for variety and creativity.

Now the anarchic and experimental nature of dance music is being challenged by the company balance sheet, and there's a very real danger that such originality as still exists will be smothered beneath a deluge of pre-packaged techno for the masses. If you don't believe me, consider that Latin music used to be regarded as daring and trendy before it found its way into those awful automatic style accompaniment home keyboards. Remember the Smith & Jones sketch where they placed a tortoise on the keyboard of one of these monstrosities and started up the Bossa Nova backing? — even the family pet can play it! How long before we see that tortoise performing at a club?

I'm also concerned by the way dance composers are led to believe they need to pay ludicrous sums of money for an original TB303 Bassline or TR909 drum machine. When the TB303 was current, you couldn't give it away because, frankly,



it was hard to program and the bass sounds were pretty unimpressive by any standards. Yet we're told that's what real dance music producers use, so we have to have them, or at the very least, use a modern keyboard stuffed full of samples of the same old machines. I can't see it myself, because given any half-decent

analogue synth, or even a basic General MIDI synth with a hardware controller that lets you get at the filters, you can create your own sounds that are every bit as engaging, and still work within the genre. Considering that this is a supposedly anarchic art form, there's an almost frightening degree of self-imposed conformity.

For me, the last straw was seeing one of the world's most prestigious cymbal manufacturers announce a range of cymbals designed to emulate the sounds of TR808/909 hi-hats and cymbals. Whatever happened to choosing your own sounds and making music the way you wanted it? As Devo probably never said, "Are we not Sheep?"

On a completely different note, all of us at *Sound On Sound* are pleased to be able to welcome on board Hugh Robjohns as Technical Editor. Hugh is a keyboard player who uses a PC for sequencing, and has contributed extensively to *Sound On Sound* over the last couple of years — his background in operational engineering and training for the BBC helping him to become one of the most authoritative voices in audio journalism.

Paul White Editor



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Crosstalk

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Classical Gas

After reading Big George's interview with Debbie Wiseman in SOS March 1998, something struck me. In the last paragraph, Big George writes: "Watching Debbie Wiseman create such wonderfully rich and full music with only six people and without the use of any electronic instruments made me realise how the ability to write great classic music is a skill bestowed only on the very elite".

Maybe nothing has changed in the last 200 years and we're still entrenched in the idea that to produce really "classic" music one has to assemble a group of musicians whose instruments have been hewn from a recently felled tree and strung with fresh catgut (organic, of course), to play a score whose every note has been painstakingly thought out in advance by someone who is a member of the "elite". Will someone please tell me why, in certain peoples' opinion, music takes a good few steps up the class ladder as soon as one ditches electronics in favour of 'real' instruments (whatever they are), and employs musicians who most of the time specialise in musical necrophilia (the art of playing dead peoples' music)? The whole idea that the orchestra is the pinnacle of western musical culture no longer exists. The musician/composer of today has access to a broad tonal palette and he/she is not limited to the fixed timbres of the orchestra. Of course, this is not to say that traditional orchestral instruments are redundant. Far from it; they are all part of the 'sound world'. If a composer needs to use a violin, fine, but s/he also might choose to use an abstract sound produced by an electronic instrument of some kind. In my mind, both are just as valid and of equal importance to the development of our musical history. However, there are people

who at the slightest opportunity will have a go at the composer who dares to use electronics in his or her work. This is not surprising, given the fact that as soon as you mention the synthesizer to anyone involved in contemporary classical music they immediately think of the tedious computer experiments of the '50s and '60s, or the mind-numbing, four on the floor dance music that seems to invade every area of our lives at the moment.

Big George's comments, innocent as they were, do nothing



Big George.

to break down the class system that seems to permeate the musical establishment. Finally, time is the only judge in deciding whether a piece of music deserves to become a "classic", and unfortunately, very few composers produce works worthy of that accolade, even if they are a member of the "elite".

Tony Flynn
London

Big George replies: *Firstly, I'm so pleased you made it to the last paragraph of my piece on Debbie Wiseman. It gladdens my heart to know that all the time I spend spelting thigns properley isn't for nothing. When I said "classic", I meant that she writes music which is classically*

orchestrated, with sublime melodic counterpoint and without the use of binary quantisation.

With regard to your comments on felled trees and catgut, at least these are instruments made of ecologically sound materials, which will not only still work when the electricity supply dries up, but will eventually make good firewood. Plus you have to admit that instruments which have needed no upgrades for around three centuries must be good for something. I'm sure if Mozart were alive today he'd be stuck in front of

when you work with highly trained musicians (who may or may not be stuck-up elitists) you have the opportunity to get a truly wonderful performance. I've always thought that the second most wonderful moment in life is between the count of "four" and the music starting.

As for musical necrophilia, good music does not diminish with the passing of time; in my opinion, it matures. Jimi Hendrix, the Beach Boys, Duke Ellington and the rest of 'em (dead or alive) sound better today than they did in their time. Likewise the genius of Bach, Mozart, Beethoven and the others in that gang are more relevant today than at any other time.

I'm a great believer in the three elements of music — rhythm, melody and harmony — but I think there should be another one: emotion. But any one of these can stir the listener into rapture. The 500,000 people who went to all-night raves last New Year's Eve were more than happy with the predominantly rhythmic "four on the floor".

Also, I must take you to task about the tedious computer experiments of the '60s. You're wrong. Check out the classic delights of An Electric Storm by White Noise (Delia Derbyshire and David Vorhaus). Alternatively, the output from that lot at the BBC Radiophonic Workshop is still the benchmark which most scientists of sound today fail by. What a shame the top brass at the BBC, in their infinite and unparalleled stupidity, decided to close it down — although I shouldn't complain, since some of that work has come my way!

And finally, you say that I, albeit innocently, do nothing to break down the class system which permeates the musical establishment: piffle. There are two things, in my humble but guilty opinion, which perpetrate the 'them and us' feeling between different groups of musicians: the first is success and the second is being jealous of that success. □

an Apple Mac, but not wishing to be presumptuous, I'm even more certain that when it came to recording his pieces, he'd avail himself of the most powerful musical force known today: a full orchestra.

Personally, I don't own an orchestra myself and spend most of my time in front of my own trusty and reliable Mac, happily composing my own classic pieces (just give 'em a couple of hundred years) with the aid of top MIDI-compatible modules. But I'm aware of two things. Firstly, if there was no electricity, I'd be stuck with good for nothing, non-biodegradable chunks of tin and plastic. Secondly, every time I hit that start button the piece comes back at me exactly the same. This is just how some people want it, but

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Drum Major

I've been enjoying Nicholas Rowland's drum programming series, but it has left me with a question regarding the setup of my Alesis D4. Conventional wisdom suggests that closed hi-hat, pedal hi-hat and open hi-hat should be assigned to a group so that only one can be heard at any one time. This also cuts off the open hat when appropriate.

Anyway, the use of pedal and closed hat is invalidated by this setup so I was wondering what you would suggest. My current work-around is to assign pedal and open hat to a



group, and where a pedal hat does not follow an open hat I've inserted a very low-velocity pedal hat to end the open hat. This seems to result in a realistic sound, but I have to remember to insert the low-level pedal hat after any open hat.

On the subject of hi-hats, we all seem to limit ourselves to three sounds — originally, I assume, because of the limited capabilities of the boxes we used, and now because of General MIDI. Have you ever tried using more than three sounds in a hi-hat part? The D4 has

some half-open sounds but I've not managed to figure out how to use them to make a more authentic part.

Thanks for an informative series.

Graham Owen
via email

Nicholas Rowland replies: *I'm pleased to hear that you've found the series interesting. While I'm not totally familiar with the Alesis D4, the grouping function you mention is common to a lot of drum machines and sound modules. The thinking is that if they don't allow you to programme combinations of hi-hat sounds on the same beat, your results will automatically sound more realistic. But as you've said, it can be a useful way of controlling the duration of open hi-hat sounds. If the D4 allows this, you could try first ungrouping the hi-hats so that all the sounds become free agents. Then group the open hi-hat with another sound — say, a shaker — which becomes the means by which you control the length of the hi-hat in the manner you've described. Another approach — and again, I don't know whether the D4 responds to this treatment — is to control the length of open hi-hats with MIDI note off messages. You don't say what sequencer package you're using, but it should be easy enough to draw in the right note lengths. As an alternative to this, simply replace the pedal hi-hat with a similar type of sound. Again, cabasas and shakers are usually good substitutes.*

To address your second point, yes, I often use more than three hi-hat sounds in patterns. Like the Alesis D4, my venerable Cheetah MD16R also offers a half-open hi-hat. However, when it came to constructing examples for the feature, I thought that, in the interests of making the patterns as accessible to as many people as possible, I would just stick to the GM holy hi-hat trinity.

To be honest, I don't like most of the open hi-hat sounds I hear on drum machines, and more often than not I substitute the half-open sound, which I think sounds more realistic. When I do use a fully open hi-hat, it tends to be as an accent feature. For example, if I'm programming a rhythm around the basic dance pattern (four on the floor bass drum with a hi-hat on the offbeats), I would use a half-open hi-hat on the first seven offbeats of a 2-bar phrase, then maybe a fully open hi-hat on the eighth offbeat. I also tend to keep open hi-hats low in the mix: somehow they always seem to sound much louder than the closed and pedal variants. The exception to this rule is the TR808 open hi-hat sound. I occasionally use this as a feature sound in rhythms which otherwise employ 'acoustic' hi-hat samples. But these are my personal preferences. The only rule to really take seriously when programming rhythms is: if it sounds right, it is right.

I hope this helps. Thanks again for your interest in the series — I really appreciate your feedback and comments. □

To DI For

I've been playing bass guitar for a couple of years, but have only recently begun recording. I record my bass by plugging it directly into my Yamaha MT100 cassette 4-track and monitoring with headphones. I find that when I'm rehearsing or recording a part the bass sounds great; however, as soon as I play a recording back it sounds lifeless and dull, and significantly quieter than when I was recording. I've also tried sampling with a friend's sampler, but I still lose a lot of brightness and volume.

Am I doing something fundamentally wrong or do I simply need better recording equipment?
Ben Dalton
Poole

I wonder if you can help me? I'm looking to buy a DI box for recording my guitar on my 4-track. Have you done any product reviews recently? What's the best way of

finding out about DI boxes and making a choice? I'm not very technically minded when it comes to reading brochures and so on.

Any help would be much appreciated.
Ian Clarke
via email

Derek Johnson replies: *One answer to Ben's question can be found in Ian's: Ben probably needs a direct inject box. His problem could be due to an impedance mismatch between the bass and the MT100's line input, and a DI box will provide the necessary matching. Both Ben and Ian could do worse than check out the article Let Me Be Direct: DI Boxes & Why We Need Them from our April issue, which discusses all aspects of using DI boxes. It's available as a back issue from our mail order department for £5.50 including UK postage. We have reviewed various devices in the past, ranging from*

simple passive DI boxes, costing around £50 or £75, to esoteric valve-based devices that are virtually signal processors. Both Ben and Ian will probably be happy with a simple unit, such as the BSS AR116 Active DI Box (BSS 01707 660667), Canford Audio's active DI box (Canford Audio 0191 415 0205), EMO's E520 single or E525 dual DI (EMO Systems 0191 373 0787), or P&R Audio's DI2 passive and DI3 active DI boxes (P&R Audio 01323 849522).

Paul White adds: *If your recording equipment is adjusted and maintained properly, what comes out should be pretty close to what goes in bar a little tape hiss. Check you're using the correct type of tape, as specified in the manual, and that the machine is properly cleaned (using alcohol, not a cleaning tape!) before each recording session. An active DI box will produce a better match between your multitracker and your guitar, resulting in a brighter*

sound, but if you were satisfied with the sound you were monitoring whilst recording, a DI box isn't going to solve all your problems. If, after cleaning your machine and checking the tape type, the sound still isn't good enough, you may have to consider something more sophisticated, such as one of the new digital multitrackers.

For dirty guitar sounds, you need a speaker simulator to create that miked-up cab sound, in which case you can't better the passive Palmer Junction Box at around £79 (contact Gladden Pro Audio on 01206 303017). This will accept pedals, preamp outputs or even speaker outputs, and it plugs directly into the mic input of any mixer or multitracker. One or two of us at SOS use them ourselves, and it's about as close to a miked-up sound as you get. Remember that a speaker simulator doesn't include overdrive or effects: it just comes at the end of the chain to emulate a miked speaker cab. □

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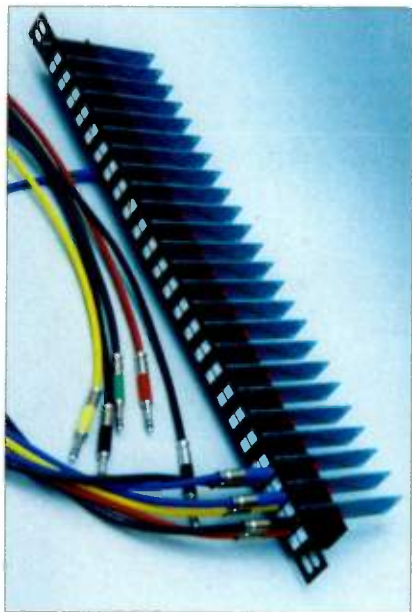
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Crosstalk

He'd Rather Jack

Paul White's article about patchbays in March's *Sound On Sound* made good reading and covered the subject well, but I hope he will allow me to add a few comments which come from years of experience with these passive, but often temperamental, pieces of studio equipment.

It should be explained that there are three types of 'jack plug' audio patchbay in use, namely the domestic quarter-inch jack (be it 2- or 3-contact), known as the A-gauge jack, the old post office standard quarter-inch (or B-gauge) jack, and the bantam jack, which is a miniature version of the B-gauge. Most professional studios use B-gauge or bantam jackfields due to the solid construction of the components. These jackfields will be hard-wired at the back, either with solder connections or insulation displacement methods. Some I have seen recently are wired to high-quality multi-way EDAC connectors, allowing pre-fabrication of the wiring loom off-site before installation.



I've come across an A-gauge jackfield only once in the last 15 years and I have to say it was rather problematic. This wasn't necessarily because of the type of jack, though their low cost is probably reflected in a lower standard of construction, but rather in the use of jacks back and front of the panel. Open connectors tarnish quite rapidly and without regular removal and insertion, which wipes or scrapes the contacts, a build-up of oxide occurs which eventually leads to crackling connections. I would urge anyone installing a patchbay to solder the wires to the back using a small-diameter twin and

screen cable, such as Wadsworth FST audio installation cable at around £20 for a 100m drum (Wadsworth 0181 268 7000). Two pieces of this cable will easily fit into a TRS jack to make an insert lead and, with the help of cable ties, it can be easily loomed to make a neat job. If you expect to change your rack, the tail from the jack should have some spare length to it, which can be lost in the loom until required. Even if your equipment is all unbalanced, I would recommend, if you have any thoughts of upgrading in the future, that you wire your installation with twin and screen cable with 3-pole jacks. Changing a few connectors and the designation strip is a lot quicker than wiring a whole new installation from scratch. Second-hand B-gauge patchbays are often a good buy from audio dealers at about £50 for a 1U panel with two rows of 20 or 24 jacks. These dealers can often supply the plugs, though an A-gauge plug will normally fit a B-gauge socket (but not the other way round!). Proper cleaning equipment for patchbays is available from companies such as Canford Audio (0191 415 0205) and I agree with the comment about mounting the panel vertically to keep out dust and foreign objects.

Finally, a thought on the patch leads themselves. I have a selection of lengths, to keep the amount of knitting down to a minimum. Also, when I started in audio many years ago, yellow patchcords were phase reversed (ring and tip connections reversed at one end). I have extended this so that any phase reverse lead in my kit is yellow, be it jack or XLR. It's gratifying to note that Canford still list and sell their yellow patch leads as phase reversed and I would urge anyone using patchbays to follow this standard.

I look forward to the article on digital patching! Keep up the good work.
Andrew Groves
via email

Paul White replies: *Thanks for your comments and additional information. As you can probably imagine, we tend to stick to talking about A-gauge jacks in the typical home MIDI studio, simply because quarter-inch jacks are the common currency of musicians, but I agree with you entirely as to the questionable reliability of some of these patchbays, due to contact tarnishing. Hard-wiring the back of patchbays also makes sense, but there are still a lot of studio owners who won't pick up a soldering iron (and I have tried to encourage them!).*

Digital patching — now there's another can of worms! ☐

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shape of things to come

by Derek Johnson

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Tascam's new Porta 02 cassette multitracker has been released at the very user-friendly price of £150. The easy-to-use 4-track offers a 4-channel mixer section with level and pan, two mic/line inputs with trim control, and two tracks of simultaneous recording. There's not much else to be said

about the Porta 02: it's compact, it's cost-effective, and it's got an attractive paint job!

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All hands on decks!

Closest DJs are invited to come out and attempt to win some prizes, thanks to Nottingham's Millennium Music Software and Arnold & Carlton College. The *Steal The Wheels National DJ Championships* begins at 8pm on Tuesday 26th May at Sam Fay's, The Great Northern Close, London Road, Nottingham, with weekly heats leading up to a grand final. And what do the winners get? Top prize is two years of free tuition on the Arnold & Carlton College Music Technology/DJ Skills course, which normally costs £3500. Also up for grabs is a Millennium PC system, complete with Steinberg *Cubase VST* and *ReBirth*, Mixman *Virtual DJ* software and 16-bit soundcard, altogether worth £2000. Runner-up prizes include £300 worth of assorted sample CDs from Time & Space and Zero G, two pairs of AKG headphones, worth £99 each, and

four copies of *Virtual DJ*, worth £40 each.

The competition is open to anybody, whether newcomers or more experienced performers. A panel of judges, including well-known DJs and nightclub promoters, will be on hand to judge entrants' DJing skills, as well as audience reaction and dancefloor action, and a "surprise celebrity guest" is promised to help judge the grand final. Entry forms can be obtained by sending your name and address to Millennium or by dropping into Millennium or Arnold & Carlton College.

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24 Tracks the MOTU way

Mark of the Unicorn, noted for their MIDI sequencing products and MIDI interfaces, are making a surprise return to the soundcard market. (Some of you may recall the NuBus Digital Waveboard of some years ago.) Now MOTU are jumping into the PCI soundcard market, but they're doing it with a difference. For £995, their 2408 system offers a PCI card that interfaces with a 1U rackmounting breakout box. Not only does this unit provide eight analogue inputs and outputs, but it also comes with three sets of Alesis ADAT digital optical ins and outs and three Tascam DA88 TDIF in/out connectors as standard. Any three of these sets of connectors can be used at once, for a

maximum of 24 simultaneous inputs and outputs. You can mix and match the connectors in any way, so you could connect an ADAT and a DA88 and still use the analogue ins and outs.

There's a main stereo analogue output, and three sets of S/PDIF digital outs: one is for the main stereo mix, and the others serve as stereo ins/outs. In addition, BNC word clock connectors are provided for synchronisation with standard word clock devices; sample-accurate ADAT and DA88 sync is possible via the PCI card. And if that's not enough for you, it's actually possible to hook up *three* breakout boxes to the PCI card, for a total of 72 simultaneous tracks.

Included with the 2408 system is a full-featured audio workstation software package for Macs that includes multi-channel waveform editing, automated virtual mixing, graphic editing of ramp automation, real-time effects plug-ins with 32-bit floating-point processing, crossfades, support for third-party audio plug-ins (in the MOTU Audio System and Adobe Premiere formats), background processing of file-based operations, sample-accurate editing and placement of audio, and more. The 2408 system can also be used with MOTU's *Digital Performer* audio sequencer software package (the latest version was reviewed in March 1998).

A MusicTrack, 19a High Street, Shefford, Bedfordshire SG17 5DD.

T 01462 812010.

F 01462 814010.

W www.motu.com



shape of things to come

The software required to join in Res Rocket's live Internet Jams is now completely free! Previously, it cost US\$4.95 a month to get the software and join in the activities but now, with membership standing at 4000 people, advertising and sponsorship will be able to subsidise the system. The software can be downloaded from www.resrocket.com.

Keyboard player Rick Wakeman was recently added to the list of endorsees for Generalmusic's Pro2 Real Piano. Rick said: "The feel and action of the keyboard, an often-overlooked part of keyboard manufacture these days, is really excellent."

T Generalmusic UK 01827 312230.

Recording musician Blue Flux, who has appeared more than once in our Demo Doctor pages, has formed his own record label, Enthalpy Records. The label will act as a vehicle for his five currently available CDs, as well as providing a launch pad for other independently minded acts. The launch of the label coincides with the recent completion of *In Flux*, the Blue Flux web site, where visitors can listen to audio clips from all available albums, find out more about Blue Flux and the new record label, and order CDs. The site also features a comprehensive page of studio and recording tips and details, two picture libraries with free download facility, and a large 'Cool Links' section.

W freospace.virgin.net/thomas.kunze/index.htm

Sounds OK, UK distributors for Voice Crystal sample CDs, are offering all Voice Crystal CDs at the special price of £24.95 each including VAT (normally £44.95) until May 30, 1998. Titles include *Liquid Guitar*, *Maximum Impact*, *Cyclotron Resonator* and more.

T 01276 682313.

E soundok@cableol.co.uk

World Control's Ultra Control analogue sound series for Kurzweil's K2000 and K2500 has been reduced in price. The *Nordlead*, *303*, *Jungle Kits* and *Prophet Pad* sets now cost £27.50 each in the UK (£33 or US\$55 overseas).

T 01924 785945.

W www.wcontrol.force9.co.uk

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



HHB pump out the volume

It's that time again: the new catalogue from HHB Communications is out now. The 1998 catalogue runs to 168 pages, lists over 1300 products, and is printed in full colour. It's free to qualifying UK audio pros and organisations. Once again, the HHB service department has provided a selection of technical tips, and comments from HHB staff are augmented by interviews with pro audio manufacturers.

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

T 0181 962 5000.

F 0181 962 5050.

E sales@hbb.co.uk

W www.hbb.co.uk



Mad about the Boy

After a few years in the MIDI building block file business, Keyfax have made a surprise move into hardware. Phat Boy is a MIDI controller, equipped with 14 knobs, that provides hands-on control over Roland GM/GS and Yamaha GM/XG sound modules and Steinberg's *ReBirth RB338* software — just the thing if you feel the urge for some real-time tweaking. The knobs are hard-wired to the appropriate controllers that allow you to play with — and record to a sequencer — the following parameters over MIDI: filter cutoff; resonance; portamento; envelope attack; envelope decay; envelope release; vibrato depth; vibrato speed; vibrato delay; pan; volume; reverb level; chorus (FX); MIDI channel 1-16. Phat Boy comes with a disk of custom MIDI samples from Twiddly.Bits, and should retail for £159.95 including VAT.

A Keyfax Software, PO Box 4408, Henley-On-Thames, Oxon, RG9 1FS.

T 01491 577147.

W www.gmedia.net/keyfax



Strong Stirling takes on the Germans!

Stirling Audio have taken on the exclusive UK distribution of products from SPL (Sound Performance Lab), the German signal-processing company. MD Andrew Stirling notes: "We knew all SPL's products, such as the Vitalizer and Loudness Maximizer, were innovative and exceptional performers... We feel that SPL fits perfectly into our expanding pro-audio portfolio."

SPL's move to Stirling coincides with the launch of "a world first in dynamic signal effect processing".

The Transient Designer introduces SPL's Differential Envelope Technology, which provides much finer control over transients and sustain. Transients can be accelerated or slowed down and sustain prolonged or shortened, while all time constants are automatically adjusted for maximum musicality. The Transient Designer can be used to enliven samples, and has four independent channels, with which interesting panorama effects can be created using the link controls. For example, the attack of a bass drum or sample can be given emphasis to increase its power and penetration. The sustain of a snare or reverb can be damped down musically, to clean up a mix for more transparency, while acoustic or electric instruments can be mellowed, to reduce their attack.

A Stirling Audio, Kimberley Road, London NW6 7SF.

T 0171 624 6000.

F 0171 372 6370.

E sales@stirlingaudio.com

W www.stirlingaudio.com

Our customers' comments

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

Geno Porfido, Boulevard Recording Co. New Milford, NJ

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

Johnathan Moffett, Drummer with Michael Jackson and Madonna

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

Garth Webber, Red Rooster Studio, Berkeley CA

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

Peter Thorn, What If? Productions.



Just about the only sound as sweet as our EQ!

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

Ghost

 Soundcraft

H A Harman International Company

SOUNDCRAFT, HARMAN INTERNATIONAL INDUSTRIES LTD, CRANBORNE HOUSE, CRANBORNE RD, POTTERS BAR, HERTFORDSHIRE, EN6 3JN, UK TEL +44 (0)1707 665000 FAX +44 (0)1707 660742
SOUNDCRAFT US, HARMAN PRO NORTH AMERICA INC, AIR PARK BUSINESS CENTER 12, 1449 DONELSON PIKE, NASHVILLE, TN 37217, USA TEL 1-615-3600-471 FAX 1-615-3600-273

All trademarks acknowledged

education corner

LOWESTOFT COLLEGE

Lowestoft College have provided students of their BTEC National Diploma in popular music/music technology with a new music technology suite. The Norwich branch of Academy of Sound was instrumental in specifying and supplying the suite, which comprises 12 computer music workstations based around Korg and Yamaha keyboards connected to Macs and PCs. In all, 50 students will have access to the workstations during the course.

A Lowestoft College,
St. Peters Street, Lowestoft,
Suffolk NR32 2NB.

T 01502 583521.

F 01502 500031.

E info@lowestoft.ac.uk

W lister.lowestoft.ac.uk/

T Academy of Sound
01603 666891.

CANTERBURY COLLEGE

Canterbury College is now offering a two-year full-time BTEC National Diploma in Music Technology. Modules include electronic music production, recording and production techniques, audio electronics and multimedia. The new Music Technology facility has 20 workstations, all running Steinberg's *Cubase VST* with Korg X5D synthesizers; seven workstations are further equipped for synchronised analogue multitrack recording. Digital audio is a particular focus of the course and material produced either through the application of *Cubase VST* or Digidesign Pro Tools may be mastered onto DAT, MD or CD.

Planned developments for 1998 include the establishment of two new courses: a one-year, full-time First Diploma and a 10-week evening course. In addition, the establishment of a recording studio will augment the resources for Music Technology within the college.

A Admissions, Canterbury College,
New Dover Road,
Canterbury CT1 3AJ.

T 01227 811260.

ANDERTON'S MUSIC EDUCATION CONSULTANTS

Due to expansion over the last year, Anderton's Music Company's education department has now become a dedicated division, called Music Education Consultants. MEC aims to provide schools and colleges with a one-stop solution for advice on music technology in the National Curriculum. The department, which can advise on educational discounts, has specified, designed and built facilities ranging from simple 4-track studios, though concert halls, to digital studios costing a quarter of a million pounds. MEC is an INSET (IN Service Training) centre for teachers and has also just become a Steinberg Training Centre. Software-based courses cover sequencing, scorewriting and hard disk recording. Courses covering multitrack recording techniques and sequencing aimed at A-level Music Technology teachers have also been run. A free catalogue outlining MEC's services is available.

A Andertons Music, 58 & 59
Woodbridge Road, Guildford,
Surrey GU1 4RP.

T 01483 456888.

F 01483 456722.

E mec@andertons.co.uk

ST HELENS COLLEGE

Students studying BTEC Music Technology at St Helens College are planning to produce and release a

CD compilation of unsigned dance acts. The release of *Digital Nation*, as the CD will be called, forms part of the Integrated Studies module of the course, which is designed to benefit students by giving them first-hand experience in the design, marketing and selling of a commercial product. The module also provides hands-on experience of recording, producing and mixing in a live studio environment. To fill the CD, the students are looking for demos in any dance style, no more than five minutes in length, on DAT or Minidisc. Send your track, together with contact details, to the college.

A Digital Nation, Room J226,
SKB Building, St Helens College, St
Helens, Merseyside WA10 1HS.

T 01744 623221.

W www.jill.u-net.com

SAE TECHNOLOGY COLLEGE

SAE have announced two partnerships. First of all, after more than a year of preparatory work, SAE has negotiated a partnership with the University of Middlesex. The University has agreed to validate two new degrees to be run by SAE Technology College, London. These will take the form of Bachelor of Arts (Hons) in Recording Arts and Multimedia Arts. Initially, the courses will be available in London, Munich and Sydney. Students who have completed current SAE diplomas in audio and/or multimedia will have the option to carry certain credits towards the degree.

Secondly, the school has chosen to use recording media from

Quantegy, following an extensive evaluation of Quantegy products.

A SAE Technology College,
United House, North Road,
London N7 9DP.

T 0171 609 2653.

F 0171 609 6944.

W www.sae.edu

JAMES WATT COLLEGE

For the past 10 months, HND Music Technology students at Greenock's James Watt College of Further & Higher Education have been working on an album of up-and-coming Scottish bands. Initially, ads were placed in local papers for demos, and students voted for the six best. These six bands were then recorded by students at the college's digital studio. This was only installed in 1996, and includes much state-of-the-art equipment: two Yamaha 02Rs, two Alesis ADAT XTs, Tascam DA60 DAT, Digidesign Pro Tools system, and plenty of signal processing, synths and samplers. The project had the dual benefit of giving students a chance to work on a commercial release, and providing an outlet for as-yet unsigned talent. The CD is priced at £10, and is available locally. Contact the Music Technology department of the college if you're out of the area.

A James Watt College, Finnart
Street, Greenock PA16 8HF.

T 01475 724433.

W www.jameswatt.ac.uk:80/~pqinn

ROSE BRUFORD COLLEGE

Stuart Roslyn, a final-year student on Rose Bruford College's new Music Technology degree course, will be amongst the first to graduate this July. Yet Stuart is already developing a career in TV music: he produced all the music for *Mad Cows and Englishmen*, a BBC2 series that aired during February, and has written music for Channel 4's *Despatches* and a number of TV ads.

A Rose Bruford College, Burnt Oak
Lane, Sidcup, Kent DA15 9DF.

T 0181 300 3024.

F 0181 308 0542.

E admin@bruford.ac.uk

SANDWELL COLLEGE

Sandwell College, located to the north of Birmingham, has recently revamped its media centre. The new



The *Digital Nation* web page, as produced by music students at St Helens College.



Sandwell College.

facility is now equipped with two Yamaha 02R digital desks, a Yamaha 03D digital desk, Tascam DA88 and DA38 digital 8-tracks, and a Tascam DA30 MkII DAT machine. The hardware was supplied by Birmingham's LMC Audio Systems. Other equipment includes Yamaha REV500 effects processors, Yamaha P1500 power amps and a Digidesign Pro Tools system.

- A** Sandwell College of Further and Higher Education, Woden Road South, Wednesbury, West Midlands WS10 0PE.
- T** 0121 556 6000.

DARNALL MUSIC FACTORY

Darnall Music Factory is a community music project based in the east end of Sheffield. It targets the young unemployed and offers training and employment opportunities in the music industry, as well as recreational and cultural activities. At its heart are a 16-track studio, pre-production room, IT facilities, rehearsal space, classrooms and a library. Courses offered include sound engineering, music technology, music industry studies and musicianship. A range of short courses is also available.

- A** Darnall Music Factory, Darnall Education Centre, Darnall Road, Sheffield S9 5AF.
- T** 0114 244 4603.
- E** frank@darnall.demon.co.uk

MUSIC LAB

Audio retail and hire company Music Lab, in conjunction with Digidesign, has opened a Pro Tools School. Regular sessions will be hosted by Music Labs' Martin Bell (their resident Mac guru) and Digidesign's Cliff Smith at Music Labs' London demo facility. The pair

will be showing how to get the best out of the latest Pro Tools systems, and highlighting various plug-ins and peripheral equipment.

- A** Music Lab, 72/76 Eversholt Street, London NW1 1BY.
- T** 0171 388 5392.
- F** 0171 388 1953.
- E** info@musiclab.co.uk
- W** www.musiclab.co.uk

THE RECORDING WORKSHOP

The Recording Workshop, which has been providing recording courses for small groups for eight years, has moved to larger premises in north Kensington, London. Three studios are now available to teach live multitrack recording, Steinberg's Cubase sequencer package, sampling, synthesis, and advanced production.

- T** 0800 980 7452.
- E** recordwk@dircon.co.uk

LONDON GUIDHALL UNIVERSITY

Tyrell Corporation, noted non-linear audio and video systems specialists, have hired their fourth London Guildhall University student. The Guildhall-recruited staff have all studied either a BSc (Hons) degree or BTEC Higher National Diploma in Musical Instrument Technology at the University's Sir John Cass Department of Design & Technology. The BSc (Hons) course is a three-year full-time degree with a focus on both acoustic and electronic music technologies. The BTEC HND is a two-year full-time course which offers two paths: electronics for the music industry or an acoustic instrument specialisation.

- A** London Guildhall University, 41-71 Commercial Road, London E1 1LA.
- T** 0171 320 1840.
- F** 0171 320 1830.
- W** www.lgu.ac.uk/mit

- T** Tyrell Corporation 0171 343 5500.

SFIDA CREATIVE LEARNING

If you want to break into the film and TV music field, you'll find that it's both highly competitive and also requires some very special skills. *Music for the Media*, Britain's first home-study course for film and TV composers, won't guarantee to get you the work, but it will help to hone your skills so that you'll know what's required of you when you do

get your first commission. The course has been formulated by TV composer Guy Michelmore, and consists of 10 units which take students from their first corporate video, through signature tunes and wildlife documentaries, to scoring a short feature film. The supplied material includes video tapes (with examples for students to score) and audio cassettes featuring interviews with well-known composers such as Michael Nyman and Debbie Wiseman. Your assignments are marked by a personal tutor — all tutors are working composers — and the course as a whole is printed to order, personalised and tailored to a student's needs. The cost is £399 including VAT.

- A** SFIDA Creative Learning, 35 Binden Road, London W12 9RJ.
- T** 0181 749 2828.
- F** 0181 740 7727.
- E** sales@sfida.com
- W** www.sfida.com

ISLINGTON MUSIC WORKSHOP

Islington Music Workshop's mission to provide affordable training on high-quality equipment continues with the addition of Ultimotion moving-fader automation to their SSL SL4000 G+ console. IMW claim that they are the only school where you can train on the latest SSL 4000 G+ technology and gain a recognised vocational qualification; training packages start at £450 for 38 weeks.

- A** Islington Music Workshop, 44 Peartree Street, London EC1V 3SB.
- T** 0171 608 0231.
- F** 0171 490 0120.



Opcode go to Xtremes

Opcode have launched a new cross-platform MIDI interface. The 1U rackmounting Studio 128X is compatible with both Macs and PCs and is equipped with eight MIDI inputs and outputs, for up to 128 channels of simultaneous MIDI input and output, supports SMPTE synchronisation, and features full MIDI patchbay capabilities. Up to four Studio 128X units can be linked together to provide 512 MIDI channels; linked systems can also include Opcode's Studio 64, Studio 64XTC and Studio 4 interfaces. The Studio 128X automatically detects what kind of computer it's connected to and changes its settings accordingly. For synchronisation, the 128X can read and write SMPTE timecode in all formats; MIDI Time Code and MIDI Clock are also supported.

As a MIDI patchbay, the Studio 128X offers extensive routing and merging capabilities. Any in, or combination of ins, can be directly routed to any out(s). On-board MIDI filtering is available, and eight user memory locations are provided for easy storage of patchbay setups. Stored configurations can be instantly recalled from the front panel of the 128X or remotely via computer. Other features include an additional two pairs of MIDI Ins and Outs on the front panel, a 'Peripheral Thru' switch to provide access to printers and modems without rewiring, and battery backed-up memory.

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

shape of things to come

Seriously Dodgy

Sennheiser have signed Brit popsters Dodgy as official endorsees for the new Evolution series of stage mics. The band will soon be supplied with a complete kit of Evolution mics, and have been working both on and off stage with a selection of Sennheiser and Neumann high-end mics.

A Sennheiser UK Ltd, 3 Century Point, Halifax Road, High Wycombe, Bucks HP12 3SL.
T 01494 551551.
F 01494 551550.



Korg Keys

Korg's new N1 merges the 88-note weighted keyboard used by their SGproX stage piano with a synth engine based on the N5 (reviewed in March 1998). The sound ROM includes 18Mb of samples; the first 12Mb covers everything from acoustic instruments to synth waveforms, just like the N5, while the



remaining 6Mb provide 35 new waveforms, including a stereo sampled piano, new electric pianos, and more.

Korg's interactive music workstation range also has a

newcomer in the i30; the sound source is based on 18Mb of sample ROM, there are two multi-effects units on board, and the sequencing/arrange mode includes a large selection of presets, with plenty of room for customisation.

A Korg UK Ltd, 9 Newmarket Court, Kingston, Milton Keynes MK10 0AU.
T Brochure Line 01908 857150.
F 01908 857199.
W www.korg.com



Signex socket to 'em

The new Isopatch patchbay from Signex has been redesigned. The CPJ48 offers two rows of 24 standard jacks and has a fully enclosed design to keep out contaminants. All sockets are mounted on two horizontal PCBs, which eliminate internal wiring and provide extra rigidity. All sockets are supplied isolated, but each channel can easily be full- or

half-normalled with a blob of solder. The CPJ48 is available in three flavours: rear jacks. £116.03 including VAT; rear phono sockets. £110.74; or rear solder tags. £94.29

A Isotrack, 21A Hankinson Road, Bournemouth, BH9 1HJ.
T 01202 247000.
F 01202 247001.



Cycling '74, the company behind the MSP signal processing object set for Opcode's MAX 3.6 programming environment, have announced a nifty new trick. Users can now use Cubase VST-compatible plug-ins from within MSP, or use MSP to create their own plug-ins. MAX 3.5 is needed to create and edit MSP applications, but MSP itself can be downloaded from the Cycling '74 web site; full authorisation costs US\$295. MSP can run with a Power Mac's audio hardware, and also supports PCI audio cards from Digidesign and Sonorus. Look out for support for Lucid Technology, Korg and Emagic cards in the future.
W www.cycling74.com

New for the desktop are Yamaha's YSTM100 multimedia speakers (£119 a pair). Designed for computer users, the speakers offer a ported wood cabinet, and use a 1.5cm tweeter and 9cm woofer. Frequency response is quoted as 50Hz-20kHz.
T Brochure Line 01908 369269.

Kevin Lightner, the man behind the entertaining synth web site Synth Fool, is offering an unusual modification for Roland's classic TB303 Bassline. If you can stand having your valuable baby altered, check this out: for a fatter-sounding 303, Kevin's mod adds sub-octave VCO outputs. Two small three-position switches mix in a signal one or two octaves below the 303's main output, at half or full volume. Nothing else is changed regarding the 303's sound or operation. It's priced at US\$99.95, plus shipping and handling. Check out the Synth Fool web site for further details.
W 222.synthfool.com/pha303.html

Users of Allen & Heath mixing consoles now have a club of their own. The Independent Allen & Heath Association, devoted to all Allen & Heath consoles from 1970 to the present day, has been formed to provide members with information and advice on A&H consoles, and to give them an opportunity to share ideas, tips and experiences. Membership benefits include discounted technical services, cut-price equipment insurance, exclusive merchandise, free classified ads, a quarterly newsletter giving in-depth coverage of A&H mixers, and more. The Association has also set up its own web site, with "member only" access to an on-line forum.
A IAHA, PO Box 26, Redruth, TR15 1YG.
E iaha@allenandheath.com
W www.allenandheath.com

K5000 ADDITIVE POWER



Over 100
NEW
UK Patches!

K5000S

Additive synthesis with up to 64 harmonics per source

- Unique 128 band formant filter
- 4Mb of PCM samples
- Up to 6 sources per patch (sources can be either pcm or additive)
- Hi-pass and multipole low-pass filter
- 2 LFO's
- 2 envelopes
- 4 individual effect processors (37 effects including delay, reverb, chorus etc)
- 4 outputs
- Graphic Eq
- Excellent programmable 40 pattern arpeggiator
- Portamento
- 32 note polyphony
- 18 real time controls
- 4 real time controls can adjust 2 parameters (ie add harmonics while closing the filter etc)
- 61 quality keys



K5000R

2u rackmount version of K5000S. Does not include real time macro controls



K5000W

The workstation version includes an additional 4Mb of PCM samples and a 50000 step, 40 track sequencer with 32 midi channel support



Did you know that if you break down any sound to its individual components, you will end up with a collection of sine harmonics?

Additive synthesis was developed to emulate the way nature creates sounds by adding harmonics with different envelopes. This most natural and expressive method for generating sounds is the basis of the Kawai K5000 series of synths.

Great real time controls, a cool filter and excellent effects adds to the power of K5000. The included editor for mac and pc makes it even easier to program your own sounds.

KAWAI

ARBITER PRO AUDIO

a division of ARBITER GROUP PLC, Wilberforce Rd, London NW9 6AX

Tel: 0181 207 5050 • Fax: 0181 207 4572 • Web: www.arbitergroup.com

Label on Line

Heavenly Music are well known for their MIDI song files and MIDI building-block files. However, owners Joe and Pauly Ortiz are also experienced musicians, with major-label background on their CV. They are now spending time on their own music, starting their own label and promoting it via the Heavenly web site. The site will be streaming previews of forthcoming releases of six new albums from four acts on the label's roster, using Yamaha's all-new SoundVQ audio compression technology. You'll need the SoundVQ player to hear the samples at their site. The player can be downloaded free from a link to Yamaha, where a SoundVQ encoder is also available. Further details from the Yamaha SoundVQ site at www.yamaha.co.jp/english/xg/SoundVQ/. Heavenly's

record release dates and other details are at www.ortiz.demon.co.uk/soundvq.htm.

Heavenly aren't neglecting their MIDI file business: *Funkenstein* features over 40 of the greasiest drum beats ever heard on MIDI file, with full on-disc documentation. All the funk is there, from James Brown to Tower of Power-style patterns, fills and breaks. As with HM's other building block products, you can easily paste these patterns into existing material or use it as a foundation for fresh ideas. The introductory price is £14.99.

Other news includes a price cut for Heavenly's AWE SoundFont collections, from £49.99 to £39.99 plus postage and packing, and the release of a tutorial CD-ROM for Steinberg's *Cubase*, which builds on Heavenly's education experience with this popular sequencer. Essentially a book in HTML format (readable by web browsers such as

Netscape Navigator or Microsoft Explorer), *Cubase Unleashed* "discloses virtually all of the trade secrets" used by Heavenly to produce their library of MIDI files. The disk is PC- and Mac-compatible, and includes dozens of illustrations, example files and MIDI files, as well as hundreds of WAV files. It's priced at £24.99 plus postage.

Just as we went to press, we learned that Comtracks Ltd, have been appointed exclusive UK distributors for Heavenly's MIDI file library. Comtracks now claim to have the largest legal library in the world — over 8000 titles. Other Heavenly titles will also be sold by Comtracks.

A Heavenly Music Productions,
PO Box 3175, Clacton,
Essex CO16 8GX.

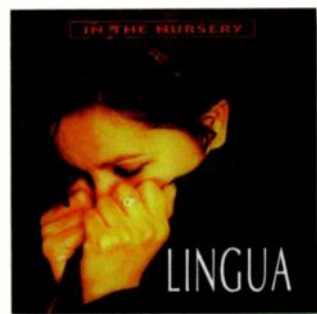
T 01255 821039.

F 01255 821039.

E heavenly@ortiz.demon.co.uk

W www.ortiz.demon.co.uk

T Comtracks Ltd 0131 468 1150.



News from ITN

In the Nursery, the band of occasional SOS contributor Nigel Humberstone and his brother Klive, have released their latest CD, on their own ITN Corporation label. *Lingua* takes language as its theme, and explores language's "development, and diverse phonetic styles along with our understanding and use of words". ITN have incorporated a selection of worldwide vocal contributions into the album. The result, a mixture of Mayan, French, Japanese, and other languages, adds an unusual phonetic layer to ITN's musical backing.

A ITN Corporation, 52 Roebuck Road, Sheffield S6 3GQ.

W www.inthenursery.com

Oram's latest squeeze



Oram's MWS (above) and Sonicomp 2 (right).



Oram Professional Audio have released their first compressors, both of which are design hybrids of light-dependent resistors (LDR) and straightforward solid-state technology. The Sonicomp 1 is a 1U, rackmounting, 2-channel processor aimed at the project studio and featuring LED metering. The 2U Sonicomp 2 has a 6mm sculptured front panel, large VU meters, and hand-turned aluminium control knobs. Both units have individual

LDR/solid state switching, a link switch for stereo operation, a bypass switch, and rotary pots for input level, threshold, ratio, attack, release and output level. For more about the design philosophy of John Oram, check out our interview starting on page 244 of this issue.

Also new from Oram is the Octamix, a 1U, rackmounting, 8-channel stereo mixer, and the 2U MWS (Microphone WorkStation) MkII. The MWS offers two channels of high-quality mic preamplification, with 4-band EQ identical to that found on Oram's BEQ Series 24 console. The MkII tag indicates an improved noise floor specification and an insert point that has been placed between the mic preamp and the EQ. The MWS was apparently the chosen system for podium mics at the recent Oscars.

A Oram Professional Audio, The Old Forge, Hook Green, Meopham, Kent DA13 0JE.

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Digital Synergy

inspired
TASCAM

TASCAM TM-D8000

digital mixing from the digital recording people

TASCAM understands how intuitive digital recording has to be, and they have built the TM-D8000 around that understanding.

- **Extensive "up-top" control surface** with multiple faders and controls, provides maximum degree of functionality at any time, while optimum use of assignability provides deeper access to functions and parameters when required.
- **Synchronization and control**; direct digital interfacing (TDIF, AES/EBU, S/PDIF) and full function transport control (TASCAM sync I/O, Sony P2, MMC) enable desk and recorders to operate seamlessly.
- **High resolution A/D converters**, high-performance mic-amps and balanced line inputs.
- **Programmable** level, EQ, pan, aux, solo/cue and dynamics processing operate under snap-shot scene automation, with on-line dynamic automation software also available.

■ **Full scale monitor and comms** facilities,

LCD console/channel status and parameter values display, and full analogue and digital I/O metering give the TM-D8000 an operational status superior to far more expensive analogue recording and post production consoles.

TASCAM DA38



TASCAM DA88



TASCAM DA98



shape of things to come

Red Sound Systems make it count

Red Sound Systems have followed up their Voyager 1 Beat Extractor (reviewed in February 1998) with the Micro

BPM. This compact, sub-£100 device is a combination of intelligent bpm (beats per minute) counter and headphone amp. Connect it to the headphone monitor output of any mixing desk, and your headphones to the Micro BPM. Using similar technology to the Voyager 1, the Micro BPM constantly analyses and calculates the tempo of the monitored audio, then displays it on a bright 4-digit LED display. A 'Beat' indicator also flashes on each downbeat. The headphone amp features a 2-band EQ section, mono/stereo switching and high output level.

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ANOTHER FINE MESSE

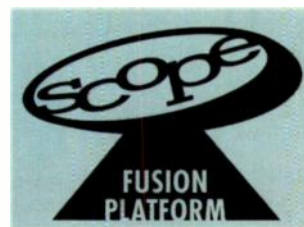
Product Highlights from the Frankfurt Music Fair

You might think that as the American NAMM music show was only a little over six weeks before the

Frankfurt Musikmesse, there would be few new products to report on, but you'd be mistaken (a full list of all the new gear the SOS team saw at the show can be found on pages 22 and 23); some manufacturers keep their main announcements for the European show, while others simply can't finish their exhibition prototypes in time for NAMM!

This year, only a couple of products seen at Frankfurt offered anything radically new, most being refinements of existing technology. One of the products with at least the potential to break new ground came from **Creamware** (System Solutions 0181 693 3355), who were displaying a very early version of a totally new kind of computer-based combined synthesis, mixing, recording and processing system, entitled SCOPE (SCalable Object Processing Environment).

Planned for release in the late summer, SCOPE aims to blur the edges between hardware and software, providing a Mac or PC computer with huge DSP power on a PCI card, which it will use to run 'virtual hardware' of many types.



Each PCI card uses six of the fastest DSP chips currently available, and up to four boards can be used in tandem. All you need to add is an I/O card and a connection to a MIDI sequencer to tie in the rest of your gear.

Creamware are hoping for extensive support from third-party developers by the launch date; the plan is for SCOPE to be supplied with a large library of components such as oscillators, filters, modulators, and mixers. Whether you need an analogue, FM or physical modelling synth, a sampler, a digital mixer or a DSP effects rack, they will all be realisable in the same virtual environment. Certainly the 'virtual Minimoog' assembled on the desktop of the SCOPE host PC by the Creamware Messe demonstrators sounded very realistic — and it looked great, too.

Ensoniq (01245 344001) were exhibiting the MEC expansion chassis for their PARIS hard disk recording system (mentioned in our January '98 PARIS review) which allows the installation of up to nine modules of digital I/O in various formats. The first two of these, the analogue 24-bit 8-input module and 8-output module, should be available by the time you read this, and ADAT optical and AES/EBU modules are to follow shortly. Also introduced was the ZR76 S&S keyboard workstation (a slightly upgraded version of their previous MR76) with a weighted keyboard, 24-bit effects, and a built-in 16Mb Piano ROM expansion board.

Also slightly upgrading, rather than completely overhauling their existing product range were **Lexicon** (Stirling Audio 0171 624 6000), whose PCM80 multi-effects and PCM90 reverb are to be replaced by the PCM81 and 91. The PCM81 includes all the existing PCM80 functions but incorporates more onboard effects and algorithms (including the pitch-shifting previously available on an optional card), more delay memory and AES/EBU digital I/O.

The PCM91 reverb has undergone similar hardware changes, and now includes 450 presets (with new dynamic spatialisation effects) as well as the Dual Reverb algorithms from an expansion card built in as standard.

Akai (0181 897 6388) unveiled two new-generation samplers, the



Neumann's birthday gifts

To celebrate the company's 70th anniversary this year, Neumann have launched an international competition, with some very special prizes. All details of Neumann's Sound Engineering Contest 1998, as well as the competition questions themselves, are on Neumann's 1998 mic catalogue CD-ROM (PC- and Mac-compatible). First prize is a U87 limited-edition

Gold Jubilee stereo pair and a trip to Berlin; second prize is an M149 Tube Set; third prize is a new TLM103; and lastly, there are special prizes of three TLM193s. The competition essentially tests your knowledge of recording technology and music, by testing you in a choice of six different categories. Don't worry: you only have to work through the three that best reflect your abilities and knowledge. The test is in interactive format, and is made up of a mixture of multiple-choice questions and your responses to actual audio. Copies of the CD-ROM are free, and your entries don't have to be in until September 31, 1998.

A Sennheiser UK Ltd, 3 Century
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The Akai S6000 sampler.

S5000 and the S6000, which they apparently designed 'from the ground up', doing away with their old proprietary file format in the process and adopting the PC-standard WAV (if you load samples in the old Akai format, they are automatically converted to WAVs). The basic S5000 has 64 voices, expandable to 128, while the S6000 has 128 voices, and both can play back long stereo samples direct from disk. The RAM can be expanded up to 256Mb for both models. Both samplers have huge displays, with graphics more like those you'd find on an editing software package than a stand-alone sampler — and the top-of-the-range S6000 also features a removable front panel for remote operation.

Bringing their experience of top-end professional mic manufacture more firmly into the project studio arena were



Neumann's new TLM103.

Neumann (Sennheiser 01494 551551), whose new large-diaphragm cardioid TLM103 mic employs a capsule derived from the classic U87, and looks set to retail in the UK for around the £700 mark. Expect an SOS review very soon!

After the release of their MDMX4 4-track Minidisc multitacker last year, products aimed at the project studio market have been few and far between from **Sony** (01932 816000), but the Messe saw them return to the fray, with the release

of a new quad-channel multi-effects unit, the DPSV55, and a MkII version of the MDMX4 hardware. This includes a new machine sync option, allowing two MDMX4s to be locked together so that new tracks can be recorded to the second machine while previously recorded tracks are played back on the first.

A number of manufacturers exhibited products which were either designed to tie in with other manufacturers' equipment or which used third-party technology to create something new. Into the first of these categories fell a hardware product from Danish **TC Electronic** (Raper & Wayman 0181 800 8288), the appropriately titled UNIT•Y, which resulted from a collaboration between TC and Yamaha.

The UNIT•Y is a plug-in signal processing card for Yamaha's 02R digital mixer, which contains not just the effects algorithms derived from the award-winners used in TC's M2000 hardware processor, but also the DSP power needed to make them work, so that the host 02R's processors are not burdened by the card.

Also acting as effective third-party developers for Yamaha were German software company **CMEXX** (SCV 0171 923 1892) who have developed PC-based graphical front-ends for the 02R and the new Yamaha DSP Factory announced recently.

Meanwhile, PC soundcard manufacturers **Terratec** (01600 716911) showed the microWAVE PC, the results of their work with Waldorf (a chunky module which plugs into a spare PC drive bay to give you a desktop Waldorf Microwave II synth), and pro recording hardware manufacturers **Studer** (01727 842658) announced the V-Eight, a 20-bit ADAT Type II-format recorder (with the ADAT technology licensed from Alesis, obviously). The difference is that the V-Eight will employ Studer's own very high-quality D-A and A-D converters

when it appears later this year.

A show the size of Frankfurt allows you to see in one place the contradictory ways in which the music technology industry continues to develop. Although there was a lot of new digital equipment at the show, there were also plenty of companies pouring money into analogue designs and valve technology. In the digital corner were the usual heavyweights like **Yamaha** (01908 369269), and **Apogee** (Raper & Wayman 0181 800 8288), but also now

Spirit by Soundcraft (whose stylish digital 328 mixer, first seen at NAMM, is inching nearer to completion — more on this very soon) and a newcomer in the form of **LEM** (Generalmusic UK 01827 312230), a division of Generalmusic, who announced plans for two digital mixers, Eagle and Falcon, featuring flexible built-in dynamics and multi-effects processing. Falcon offers 10 analogue ins and two digital inputs, while the larger Eagle features the same number of digital inputs but 16 analogue ins, and has motorised faders. MIDI snapshot automation is possible on both mixers, and an optional ADAT digital optical interface is also planned for both products.

Apogee were proudly exhibiting their striking new AD8000 8-channel stand-alone A-D converter box. A true 24-bit converter with comprehensive bargraph metering and channel routing options, the AD8000 incorporates Apogee's UV22 technology, which dithers 24-bit signals down to 20- or 16-bit (ideal for use with a 24-bit recording system from which 16-bit CDs need to be burnt, for example). Optional interface cards will provide digital I/O in a variety of formats (S/PDIF, ADAT optical, AES/EBU and TDIF, for example), so you can also use the AD8000 as a format converter box if you have the right optional cards.

Yamaha, meanwhile, sprang another 0-series digital mixer on an unsuspecting world. Set to replace the Promix 01 at the bottom end of their digital mixer range, the smart new 01V still incorporates some of the top-end features included in last year's 03D (and at a amazing

projected UK price of around £1500, apparently). With a total of 24 inputs and 14 outs (including eight digital ins and eight digital outs), a large 03D/02R-style display for easy numeric readout of parameters or graphical display of EQ curves, two built-in stereo



The 01V, Yamaha's latest digital mixer.

multi-effects processors, a total of 15 faders (all motorised) and total parameter recall, it's an impressive piece of kit.

Flying the flag for older kinds of technology in the face of all these zeros and ones were the likes of **ART** (who unveiled three new valve-based processors; see page 22 for details); German processing giants **SPL** (Stirling Audio 0171 624 6000), whose new valve-based Qure EQ and Tube Stereo Vitalizer were on show alongside the Transient Designer (see page 12 for more details); and German company **Jomox** (Global Distribution 01799 584925). The latter's analogue tabletop XBase09 drum machine has now been joined by a rackmount version (the curiously named AiRBase99), and a fully analogue 8-voice MIDI synth, the SunSyn. Jomox claim that the SunSyn's internal routing system gives the self-contained synth modular-like properties, and the filtering section is equally flexible, allowing the creation of band- and high-pass filtering effects.

But the prize for the most defiantly old-fashioned outlook goes to the splendidly-named Swiss company **Technosaurus** (0041 344 240 110), who were displaying three analogue pieces of gear: the Cyclodon, a 16-step analogue sequencer; the Microcon, a stand-alone analogue synth; and the truly Jurassic

Continued on page 24 ►

Here's a list of all the new products the SOS team saw at the Frankfurt show. Being hot off the mark, we've managed to squeeze reviews or previews of one or two of them into this very issue, and a few have been featured in the news pages of SOS already (the items can be found by reading the coloured notes at the bottom of this table); but the rest should keep the reviews section of the magazine busy over the coming year! Apologies, as ever, to anyone we've missed out.

MANUFACTURER	PRODUCT NAME	DESCRIPTION	FURTHER INFO FROM...
AKAI	S5000	New redesigned 64-voice mid-range sampler	Akai UK 0181 897 6388
AKAI	S6000	New top-notch 128-voice sampler with 'touch and tweak' user interface	Akai UK 0181 897 6388
ALESIS	DM Pro	20-bit expandable drum module	Sound Technology 01462 480000
ALESIS	Nanotracker	MIDI data filer	Sound Technology 01462 480000
ALESIS	Q20	20-bit multi-effects processor	Sound Technology 01462 480000
ALLEN & HEATH	GS3000	8-buss recording mixer	Allen & Heath 01326 372070
ANTARES	ATR1	Hardware version of <i>Autotune</i> plug-in	Unity Audio 01920 822890
APHEX	<i>Aural Exciter</i>	Software enhancer plug-in	Stirling 0171 624 6000
APHEX	<i>Big Bottom</i>	Software processing plug-in	Stirling 0171 624 6000
APHEX	Model 1788	8-channel remote controlled mic preamp with Windows software	Stirling 0171 624 6000
APOGEE	AD8000	8-channel 24-bit digital converter	Raper & Wayman 0181 800 8288
APOGEE	<i>Session Tools</i>	Cross-platform studio management software	Raper & Wayman 0181 800 8288
ARBORETUM	<i>Meta Synth</i>	Sound editing/synthesis software	Unity Audio 01920 822890
ARBORETUM	<i>Raygun</i>	Audio restoration software	Unity Audio 01920 822890
ART	Dual Tube EQ	Two linked Tube EQs (as the name suggests) in a 1U rack	Music Connections 0171 731 5993
ART	Quadra FX	Quad effects processor, now completely redesigned	Music Connections 0171 731 5993
ART	Tube EQ	Half-rack parametric equaliser	Music Connections 0171 731 5993
ART	Tube Pac	Half-rack preamp/compressor	Music Connections 0171 731 5993
AUDIO TECHNICA	AT3525	£259 semi-large diaphragm mic*1	Audio Technica 0113 277 1441
AUDIO TECHNICA	AT3527	Omnidirectional condenser mic*1	Audio Technica 0113 277 1441
AUDIO TECHNICA	AT3528	Cardioid condenser mic*1	Audio Technica 0113 277 1441
AUDIX	CX1/CX2	Studio condenser mics	SCV London 0171 923 1892
BEHRINGER	Modulizer	Top-of-the-range multi-effects processor	Behringer UK 01483 458877
BEHRINGER	MX1804X	Rack mixer with 24-bit effects	Behringer UK 01483 458877
BEHRINGER	MX3242X	4-buss in-line mixer with built-in 24-bit effects	Behringer UK 01483 458877
BEHRINGER	Ultramizer	Mastering processor: 2-band compressor, enhancer & surround processor	Behringer UK 01483 458877
BEYERDYNAMIC	MCD100	Digital microphone*2	Beyerdynamic 01444 258258
BIAS	<i>Peak v2.0</i>	Update to fully-featured audio editing software	SCV London 0171 923 1892
BSS	Opal DPR504	4-channel gate	BSS 01707 660667
BSS	Opal DPR522	Advanced dual gate	BSS 01707 660667
BSS	Opal DPR944	Parametric EQ/compressor	BSS 01707 660667
CAD	VX2	Large-diaphragm studio valve mic	Music Connections 0171 731 5993
CHARLIE LAB	Megabeat One	Hard disk MIDI file player	Charlie Lab 0039 884 541884
C-MEXX	<i>C-Console</i>	PC 'virtual studio' mixing/recording software for Yamaha DSP Factory card	SCV London 0171 923 1892
C-MEXX	<i>C-Meter</i>	PC virtual meter bridge for Yamaha 02R mixer	SCV London 0171 923 1892
C-MEXX	<i>The Visualizer</i>	Real-time PC software control interface for Yamaha 02R mixer	SCV London 0171 923 1892
CREAMWARE	SCOPE	DSP-based PC/Mac synthesis/mixing/recording/processing system	System Solutions 0181 693 3355
dbx	586	Dual valve preamp	Arbiter 0181 202 1199
dbx	DPP	Digital dynamics processor	Arbiter 0181 202 1199
DIGITECH	Studio Quad 4	Studio range multi-effects	Arbiter 0181 202 1199
DIGITECH	Studio Vocalist EX	Upgraded Studio Vocalist	Arbiter 0181 202 1199
DOD	Dimension 3	Digital effects	Arbiter 0181 202 1199
DOD	Dimension 6	Stereo digital effects	Arbiter 0181 202 1199
DOD	Dimension 12	Delay/sampler	Arbiter 0181 202 1199
DOD	SR410	Spectral processor	Arbiter 0181 202 1199
DOD	SR460H	Headphone amp	Arbiter 0181 202 1199
DOD	SR866	Compressor/limiter	Arbiter 0181 202 1199
DRAWMER	MX50	De-Esser	Drawmer 01924 378669
ELECTROVOICE	RE27	Dynamic cardioid microphone	Shuttlesound 0181 646 7114
ELECTROVOICE	767	Dynamic large-diaphragm mic	Shuttlesound 0181 646 7114
ELECTROVOICE	RE27N/D	Dynamic cardioid microphone	Shuttlesound 0181 646 7114
EMU	Audity 2000	Rhythmic synth module with arpeggiator*3	Emu UK 0131 653 6556
EMU	E-Synth Dance	E-Synth with Orbit/Phatt Sessions sound ROM*3	Emu UK 0131 653 6556
EMU	Audio Production Studio	PCI card-based digital recording system for PC*3	Emu UK 0131 653 6556
ENSONIQ	MEC	PARIS digital recorder Modular Expansion Chassis	Key Audio 01245 344001
ENSONIQ	ZR76	76-key synth workstation	Key Audio 01245 344001
EVOLUTION	MK125 Dance Machine	Mini keyboard and software	Evolution 01525 372621
FOCUSRITE	Blue 300	Mastering controller for Blue Series processors	Focusrite 01494 462246
FOCUSRITE	Voicebox Mk II	Upgraded Green-series voice channel	Focusrite 01494 462246
FOSTEX	CR200	Professional CD recorder	SCV London 0171 923 1892
FOSTEX	DP8	Digital patchbay	SCV London 0171 923 1892
FOSTEX	FD4	Digital 4-track recorder	SCV London 0171 923 1892
FOSTEX	X24	Cassette multitracker	SCV London 0171 923 1892
GENERALMUSIC	Equinox	Keyboard workstation with built-in drum sounds, drawbars & 2Gb HD option	Generalmusic UK 01827 312230
GENERALMUSIC	PC Groove Station	Sequencing/auto-accompaniment module	Generalmusic UK 01827 312230
HAMMOND	XM1 v2	Upgraded organ module	Hammond UK 01908 263990
JBL	LSR28P	2-way active studio monitor with optional subwoofer	Arbiter 0181 202 1199
JOMOX	AirBase 99	MIDI analogue drum expander	Global Distribution 01799 584925
JOMOX	MIDI4	MIDI-CV converter	Global Distribution 01799 584925
JOMOX	SunSyn	Analogue synth module	Global Distribution 01799 584925
KAWAI	K5000X	K5000W workstation with more memory and real-time knobs	Arbiter 0181 202 1199
KAWAI	MP9000	Stage piano with easy-edit front-panel controls	Kawai UK 0049 2151 37300

MANUFACTURER	PRODUCT NAME	DESCRIPTION	FURTHER INFO FROM...
KEYFAX	Phat Boy	GM/XG/AWE hardware controller	Keyfax 01491 577147
KURZWEIL	DMTI 1 & 2	Universal digital format/sample rate conversion interfaces	Washburn UK 01462 482466
KURZWEIL	K2000VP	K2000 upgrade: more RAM, v3.5 OS, new disk set	Washburn UK 01462 482466
KURZWEIL	XM1 Expression Mate	Hardware MIDI processor with 60cm ribbon controller	Washburn UK 01462 482466
KORG	i30	Auto-accompaniment keyboard based on i3	Korg UK 01908 857150
LOGIQ	Micro Sync	MIDI-to-Sync 24 converter for vintage gear	Seeking UK outlet
LEM	Eagle	12-in, 8-out digital mixer with digital connectors & built-in processing	Generalmusic UK 01827 312230
LEM	Falcon	18-in, 10-out digital mixer with digital connectors & built-in processing	Generalmusic UK 01827 312230
LEXICON	MPX100	Affordable multi-effects processor (UK price now confirmed at £249!)	Stirling 0171 624 6000
LEXICON	PCM81	Upgrade of PCM80 effects, with digital connections	Stirling 0171 624 6000
LEXICON	PCM91	Upgrade of PCM90 reverb, with digital connections	Stirling 0171 624 6000
LINE 6	Flextone	Physical modelling guitar amplifier	Sound Technology 01462 480000
MACKIE	Digital 8-buss	Digital console with Apogee UV22 CD encoding software	Key Audio 01245 344001
MARANTZ	CDR630	CD recorder using consumer/pro blanks, CDR/CDRW	Marantz Europe 01753 686080
MICROTECH GEFELL	UM900	Multi-pattern valve condenser mic	Stirling 0171 624 6000
MIDIMAN	Audio Buddy	Phantom-powered mic preamp/DI box*4	Midiman UK 01205 290680
MIDIMAN	Pipeline 8x8	24-bit, 8-channel ADAT D-A/A-D converter box	Midiman UK 01205 290680
MIDI TERMINAL	MIDI interfaces	PC & Mac MIDI interfaces starting at £99	CIMPLE 0181 904 4141
MIDI TERMINAL	VAMS	Stand-alone rackmount PC-based digital recording system	CIMPLE 0181 904 4141
MIDI TERMINAL	WA•M! Rack	PC/Mac multi-port MIDI interface & A-D/D-A converter box	CIMPLE 0181 904 4141
MIDI TERMINAL	Wave Terminal	4-channel PCI card with digital connections	CIMPLE 0181 904 4141
MOTU	2408	Cross-platform PCI card-based hard disk recording system*5	Musictrack 01462 812010
NEUMANN	TLM103	Large-diaphragm studio mic based on U87 capsule	Sennheiser 01494 551551
NOVATION	Supernova	Rack modelled analogue megasynth + optional 16-voice expansion card*6	Novation 01628 828888
OPCODE	Studio 128X	MIDI interface/patchbay	SCV 0171 923 1892
OPCODE	Studio Vision Pro 4	MIDI + Audio sequencer upgrade	SCV 0171 923 1892
ORAM	Sonicomp	2-channel dynamics processor	Oram 01474 815300
PEFFTRONICS	RADX	Analogue delay unit	Xenovator 01491 827508
PHONIC	MM122	12-channel mini-mixer	HW International 0181 808 2222
PHONIC	SE206/207	Compact monitors	HW International 0181 808 2222
QUASIMIDI	Sirius	Polyphonic modelled analogue synth with built-in vocoder*8	Turnkey 0171 379 5148
RED SOUND SYSTEMS	Micro BPM	Intelligent BPM counter/headphone monitor amp	Red Sound Systems 01494 429321
ROCKTRON	Floor Artist	Preamp with effects	BLT Industries 01384 633821
ROCKTRON	PC Preamp	Guitar preamp software plug-in	BLT Industries 01384 633821
ROLAND	DJ 2000	4-channel DJ mixer with MIDI, effects, BPM counter	Roland 01792 515020
SCHOEPS	CMBI	Battery-powered mic preamp for use with other Schoeps mics	Project Audio 0171 428 9700
SCHOEPS	CMXY	X-Y stereo mic	Project Audio 0171 428 9700
SEKD	ARC 88	PCI-card-based digital recording system for PC	SCV London 0171 923 1892
SONIC FOUNDRY	AC/D	Loop-based music production software	SCV London 0171 923 1892
SONY	DP555M	Multi-effects processor	Sony UK 01932 816000
SONY	F740	Instrument dynamic mic	Sony UK 01932 816000
SONY	F780	Vocal dynamic mic	Sony UK 01932 816000
SONY	MDMX4 MkII	Minidisc multitracker	Sony UK 01932 816000
SONY	MDR7506	Pro studio headphones	Sony UK 01932 816000
SONY	SMS2P	Powered monitors	Sony UK 01932 816000
SOUNDSCAPE	Mixtreme	PCI card recording system and digital format converter boxes	Soundscape 01222 450120
SIBELIUS	VMP	PC/Mac/Acorn Virtual Manuscript Paper scoring software	Sibelius 01223 302765
SPIRIT	328	32-channel digital mixer with built-in Lexicon effects*9	Spirit 01707 665000
SPIRIT	Folio FX8/FX16	General-purpose mixers with built-in Lexicon effects	Spirit 01707 665000
SPL	Qure	Dual-channel 3-band tube EQ	Stirling 0171 624 6000
SPL	Stereo Tube Vitalizer	Tube enhancer, more affordable than the Tube Vitalizer	Stirling 0171 624 6000
SPL	Transient Designer	4-channel dynamic effects processor*10	Stirling 0171 624 6000
STEINBERG	Rebirth v2.0	Still-further-upgraded software TB303/TR808/TR909	Arbiter 0181 202 1199
STEINBERG	Cubase VST24	24-bit version of popular MIDI + Audio sequencer	Arbiter 0181 202 1199
STUDER	V-Eight	8-track ADAT-format tape-based digital multitrack	Studer UK 01727 842658
STUDIOMASTER	Club DSP	8-channel rack mixer with built-in DSP effects unit	Studiomaster 01582 570370
TANNOY	Reveal	Nearfield monitors	TEAC 01923 819630
TC ELECTRONIC	Gold Channel	Digitally-enhanced mic preamp	Raper & Wayman 0181 800 8288
TC ELECTRONIC	UNIT•Y	Plug-in DSP processing card for Yamaha Q2R mixer	Raper & Wayman 0181 800 8288
TC WORKS	Native EQ Works	EQ for PC	SCV London 0171 923 1892
TC WORKS	Native Essentials	PC plug-in bundle: reverb, EQ, dynamics	SCV London 0171 923 1892
TC WORKS	Master X	TDM mastering plug-in	SCV London 0171 923 1892
TECHNOSAURUS	Cyclodon	16-step analogue sequencer	Technosaurus 0041 344 229 555
TECHNOSAURUS	Microcon	Desktop analogue synth	Technosaurus 0041 344 229 555
TECHNOSAURUS	Selector	Modular analogue synth	Technosaurus 0041 344 229 555
TERRATEC	Microwave PC	PC board with built-in Waldorf Microwave, fits into PC drive bay	Terratec UK 01600 716911
TL AUDIO	Ivory range	Affordable series of valve-based processors	TL Audio 01462 490600
VESTAX	SL201 MKII	Dual compressor/limiter	Vestax Europe 01428 653117
VISCOUNT	EFX200m	24-bit stereo effects unit	CIMPLE 0181 904 4141
WALDORF	Microwave XT	Bright orange updated version of classic digital synth*11	Arbiter 0181 202 1199
WAVES	De-esser	Plug-in	SCV 0171 923 1892
WAVES	EZ-Waves	Expanded plug-in bundle now with reverb, EQ, compressor	SCV 0171 923 1892
WAVES	PAZ	Real-time psychoacoustic analyser plug-in	SCV 0171 923 1892
WAVES	Renaissance EQ	EQ plug-in in Renaissance series	SCV 0171 923 1892
YAMAHA	A3000 MkII	Sampler, upgrade of A3000	Yamaha 01908 369269
YAMAHA	01V	24-channel digital mixer	Yamaha 01908 369269

*1 Review p.73 *2 Review p.192 *3 SOS 4/98 p.9 *4 SOS 4/98 p.9 *5 p.10 *6 Preview p.36 *7 p.15 *8 SOS 4/98 p.9 *9 SOS 3/98 p.18 *10 p.12 *11 SOS 1/98 p.9

► Continued from page 21.

Selector, an enormous modular synth system currently under development. The company are seeking UK distribution at the moment; as soon as details are confirmed, we'll let you know.

Perhaps the most surprising revelation at the Messe was that German software sequencer manufacturers **Emagic** (Sound Technology 01462 480000) and **Steinberg** (Arbiter 0181 207 5050) have put aside their long-term rivalry to implement greater compatibility between their systems. By the time of the next software releases from these companies, it is promised that Steinberg's *Cubase VST* will have full access to Emagic's Audiowerk8 card and Unitor8 interface, while Emagic's *Logic Audio* will support ASIO drivers and DirectX plug-ins, so as to be able to run Steinberg's VST plug-ins. Steinberg also announced the launch of numerous upgrades, including a 24-bit version of *Cubase VST*, and version 2.0s for both *ReBirth 338*, the Mac/PC-based desktop TB303/TR808 emulator (which now features TR909 sounds, a new built-in compressor and four individually assignable distortion boxes), and the *WaveLab* audio editor (which now supports VST plug-ins).

Incidentally, it seems even hardware is starting to embrace the plug-in software culture; for example, **Mackie** (Key Audio 01245 344001) announced

during the show that their still-eagerly awaited D8B (Digital 8•Buss) mixing console will be capable of running third-party processor plug-ins.

Still with software, over at the Sonic Foundry, a new piece of mind-expandingly-named PC software popped out of the furnace. *ACID* is a piece of WAV file composition software optimised for the production of loop-based music such as techno or hip-hop, with an emphasis on instant results. The software is supplied with a huge selection of style-based WAV loops and single-shot sounds, which you can then 'drag and drop' onto a sequencer-style Arrange page and rearrange to your taste with extensive editing options. The clever bit is that *ACID* allows real-time changes to pitch or tempo, so that you can alter the tempo of a whole clutch of different loops to run in sync, simply by moving a bpm slider.

Finally, mention has to be made of *Meta Synth* from Arboretum Systems (Unity Audio 01920 822890). As originally reported in *SOS March* news, *Meta Synth* is fully-featured Mac-based sound design software, but most radical is its ability to use graphics to modify or create sounds. Any package that will let you use the cover artwork of an album to generate what's recorded on it has to be worth a look — and we swear this isn't a leftover from the April issue! ☐



Steinberg's Rebirth 2.0.

turnkey

dynamaudio

listen

d.b.w

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

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

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One side of the switcher-equipped recording room.




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

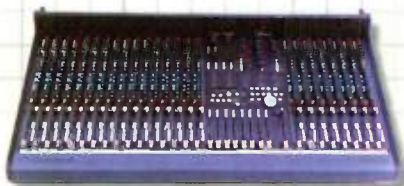
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DREAM RECORDING PACKAGES AT DREAM PRICES

GHOST CONSOLE

- **Pristine Audio Quality Throughout**
- **4 Band EQ & Fully Parametric Mids**
- **Up to 12 Auxiliaries**
- **MMC, Jog/Shuttle, Track Arming, MIDI Muting & Synchronisation Built-In (not LE)**

The project studio has changed how professional musicians make and record music. Record advances used to pay for studio time, but now its for an artist's home studio utilising digital 8 track and a compact high quality console.



The Ghost, though, is more than a project console, you only have to look at the features to see this. Soundcraft continues to break new ground in analogue console manufacture bringing fully professional facilities: Ultra low noise inputs, 4 band EQ with 2 fully parametric mids, up to 12 auxiliary sends, MIDI mute automation and MTR transport control (not LE) are a few of the features that put other project consoles to shame. In fact the only comparison with a project console you could make is the price.

RRP £6729
£3999⁹⁹
GHOST 24 LE + ADAT LX20

ALL PACKAGES INC FREE LOOMS

RRP £7469
£4599⁹⁹
GHOST 24 + ADAT LX20

ADD £399⁰⁰ FOR 24ch METER BRIDGE

RRP £7575
£4699⁹⁹
GHOST 32 LE + ADAT LX20

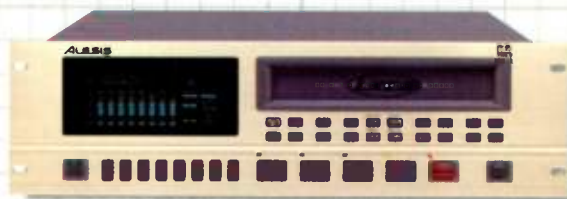
ADD £499⁰⁰ FOR 32ch METER BRIDGE

RRP £8327
£5199⁹⁹
GHOST 32 + ADAT LX20

ADD £1499⁰⁰ FOR 2nd ADAT XT

ADAT LX20 DIGITAL MULTITRACK RECORDER

- **New 20 Bit ADAT Format for Superb Quality**
- **Ultra High Speed Transport**
- **Digital Dubbing Between Two Machines**
- **Fluorescent Bargraph Metering**



Alesis pioneered low cost digital multitrack recording with the introduction of the ADAT, and changed the face of home and professional recording. The new LX20 version still plays tapes from the old machines, but now records at full 20 bit resolution - 16 times more detail than previously!

The clarity really must be heard to be believed, revealing the finest nuances in both acoustic and electronic sounds. Improved locking times make multi machine setups a dream to use.



NEW

Digidesign have added a high performance 24 bit system to their ProTools range of products. The new D24 PCI-bus audio card is based on the Motorola 56301 processor, and increases the audio tracks from 16 to 24 per card. There is also an updated 888 interface with 24bit A/D & 20bit D/A's, multiple 888s enabling up to 72 channels of discrete analog or digital I/O. They have also reduced the price of the standard ProTools from £7,131 to **£4,448**

DSP FARM REDUCTIONS & FREE PLUG INS WHEN PURCHASING PT24

ProTools 24 & G3 Pack

- G3/230 32/4800CD, ZIP & Design Keyboard
- Apple MultiTideScan 720 Display
- ProTools24 Core System
- Digidesign ADAT Bridge or 882/20 Interface
- PCI SCSI Accelerator
- 4Gb Fast & Wide Barracuda Hard Drive

NEW G3 PACKAGE
£9999⁹⁹
INCLUDING INSTALLATION

ProTools 24 & 9600 Pack

- 9600/350 64/4800CD, ZIP & Ext. Keyboard
- Apple MultiTideScan 720 Display
- ProTools24 Core System
- Digidesign ADAT Bridge or 882/20 Interface
- PCI SCSI Accelerator
- 4Gb Fast & Wide Barracuda Hard Drive

9600 PACKAGE
£10999⁹⁹
INCLUDING INSTALLATION

New Products:

Digidesign ADAT Bridge & 882/20 Interfaces: New Low Cost Interfaces: the ADAT bridge provides 16ch digital I/O via ADAT Transport with 20bit DA for monitoring. Expanding upon the original 16-bit 882 I/O audio interface design, the 882/20 features 8 channels of 20bit analog I/O and two of 24-bit S/PDIF I/O.

ProTools Plug-ins

t.c. tools

£775⁹⁹

Arguably the best reverb plug-in available, TC Tools uses algorithms developed from the M5000 mainframe reverb. Great user interface allows you to visualize the effects via the graphics, making it intuitive and easy to use.

Dolby Surround Tools

£1339⁹⁹

Produces Dolby Surround mixes instantly within the ProTools environment. Both Encoder & Decoder Plug-ins are available as a bundle providing digital implementation of encoding/decoding process.

Focusrite D2

£880⁹⁹

Based on the famed Focusrite Red 2 Dual EQ designed by Rupert Neave, the D2 plug-in matches the high-quality expertise from the company, even down to the brushed aluminium front panel.

Antares Auto-Tune

£580⁹⁹

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



F11 SELF POWERED MONITOR

The F11's cabinet design is another Quested first, being made from a new mineral loaded material which offers excellent acoustic properties using a considerably smaller box than would be possible using conventional materials. The design is a self powered two way bi-amplified one, with 165mm bass driver, and 28mm soft dome HF unit. Months of fine tuning have resulted in a speaker which produces a superb sound, totally belying its size. Custom colours can be specified for bulk orders.



NEW PRODUCT
£1149⁹⁹

VS2205 SELF POWERED MONITOR



One of the most popular models in the Quested range, the VS2205 is designed as a highly accurate reference monitor, and its low profile and shielding made it ideal for a wide variety of uses. The built in amplifiers separately drive two 130mm bass units and a 28mm ferrofluid damped soft dome tweeter. Switches are provided for input sensitivity and HF and LF equalisation, to compensate for room conditions and positioning.

NEW PRODUCT
£1699⁹⁹

Ask anyone in the know in the audio industry about who are the foremost acoustic designers in the business, and the chances are that the name of Roger Quested will be top of the list. He has built an unrivaled reputation for himself in a notoriously difficult process which is half science, half art.

Whilst his initial designs were all large bespoke projects for his studio installations, the last few years have seen the emergence of a very carefully thought out, high quality range of monitor speakers, to cater for the demands of the modern speaker market, from the innovative new F11, to the incredible HQ410.

The Quested range is probably the most comprehensive available, covering active, passive and self powered designs, as well as amplifiers and active crossovers, from subwoofers through nearfields to custom built soft mounting units.

Call Turnkey Professional to arrange a demonstration, a free trial in your own studio, or to enquire about our generous part exchange facilities.

*We will beat any genuine quote from a UK or European dealer at the same time. Offer may be subject to restrictions. For details visit our website. All goods are in stock. Prices correct 1/2001. VAT except Digidesign bundle. UK mainland only. Offer £999. Please allow 10 working days for delivery. Terms & conditions apply.

EUROPE'S LOWEST



STAY IN THE MIX WITH YAMAHA

PROMIX 01 Digital Mixer

This is the digital mixer that shattered the price/performance barrier. You get 1 stereo and 16 mono inputs (8 are mic/line), all with 3 band parametric EQ, 2 external aux sends, 2 internal sends to the built in SPX990 based FX processors, 3 assignable dynamics processors, motorised faders and total automation. The SPDIF digital output means you can connect the ProMix01 directly to your DAT, CDR or MiniDisc with absolutely no loss of quality. This was incredible value at the original price, but this new low price makes it probably the best value for money mixer on the market.

- Up to 20 Inputs in Total
- Moving Fader Automation
- 2 Built in Effects Processors
- 3 Assignable Dynamics Processors



RRP £1999
£999.99

03D Digital Console



- Ultra Compact Format
- Moving Fader Automation
- Surround Sound Capabilities
- Takes ADAT, TDIF or AESEBU Digital Board

02R Digital Console

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

- Up to 40 Inputs in Total
- Moving Fader Automation
- Dynamics Processors on Every Channel
- Takes 4x ADAT, TDIF or AESEBU Digital Boards

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

Call now for a Turnkey Professional brochure and a free trial!



RRP £2999
£2349.99

RRP £6999
£5699.99

564 MINIDISC PORTASTUDIO / EDITOR

Tascam are the inventors of the Portastudio, and were also the first on the market with a MiniDisc based four tracker. The result, the 564 is triumph of engineering and heavily feature packed with it: up to 12 inputs at mixdown, built in MIDI Clock and Time Code synchronisation, 3 band mid sweep EQ, 2 aux sends, full LED metering, jog / shuttle wheel, 4 XLR mic inputs, 37 mins record time per disc, whilst the unique bounce forward facility allowing retention of the original parts even after digitally bouncing tracks. Far too many specs to list here - a recording studio in a box!



This is without doubt, the ultimate Portastudio. Excellent value for money at the original price, but Turnkey's exclusive offer makes this superb machine an unbeatable deal - order now while stocks last.

RRP £1199
£599.99

DA20MKII DAT MACHINE

The new Mk II version of the DA20 builds on what is already a quality machine: reliable tray-loading mechanism, SCMS is switchable in or out, both analog and digital recording at all 3 sample rates and coaxial SPDIF in and out. High sound quality is guaranteed by 1-bit DAC playback, and there is a special 'Table-Of-Contents' feature. New features include error counting & adjustable ID encoding.



RRP £699
£599.99

102MKII & 202MKIII TAPE DECKS

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



RRP £249
£199.99
RRP £349
£269.99

DTC-ZE700 DAT RECORDER

We have exclusively secured a small quantity of the superb DTCZE700 to bring you by the cheapest full size DAT machine on the market, but one at the expense of features: SPDIF coaxial input and output, auto cue, digital auto seeking, recording at all three sampling rates (32 kHz, 44.1 kHz, 48 kHz), as well as all the usual ID functions and a full function infra red remote control. Also features Sony's exclusive Super Bit Mapping technology for world-class recording quality. Another DAT exclusive from Turnkey!



RRP £699
£359.99

MDS-JE510 MINIDISC RECORDER

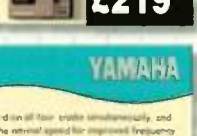
Although DTC looks to have dealt as a firm sale, the MDS-JE510 is still available in small quantities. It's a compact portable version of the MDS-JE510 as featured above. This must be the nearest walkman you've ever seen!



RRP £299
£199.99
RRP £399
£219.99

MZ-R30 PORTABLE MINIDISC RECORDER

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



MT50 MULTI-TRACKER

The MT50 can record in all four stereo configurations and with its double the internal speed for improved frequency response and rapidly becoming a standard in radio stations and other institutions around the world. With sound quality almost as good as DAT and a range of editing features like Combine, Move, and Auto Cut, it makes an ideal choice for mastering on a budget. If this is a for you, there's no better value on the market than the MT50 with digital input, jog/shuttle and full function remote control as standard.



RRP £389
£269.99

MT4X MULTI-TRACKER

The MT4X is Yamaha's top of the line machine and his is specifically designed to go with its highly controlled transport means that as well as two simultaneous tracks and down to zero function, you also get a special 'reference' mode, so that you can practice dropping in and out as many times as you like, without missing anything you process recording. Other great features include three band EQ on each channel, two auxiliary sends, LCD metering, double or single speed operation, and internal track outputs for use with an external mixer.



RRP £569
£369.99

THE UK 4 TRACK CENTRE

Our famous 4 track pack includes everything you need to start making music: Mixed headphones, a dynamic microphone, a chrome tape, cables, head cleaning kit and the best deck we've got seen on multitrack recording, taking you through basic track laying, mixdown etc., with sections on everything from mic placement to automation and MIDI. We've obtained some great 4 track pricing and for a limited period, we will give you the 4 track pack (normal price £39.99) absolutely free when you purchase any of these multitrack recorders.

PORTASTUDIOS TASCAM

PORTA 02
A brand new entry level portastudio from the inventors of the original portable multitrack recorder.

NEW PRODUCT
£149.99

ALL MULTITRACKS INC '4 TRACK PACK' ADD £10 FOR PORTA 02

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

RRP £349
£329.99

424 MkII A brand new version of the best selling 424 from Tascam, inventors of the original. Features include 3 band EQ with a mid sweep records to all 4 tracks at once, 2 independent auxiliary sends (1 swappable program filter). Logic controlled 2 speed operation with built in auxiliary location points. DTK noise reduction, instant copy function.

RRP £489
£429.99

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

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

RRP £149
£129.99

XR3 High speed machine at under £250! New auto-tune facility and built in mic - ideal for 4 track recording on the move.

RRP £249
£219.99

XR55 Stunning new double speed Fostex machine with individual EQ up to 3 aux sends and 2 stereo returns. 2 inserts & 4 beat rate. Tape out allowing use with an external mixer. 2 XLR mic inputs.

NEW PRODUCT
£379.99

XR77 The XR77 breaks new ground in price and performance - 6 inputs (2 mic, 2 separate aux sends, low/high sweep mid EQ). Records up to 4 tracks at once - double speed transport. Dolby C. 2 XLR mic inputs.

NEW PRODUCT
£499.99

DMT-8 VL INC SCSI INTERFACE! FOSTEX

The perennial digital multi-track is here at last, and at a price you won't believe! 8 separate tracks of CD quality audio recorded to 1.6 gb hard-disk (up to 40 minutes). Record 2 tracks simultaneously jog/shuttle audio and sync to MIDI without losing a track. The 8 channel mixer accepts 2 mics, with a 2 band EQ and 2 aux sends. Separate outputs with SPDIF optical output. Now with SCSI interface! Why buy 4 tracks when you can have 8?

RRP £1208
£849.99

*We will beat any price... from a UK or European dealer at the time of order. We must be able to supply the quote and... which must be available and in stock. Prices in italics. 1.5% V.P. 10% cash on delivery. Item 9999. Please allow 10 working days for cheque clearance. Errors & omissions corrected.

PRICES GUARANTEED*



VS880 DIGITAL WORKSTATION



VIRTUAL STUDIO? VIRTUAL GIVEAWAY!

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

Each of the 8 tracks has 8 virtual tracks, allowing you to record several different takes, and then compare

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

New version 2 software not only allows automation data to be recorded directly to the hard drive for total integration, but also brings numerous new effects to the optional board, including COSM based mic emulation - make your SM58 sound like a U87! Existing owners can upgrade to version 2 for only £49⁹⁹.

NEW VS-840 DIGITAL WORKSTATION

Want the advantages of a hard disk based recorder, but without the price tag? Roland's new VS840 should fit the bill, recording 8 tracks (up to 64 virtual tracks) onto its built in Zip drive, you still benefit from a fully digital mixer, and a built in FX processor, with 26 different algorithms and guitar level input. An all in one no-nonsense product with a no-nonsense price. Initial stocks will be very limited - get your order in early!

NEW PRODUCT
£949⁹⁹

To offer a completely integrated solution, we are bundling the VS880 with a 1.4 gig hard drive and mounting kit, and the FX board together. These would normally have a combined retail price of £2238, but for a limited period only all this can be yours for only £1499⁹⁹!

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

RRP £2238⁹⁹
£1499⁹⁹

INCLUDES 1.4Gb HD, MOUNTING KIT & FX BOARD

PHILIPS CDR870 RE-RECORDABLE CD WRITER



The ultimate mastering medium? As well as offering excellent durability, CDs are the industry and consumer standard format. What's more, there's nothing like your own finished CD to impress your mates! This brand new recorder from Philips is the only machine on the market to be able to use re-recordable CDs, as well as the cheaper 'consumer' standard blanks. Digital and analogue ins and outs, superb sound quality.

Our incredible price even includes the remote control and one free CD. (Further CDs: consumer £4.99, re-recordable £14.99)

RRP £499⁹⁹
£359⁹⁹

aiwa HD-S200 PORTABLE DAT RECORDER

ALMOST 40% OFF!

Turnkey's incredible buying team bring you the DAT exclusive of the year!



This beautifully manufactured machine from AIWA, records at 32kHz (long play), 44.1kHz or 48kHz through either the analog or digital inputs. Digital input and output via optional optical cables (£29 each), backlit LCD display, full complement of ID buttons. Comes with lithium ion rechargeable battery (no memory effect), additional dry cell battery case for extra battery life, mains adaptor, phono cables and headphones included in the price.

Very limited stocks - grab your once in a lifetime bargain now!

RRP £599⁹⁹
£369⁹⁹

MDMX4 DIGITAL MULTITRACKER

OVER 40% OFF!

The MDMX4 offers 37 minutes of high quality four track digital recording on an MD data disk.

It also features the exclusive Track Edit system and a host of other functions that will revolutionise your recording process. It features 4 tracks, 2 aux in/4 bus, individual track outputs, 2 aux sends and 3 band EQ. Remote access transport includes 11 point feature. (You'll need to save a track space for loading, and while songs can be digitally recalled for a 'solo' version. MPX and MTC compatibility for use with MIDI sequencers - you can even control it from your sequencer! MIDI Effects are also required for use with hardware synthesizers and drum machines).

Stocks are very limited on this exclusive deal - order now!

RRP £999⁹⁹
£549⁹⁹

PDR-04 CD RECORDER

Why invest in DAT when you can invest in CD for the better format? DAT, CD or the Disc ID clones are automatically translated onto the disc, and recording can be stopped and started at the same time. CD's are more durable and have a longer shelf-life. DAT, and you get all the advantages of future access, and erasing your tapes with your very own CD. These will sell out quickly - order now!

PDR-05 ALSO AVAILABLE with sample rate conversion ONLY £399.99

RRP £699⁹⁹
£499⁹⁹

NEW MD8 DIGITAL WORKSTATION

If you thought 4 tracks on T80s was good - check out the new 8 track Yamaha MD8. There are 8 in/1 line inputs (2 with XLRs and insert points), 3 band mid sweep EQ, 2 aux sends and a 3/1 double wheel. There are up to 30 tracks available at will, with a plenty of room for synth and sampler outputs whilst the unique ATRAC compression algorithm means the sound is virtually indistinguishable from DAT. We have guaranteed allocation on the first shipment - call us now to reserve yours!

NEW PRODUCT
£999⁹⁹

MAGNETIC MEDIA

TYPE	SIZE	PRICE PER UNIT	QUANTITY
DAT	16 min	£3.99	10
DAT	24 min	£2.79	10
DAT	30 min	£2.99	10
DAT	36 min	£3.99	10
DAT	48 min	£4.99	10
DAT	60 min	£5.99	10
488	1 1/2"	£3.99	5
488	1 1/4"	£3.99	5
488	1"	£3.99	5
488	3/4"	£3.99	5
488	1/2"	£3.99	5
ADAT	30 min	£3.99	5
ADAT	30 min	£3.99	5
196	30 min	£3.99	5
196	30 min	£3.99	5
196	30 min	£3.99	5

AMPEX 488
456

Ampex has long been the media of choice for studios worldwide. Now Turnkey's incredible prices mean it's the only realistic choice - check out the list below!

NEW DPS12 DIGITAL MULTITRACKER

Akai's brand new DPS12 brings you remarkable 12 track (6 stereo) digital recording and mixing at a remarkably affordable price! Recording directly to 24 bit in 24 bit out, the DPS12 really is an easy to use in fact like the original Akai digital FX. Also features 12 tracks, 2 aux in/4 bus, individual track outputs, 2 aux sends and 3 band EQ. Remote access transport includes 11 point feature. (You'll need to save a track space for loading, and while songs can be digitally recalled for a 'solo' version. MPX and MTC compatibility for use with MIDI sequencers - you can even control it from your sequencer! MIDI Effects are also required for use with hardware synthesizers and drum machines).

Stock in stock now at Turnkey!

NEW PRODUCT
£1299⁹⁹

NEW D8 DIGITAL WORKSTATION

For the last few years, being a high end hi-fi audiophile, your digital recording system has enjoyed considerable success at your professional studio. Using the new D8, a complete digital recording studio in a box that the size of a brief case!

The D8 works up to 8 tracks and has 8 in/1 line inputs (2 with XLRs and insert points), 3 band mid sweep EQ, 2 aux sends and a 3/1 double wheel. There are up to 30 tracks available at will, with a plenty of room for synth and sampler outputs whilst the unique ATRAC compression algorithm means the sound is virtually indistinguishable from DAT. We have guaranteed allocation on the first shipment - call us now to reserve yours!

NEW PRODUCT
£849⁹⁹

MULTITRACKS NEW, USED & EX DEMO

AKAI DR16	£2299.99	POSTEX D80	£1199.99	SONY TC8200	£399.99
AKAI H3020	£2499.99	JL COOPER DATAMASTER C200	£299.99	TASCAM 1120MK2	£399.99
AKAI H3020T	£1499.99	ALC CUSPORT	£299.99	TASCAM DA30MK2	£299.99
ALESIS IRC	£399.99	MARANTZ CD44PRO	£1199.99	TASCAM DA60MK2	£299.99
CASIO DAT DAT	£349.99	SONY DTC600	£299.99	TASCAM 424 MK1 DEMO	£299.99
POSTEX D15 DAT	£2149.99	SONY DTC700	£399.99	TASCAM 424 MK1 DEMO	£299.99
POSTEX D80	£999.99	SONY MD8E500	£1699.99	TASCAM D888	£299.99
POSTEX 300S DEMO	£399.99	SONY PCM000 DIGITAL 1 TRACK	£1999.99	TASCAM RC444	£999.99
POSTEX C18 DIGITAL 8 TRACK	£1999.99	SONY TAFE200 TAPEDECK	£899.99	YAMAHA UJ300	£499.99
POSTEX C18 DIGITAL 8 TRACK	£1299.99			YAMAHA RY20	£249.99

EUROPE'S LOWEST



D IS FOR DIGITAL!

Fostex dominated the home recording market in the 80's and early 90's with such classics as the Model 80, the A8 and the R8 8 track recorders. Now in the late 90's they have combined that wealth of experience, together with that of key New England Digital staff to bring you this superb range of digital multitracks, specifically designed for the project studio owner. Just check out the range!

DMT-8 VL DIGITAL MULTITRACKER

INC SCSI INTERFACE!

The personal digital multi-track is here at last, and at a price you won't believe! 8 separate tracks of CD quality audio recorded to 1.6 Gb hard-disk (40 minutes). Record 2 tracks simultaneously, jog-shuttle audio and sync to MIDI without losing a track. The 8 channel mixer accepts 2 mics, with a 2 band EQ and 2 aux sends. Separate outputs and SPDIF optical output. Price includes optional SCSI interface. Why buy 4 tracks when you can have 8!



RRP £1206
£849.99

D80 HD RECORDER

INC 1.3Gb HD

The D80 is a 3U rackmount unit, with 8 individual inputs and outputs, a removable front panel doubles as a remote and meterbridge, and a removable canister drive slot. Slaves to MMC as well as being able to act as a master, all with no track loss, and has SPDIF digital ins and outs to allow backup to a standard DAT machine and direct digital recording. Easy to use editing allows cut, copy and repeat - passing across multiple tracks. Comes with 1.3Gb Hard Drive as standard.



RRP £1499
£1099.99

D90 HD RECORDER

INC 1.6 Gb HD

The D90 has all the features of the D80, but also has ADAT digital i/o as standard, and optional kits for connecting SCSI drives & balanced analog i/o's for interfacing with pro level equipment. Our price includes a 1.6 Gb Hard Drive fitted free!



RRP £1798
£1299.99

D160 HD RECORDER

INC 3.6 Gb HD

Latest in the family from Fostex is the superb D160, giving you a full 16 tracks of hard disk recording for well under £3000 - less than the price of a secondhand analogue machine! DiA conversion is 20 bit delta-sigma 128x oversampling, so sound quality is superb. An amazing amount of machine for your money - call us for more details. Price includes 3.6 Gb Hard Drive.



RRP £2932
£2099.99

- Uncompressed Audio for True Digital Quality
- Removable Canister Drives for Easy Portability
- Jog / Shuttle Wheels on all Models
- Back up to DAT via Digital Ins and Outs

THC-00 RESINATOR FAT

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



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

NEW PRODUCT
£169.99

PCP330 VOCODER



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

NEW PRODUCT
£299.99

Order now and own an instant classic!

DIGITAL PROBLEM SOLVERS FRIEND-CHIP



In today's increasingly digital world, many people are still using their equipment's analogue ins and outs, because of the difficulty of inter-connection and synchronisation. Friend Chip's new sensibly priced digital patchbays and 'black box' problem solvers end the misery and make the digital studio a reality! The DigiMax digital patchbay (£299.99) has 8 inputs and outputs (2 each on optical), can accept both AES/EBU and SPDIF signals, and is MIDI controllable. An XLR version (£499.99) is also available for greater AES/EBU reliability. The Audio Time Base (£499.99) is a 1u 19" rack which acts as a master clock source for your studio, outputting word clock, Digidesign Super Clock and SPDIF. The master clock can be internally generated, or a reference taken from mains, SPDIF word clock, Super Clock, video or LTC (SMPTE). Lockup from timecode is in around 1 second!

Also in the range:

OP-CIN: optical to analog and vice versa	£49.99
PRO-COM: SPDIF to AES/EBU and vice versa with 32MB buffering	£129.99
D-4E COPY: CD burner with 1 optical A3 on-line, 2 serial ports and SCSI wrapping	£119.99
BRM-1: converts analog into recording sample rate to 44.1kHz (also for ProCoder and can be 1.8kHz)	£149.99
CDRW: sample rate converter to 32, 44.1, 48kHz, with lock to external word clock	£239.99
Super Clock Driver: converts Digidesign SuperClock to word clock and vice versa, 2 outputs	£129.99
Single Audio Clock: converts Super Clock to word clock and vice versa with synchronous SPDIF signal	£129.99
ASAT Audio Clock: ADAT to Pro to word clock, Super Clock and SPDIF clock converter	£129.99
ADAT Word Clock System: ADAT to Pro to word clock and Super Clock converter, also takes MIDI synchronization and sequential, with MIDI range	£189.99
ADAT SPDIF System: as above but with connections to SPDIF	£199.99
ADAT MIDI Machine Control: MIDI to ADAT to Pro to word clock with MIDI key pad to allow if the above for full remote ADAT control from your sequencer	£199.99
Power Kit: leads up to three tracks (total)	£49.99

FROM £49.99

XR300 SYNCHRONISER

TURNKEY EXCLUSIVE XRI Systems

Long the synchroniser of choice in professional studios, we now make it even better, why bring you this industry standard unit at an unbeatable price. Features include true SMPTE, all standard strip-lines, MIDI clocks / bang, Flare and MTC, full compatibility with all MIDI sequencers. Large LED read-out display. Merged MIDI input. (Designs forming operating system). Full 19" rack unit.

RRP £299
£169.99

VC3 PRO CHANNEL

JOEMEER

Legendary music producer Jim Meier was often asked the secret of his fantastic vocal sound. It was in fact a custom made 'Black Box' of electronics, which consisted of a world not created during his life. Now JOEMEER bring his designs to life and will build one for you, customised to the studio and your equipment. High level from mic input, controls like Drive, Essence and Q make the VC3 one of the hottest ways to get your signal down. Incredible low price - order yours today!

RRP £249
£169.99

COMPOSER WORKHORSE COMPRESSOR

BEHRINGER

A virtual sounding and fully featured compressor in a give away price!

Behringer give you any unwanted noise, soft-knee attack, variable compression, much low abrasion, 'auto' mode makes attack and release and side-chain access make it the ideal for de-noising etc.

RRP £349
£169.99

STUDIO QUAD 4 CH. STUDIO FX PROCESSOR

ONCE-IN-A-LIFE-TIME OFFER! Digitech

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

RRP £529
£259.99

266A DUAL COMPRESSOR GATE

Digitech

Two channels of classic dbx compression with new Auto-Dynamic™ Attack and Release controls, program-adaptive expander gates, balanced inputs, precision LED metering and sidechain insert. Front panel selection of stereo or dual mono operation, all in a standard 1U rack design also on an unbelievable price! Entire dbx range also on demo at Turnkey.

RRP £249
£149.99

104 AURAL EXCITER

APHEX

Unbelievable new low price on the Type C2 exciter from the designers of the process, Aphex who have pioneered phase design since 1975. The two channel Model 104 features high resolution by enhancing from 100Hz to 10kHz plus it features Aphex's 'Big Bottom' low frequency enhancement which compresses the low end of the mix. An ultimate punch without raising peak levels. Limited quantities only - buy now to avoid disappointment.

ALMOST 50% OFF!

RRP £299
£149.99

EUROPE'S LOWEST



THE TURNKEY PRO TECH PENTIUM: A TOWER OF STRENGTH

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



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

By supplying a pre-installed computer which we build from carefully selected components and run through 16 separate tests, we ensure that you get up and running immediately, you won't need to delve into DMA channels and PnP BIOS conflicts, and you won't get any nasty surprises like "insufficient system resources" warnings, when you try to run your software. Call us to discuss your requirements - satisfaction guaranteed!

CAKEWALK STARTER PACK

- Intel Pentium 233MHz (optional 250)
- 160 MB cache RAM
- 32 MB RAM (optional 64 MB)
- 3 GB HD (optional extra 4 GB, 6 GB, 8 GB)
- 3.5" speed CD-ROM drive
- 16" SVGA display (optional 15", 17")
- Windows 95 keyboard & mouse
- Cakewalk Pro Audio V5.0
- 16 bit full duplex audio system
- Kurzweil GM Synthesizer
- 1x1 MIDI interface adapter

RRP £1561
£999.99

CUBASE VST STARTER PACK

- Intel Pentium 233MHz (optional 250)
- 160 MB cache RAM
- 32 MB RAM (optional 64 MB)
- 3 GB HD (optional extra 4 GB, 6 GB, 8 GB)
- 3.5" speed CD-ROM drive
- 16" SVGA display (optional 15", 17")
- Windows 95 keyboard & mouse
- Cubase VST PC V5.0
- 16 bit full duplex audio system
- Kurzweil GM Synthesizer
- 1x1 MIDI interface adapter

RRP £1591
£1149.99

LOGIC/AUDIOWERK PACK

- Intel Pentium 233MHz (optional 250)
- 160 MB cache RAM
- 32 MB RAM (optional 64 MB)
- 2 GB HD (optional extra 4 GB, 6 GB, 8 GB)
- 3.5" speed CD-ROM drive
- 14" SVGA display (optional 15", 17")
- Windows 95 keyboard & mouse
- Logic Broadway PC
- AdaptLab 2 in 1 real card
- Logic Audio T19 Upgrade Module
- 1x1 MIDI interface

RRP £1042
£1149.99

STEINBERG PROMAKER PACK

- Intel Pentium 233MHz
- 64 MB cache RAM
- 32 MB RAM
- 2 GB HD (optional extra 4 GB, 6 GB, 8 GB)
- 3.5" speed CD-ROM drive
- 17" SVGA display
- Windows 95 keyboard & mouse
- Steinberg VST PC & AudioNet Desktop
- WinLab CD mastering drive
- Logic Audio 12 in 16 bit PCI audio card
- Creative SoundBlaster 96 bit MIDI interface

RRP £4062
£2999.99

● Add £39 for 233 MHz option

● Add £59 for 64 Meg RAM option

● Add £39 for 16" SVGA option

● Add £229 for 17" SVGA option

CODA FINALE 97

Finalis has long been considered the "Bible" of score programs, but at a price of £699, few people would stretch to its buying it, and with its extremely powerful but complex user interface, more beginning users give up. Well, Finale 97 now offers for just £499.99 (£249.99 for Academic Users), and now offers a radically redesigned user interface and revision manuals. If you're looking to master Finale's "Planets" or Steinhausen's "Gnappis" make certain all the Finale 97.09 notes!

RRP £699
£499.99

MUSIC AT PASSPORT NOTATION / COMPOSITION

Musicline has been our best selling piece of music software since its introduction in 1992. The latest upgrade is called "Music At Passport" and includes a new "MiniNote" feature which allows notes to be sung or played into the program using a mini-note "score program" such as you offer the obvious advantages: more intuitive user interface, since the program revolves around the notes, which is always displayed on the screen. Allowed facilities such as part extraction are included, and the program handles tripping relationships with ease. Includes keyboard signature list!

RRP £129
£89.99

BAND-IN-A-BOX INTELLIGENT ARRANGER V7.0

Tired of starting each song with a Blank Band? Band-in-a-Box is the world's leading intelligent arrangement software. Not just built in style of critics you know, it includes full GS-XG compatibility, as well as Auto Learning, which lets it be trained to be customized. It's also a Lyrics display during playback. Can import music into Cubase.

FOR PC, MAC, V6.01 or ATARI (V6.0)
£89.99

MIDI INTERFACES FOR PC COMPATIBLES

Great featured prices with any software

INTERFACES

- | | |
|--|--------|
| Smartport Cable (for any Soundblaster™ type card) | £29.99 |
| MIDI Link 1 in 1 out MIDI card with Windows 95 | £54.99 |
| MIDI Link 1 in 1 out MIDI card with Windows 95 | £54.99 |
| Proton 2 in 2 out MIDI card for Windows 95 | £79.99 |
| Proton 2 in 2 out MIDI card for Windows 95 | £79.99 |
| MIDI Edge 1 in 1 out MIDI card with Windows 95 | £29.99 |
| Windows 95 1 in 1 out MIDI card for Windows 95 | £29.99 |
| Parallel cable 4 in 4 out MIDI support for Parallel port | £29.99 |

DMAN 2044 PCI DIGITAL AUDIO CARD

Bring new high performance PCI digital audio card. Features 4 independent inputs and outputs, 20 bit delta-sigma converters with 128x oversampling on-board DSP able to perform real-time effects processing on all channels. Really really easy installation with Win95 (Plug & Play). After putting the card in, switch the PC on and insert the disk when prompted. Takes about 30 seconds and will even run through an existing sound card. Buy with Cubase for only £529.99!

NEW PRODUCT
£269.99

AUDIOWERK 8 HARD DISK RECORDING CARD

The power £330 including VAT, you can now buy a PCI card for Mac or PC which gives 2 analog inputs, 8 analog outputs, and 12 bit AD/DA conversion. You even get Emagic's Logic Audio Discovery interesting 8 hard disc recording software and Zap digital audio software thrown in! 2 cards can be used in the same computer to give 24 track recording with 16 outputs. Logic Audio 3 required. Turn your computer into a professional digital multitrack!

RRP £499
£449.99

1212 I/O PCI AUDIO CARD

The third that everyone's been waiting for! Now you can use Creative VIT (virtual address) and have multiple inputs and outputs, without paying a fortune! But the PCI 1212IO is far more than just a standard - it can become the very heart of your studio. There are 4 stereo analog ins and outs, SPDIF in and out, and 8 more digital ins and outs in ADAT format. All these can be used independently giving you a total of 12 ins and outs! Word clock and ADAT 8 pin connectors are also provided. Call for more details or to arrange a demo - the card could change your recording life!

RRP
£599.99

MU10 OUT OF THIS WORLD MEGADEAL! GM SOUND MODULE

Turnkey's incredible buying team have done it again! Yamaha's MU10 was already great value for money, but this exclusive offer makes it unbeatable! The "XG" range of products (including the famous DB50XG) has long been highly regarded for its 676 excellent sounds, 3 built in effects processors and superb integration with computers.

The MU10 comes in a handy module format which means there's no need to open up your computer, no IRQ conflicts or DMA problems, you just connect it to the serial port of your Mac or PC (cable included). What's more its MIDI in and out ports means it also acts as a MIDI interface, and it can be used as a stand alone module without a computer! The 34 built-in effects can be used not only with the built in sounds, but also with any external signal (eg your voice, guitar etc) via the stereo audio input. The MU10 comes with the CD-ROM version of Steinberg's famous Cubase MIDI sequencing software, and this incredible offer includes a shareware version of Yamaha's XGEdit editor free for detailed editing of the onboard sounds. A complete starter kit for anyone looking to get into making music. This exclusive offer is only available whilst stocks last - get your order in now!

RRP £1499
£169.99
£115.99

CAKEWALK PRO OVER 60% OFF PRICE

Cakewalk has been the US #1 sequencer for ever. For a limited period, we are offering Cakewalk Pro v5.0, with 4 discrete audio tracks and 256 MIDI tracks for £79.00. That's less than the price of Cakewalk Home Studio! Upgrade option to Pro 6 (£49.99) or Pro & Audio (£109.99). (Comes on CD-ROM. Also includes 4.5 for Win95.)

Cakewalk Pro 5 + MIDIMan Dman £229.99
Cakewalk Pro 5, MIDIMan Dman + DB50 £335.99
Cakewalk Pro 5 + laptop MIDI Interface £149.99
Cakewalk Pro 5 + Pentium package £399.99
RRP £1499
£79.99

SIBELIUS-7 TOP-END NOTATION V3.5

Sibelius doesn't write on the PC or Mac? Sibelius for professional notation typesetters, nothing else comes close. It's a highly efficient image from anything else. Paul Patterson, Royal Academy of Music, Future Music Platinum award.

FROM ONLY
£499.99

PRICES GUARANTEED*



A DIGITAL HURRICANE IN YOUR PC?



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



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

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

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

CUBASE VST
£549.99
 PACKAGE WITH FIJI

WALK PRO AUDIO 5
£599.99
 PACKAGE WITH FIJI

LOGIC AUDIO
£649.99
 PACKAGE WITH FIJI

ADD £75 FOR BUDAPE (INSTEAD OF £10) + ADD £80.00 FOR S/PDIF DIGITAL I/O

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

FIJI
£299.99
A PINNACLE WITHOUT SYNTH & SAMPLESTORE ALSO INC. FREE DIGITAL ORCHESTRATOR SE

PINNACLE
£375.99
INC. FREE DIGITAL ORCHESTRATOR PLUS

ZIP REMOVABLE DRIVE
INC DISK & 25 PIN SCSI CABLE
OMEGA
 There was a time when hard disks were a luxury for scepter owners, but with the advent of the ultra cheap Omega Zip Drive, this has become a thing of the past. For under £130 the Zip drive offers 100mb (10MB formatted) on each cartridge. A must for anyone with more than 2 meg of RAM.

RRP £219
£149.99

SP202 SAMPLING UNIT
BOSS
 More functionality than the original Fairlight for under £300! The SP202 offers 16 bit sampling with sample rates up to 32 kHz, giving a maximum of 4'20" sampling time, or 37 using optional PCM24 memory cards. Features 80 timerstretch filter, delay and ring modulation mean this machine has to be taken seriously! and the built in automatic BPM calculator, together with tap tempo function is a godsend for live musicians. The built in mic and battery operation (optional PSU available) make a great for sampling on the move. Mail for DJ's or anyone needing samples on a budget, your studio will be very limited - get your order in early!

RRP
£299.99

PROTECH 12x CD-ROM DRIVE
NEW PRODUCT
 If you need access to large amounts of sample data, a quality unit there's no better way to do it than via CD-ROM. Hundreds of discs are now available full of everything from orchestral instruments to hip hop loops, all ready prepared to load into your sampler. In stereo (15.35 kHz) but in practice it will often fully utilize its work with another. For more than the average use and mixing with a bargain price. CD-ROMs drive that works with all current Ales, Ems and Roland machines, and which runs at 12x normal speed, also packs leading digital speed depends on SCSI type of sampler. Guaranteed to work (supplied with standard 30 pin SCSI cable, SCSI controller card, SCSI ID strip, SCSI software).

RRP £199.99
£169.99

SU10 SAMPLING UNIT
INC 2 FREE TIME & SPACE CDs
YAMAHA
 The SU10 is a combined sampling unit, making professional quality stereo sampling available to everyone. Up to 54 minutes of sampling is available and 48 samples can be held in memory to be sampled in real time. Samples can be filtered, resampled, edited, created, pitch shifted and even stretched using the ribbon controller. This unit is a genuine million uses you can produce your own music using just this unit! (The SU10 comes bundled with 2 free Time & Space CDs containing 480 samples).

RRP £299
£249.99

ALSO AVAILABLE WITH 3 OCTAVE MIDI KEYBOARD only £319.99

COMPUTER NEW, USED & EX DEMO

1.3GHz IDE DRIVE	£48.99	APPLE 7500/200 PPC	£399.99
20GB DAT DRIVE	£399.99	APPLE 68020/200 PPC	£1749.99
8 SPEED CD ROM	£29.99	DIVIDISION AUDIOMEDIA 2	£299.99
10GB EXTERNAL DRIVE	£499.99	DIVIDISION DMP1	£299.99
APPLE E30	£229.99	EMAGIC DISCOVERY AUDIO PC	£499.99
APPLE 6400/200 PPC	£799.99		

SAMPLING NEW, USED & EX DEMO

AKAI MPC2000	£269.99	EMU 64/VOICE EXPANSION	£349.99
AKAI REMIX 16	£369.99	ROLAND DJ70MK2	£749.99
EMU EXP/OUT EXPANSION	£229.99	EMU E64	£1,449.99

A3000 SAMPLER
YAMAHA
 Arriving any time now, Yamaha's A3000 is their first entry into the sampling market for almost ten years, but this break has allowed them to take a good look at our market and come up with a highly competitive product. 64 note polyphony, four outputs (expandable to twelve plus dig in), WAV file compatibility and memory expansion up to 128 meg. And that's not all - the A3000 must be taken seriously at this price. Call for full details on a disc.

RRP £1299
£999.99

K2000/K2500 SYNTH/SAMPLE WORKSTATIONS

In many people's eyes, Kurzweil's K2000 and K2500 represent the pinnacle of sampling/synthesis technology. Both machines feature VAST synthesis and play back samples as standard, with optional boards allowing sampling in both digital and analogue domains. The K2000 has true 24 note polyphony (96 oscillators), whilst the K2500 has a whopping 48 notes (192 oscillators). The superb presets are expandable using up to 3 expansion boards, sample and preset RAM are also fully expandable, whilst a comprehensive sequencer and built in FX make these true workstations. Multiple outputs, a range of keyboard and rack versions - far too many features to mention here. Call the experts at Turnkey for more information, we have the full range on demo and in stock, including all accessories and library.

FROM
£1399.99

CD3000XL SAMPLER WITH CD-ROM DRIVE

This incredible deal on the CD3000XL makes it by far the best value for money in the AKAI range - just look at the spec sheet: 10 outputs, S/PDIF dig i/o, built in CD ROM drive also allows digital sampling from audio CDs. 2 track hard disk recorder built in (requires drive) can be triggered by MIDI, classic AKAI user interface, takes all the same boards as the S3000XL, bundled with MESA editing software. Turnkey's amazing offer also includes 32 meg of RAM and 4 CD ROMs (including 3 Zero G titles) absolutely free! Limited stocks only - grab yours whilst stocks last!

RRP £1999
£1299.99

S3000XL WORKHORSE SAMPLER

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

RRP £1799
£1499.99

S2000 SAMPLER

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

RRP £999
£799.99

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

IB208P	8 outputs & dig i/o for S2000	£249
IB204F	2nd filter board for S2000/S3000XL	£299
EB18	multi FX board for S2000/S3000XL	£299
EKM3008	8 meg expansion for S2800/S3000/S3200/CD3000	£399
EKM1008	8 meg expansion for S1000/1100	£399
IBM208P	8 outputs & dig i/o for MPC2800	£249
IB607P	monitor output board for DR/DR16	£499
IB80AEX 8	in 16 out ADAT interface for DR16	£399
IB803M	MIDI interface for DR/DR16/DD8	£199
IB802T	SMPTE board for DR/DR16/DD8	£249

S20 SAMPLER All new sampler from the makers of the industry standard, the S20 brings quality sampling to a new affordable level. 16 bit sampling gives great quality, and the standard 1 meg memory is expandable to 17 meg, giving up to 18 minutes sampling time depending on the sample rate used. Built in sequencer means you can build up grooves without the use of a computer, and the special auto loop tempo mode makes BPM calculation a doddle. The 1.44 meg disk drive reads floppy from virtually all Akai samplers giving you instant access to a huge library of sounds.

RRP £499
£399.99

MPC 2000 SAMPLING DRUM MACHINE
 Ever since the launch of the Roger Inn MPC-60, Akai has led the way in sampling drum machines. It's latest evolution the MPC2000 is a less more than a general drum machine however - the 64 track sequencer is the epitome of what most people consider to be the only real alternative to computer based systems (32 MIDI channels are available), the sampling window is virtually identical to the best selling S2000 (SCSI is standard), and the outputs can be expanded from 2 to 10 and digital for only £249! There are far too many other features to mention here - see demo now at Turnkey.

RRP £1189
£1149.99

INC FREE 8 MB RAM

E6400 SAMPLER
INC FREE CD-ROM DRIVE 5 CD-ROMS & 16 MEG!
EMU
 Building on the success of the E64 comes the E6400 from EMU. It's not just coming with 4 meg of RAM as standard, and all the features of version 2 software, expandability is unparalleled with options including an extra 8 outputs, 32 MIDI channels, 18 bit dual stereo FX processors, and up to 128 note polyphony!

RRP £2499
£1799.99

Huge EMU CD ROM library available at Turnkey

ESI4000 NEW SAMPLER
TURKEY MEGADEAL INC. 32 MEG, CD-ROM DRIVE, 5 CDs & ZIP DRIVE!
ESI
 The ESI4000 has all the features of the ESI32 yet have come to know and love, but now has 64 note polyphony, memory capacity of up to 128 meg, and an operating system upgrade giving you E4 style multi mode filters. All EMU samplers come with free access to our enormous sample library (we have all the ESI library on CD-ROM) and of course, excellent technical support. Stocks are very limited on this superb mega deal - call to reserve yours now!

RRP £1693
£1299.99

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

EUROPE'S LOWEST



THE COST OF RECORDING - KEEPS ON FALLING!

Twenty-four track digital recording for under a grand?! No, you're not dreaming, Mark Of The Unicorn's new 2408 has twenty-four ins and outs in both ADAT and TDIF format, as well as eight analogue ins and outs all in a 1U rack!

MOTU 2408 HARD DISK RECORDING SYSTEM



The system doesn't stop there though, there are also two channels of SPDIF i/o which allow digital dubbing between an SPDIF source and either ADAT or Tascam machines, and you can also dub directly between ADATs and Tascams. Synchronisation is amply catered for with an ADAT sync in, word clock in and out, and a MOTU Control track input for sample accurate Digital Timepiece sync.

The PCI-324 card is included for use in either Macintosh or Windows computers, and it will allow you to connect up to three 2408s for seventy-two ins and outs, and as many channels as your computer allows! The 2408 is also shipped with fully featured workstation software for Mac, with recording, editing, mixing and real-time effects processing, whilst a standard Windows driver is included for PC compatibility.

All in all, a ground breaking product in terms of price / performance, features and compactness - call today to arrange a demonstration.



- Twenty-Four Inputs and Outputs on One Interface
- Connect up to Three Interfaces to One Card
- ADAT, TDIF and Analogue Connections all Catered for
- Multi Platform Compatible with Drivers Included

NEW PRODUCT
£995⁹⁹

VIRUS ACCESS

VIRTUAL ANALOGUE SYNTH
Control specialists Access have used all their considerable expertise in the design of their new 'virtual analogue' synth, the Virus.

All major parameters have their own dedicated knob or switch, and an 'expert' mode allows super detailed editing via the LCD display and parameter controls. Of course, all edits send out controllers in realtime. Synthesis facilities are unparalleled - 64 oscillator waveforms (2 per voice), 3 LFO's, 2 multi-mode filters per voice, oscillator sync, filter overdrive, built in FX - you name it, it's got it!



12 note polyphony, 16 part multitimbrality, 6 outputs and 2 filter inputs mean you're not just limited to one sound at a time. We're so confident that you'll love this synth that we're offering a seven day money back guarantee (ask for conditions).

The most flexible and best sounding virtual analog on the market.
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SYNTH MODULES EMU



Emu have taken their wealth of experience in making modules such as the Proteus, Vintage Keys and Morphing, combined it with the filters from the incredible Emulator 4 and with their usual innovations, come up with the Orbit, Planet Phatt and Carnaval.
The Orbit is a standard full of classic drum sounds, pulsating basses, ambient pads, as well as a huge variety of hits and effects. Planet Phatt brings a new definition to swing and the Carnaval is ideal for dance grooves as well as Latin specialists.
The inclusion of the E4's 16 different types of 6 pole filters mean that these modules have more precise filtering than any other synth. Finally the BEATS MODE includes a wide selection of loops and grooves, which can have their pitch changed without tempo change and vice versa, and even their sounds, too!
V2 software now gives improved beats mode and other enhancements.
Orbit upgrade available for only £69.99.

RRP £869
£799⁹⁹

DEEP BASS 9 TB303 CLONE

A great sounding TB303 clone. 16 note with 1 level per function, all the sound controls of the 303 are duplicated, their count accent and glide all controllable over MIDI. Audio input allows summation of external signals by the filter and CV gates in / out also means it can be used as a MIDI - CV converter. An excellent analog bass machine - this unbelievable price on the end of the line means they will sell out very quickly!

RRP £449
£199⁹⁹

QUASIMIDI

RAVE-O-LUTION 309 DANCE WORKSTATION



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Call for more details.



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ATC-1 ANALOGUE MONOSYNTH

Studio Electronics started out life as a company that serviced and modified old Moogs, moved on to producing remanufactured Mini Moogs in 19" rack form, and then developed the SE1 - a modern Mini Moog whose components were painstakingly researched to provide an instrument that was according to the reviewers indistinguishable from the real thing.
Most recently has come the ATC-1 Tone Chameleon - hand crafted in the USA in the same way as their previous products, but with reduced cost due to less knobs but a vastly increased sound palette thanks to the ingenious use of filter cartridges to emulate the best sounding instruments of yesteryear. Editing is a breeze thanks to an individual button for each function, and a large central parameter dial.



Circuitry is analog throughout - right down to the oscillators, and the sound is needless to say, superb. There are 2 LFO's (one syncs to MIDI), three envelopes, and virtually all parameters can be controlled over MIDI. The ATC-1 is supplied with the Mini Moog filter and can also be fitted your choice of a TB303 ARP 3600 or Oberheim Xpander filter (only £49 each), and for the filter headless emerges you the filter Selector (only £199) gives all 4 filters simultaneously, and the filter type is automatically stored with each patch, avoiding the need for switching. The rear panel sports an audio input, and CV & gate ins and outs as well as the usual MIDI connections.
Incredible reduction on another Turkey exclusive - quality doesn't have to break the bank!

RRP £899
£469⁹⁹

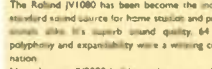
JV1080 SYNTH MODULE



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

RRP £1399
EPOA

JV2080 SYNTH MODULE



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

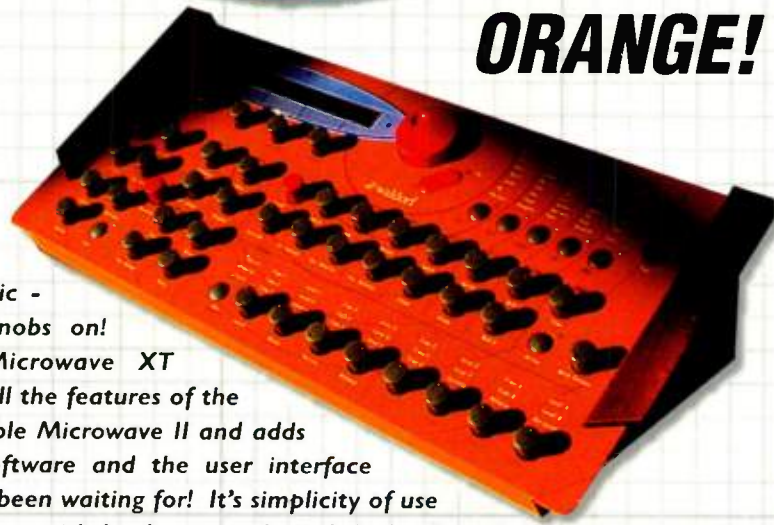
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WALDORF MICROWAVE XT



THE FUTURE'S ORANGE!



A classic - with knobs on! The Microwave XT takes all the features of the incredible Microwave II and adds new software and the user interface you've been waiting for! It's simplicity of use is obvious with knobs everywhere (which all send MIDI controllers) and a 2x40 character back lit LC, whilst at the rear, the Microwave XT has 2 fully modulatable stereo outputs which are configurable as 4 monos with panning.

Sound generation comes from a powerful DSP generating unique wavetables, and the ten voices each feature two oscillators, two wave generators, one mixer, two filters in series, one stereo amplifier, four envelopes, two LFOs, and one modulation matrix with 16 slots and several 'modifiers'! More than enough to keep even the most demanding knob twiddler satisfied! The awesome sound has been further enhanced by a superb new sound set, with many patches being a performance in their own right. And what a paint job!

All this adds up to make the Microwave XT a highly desirable instrument - call us now to make your mix (and your rack) stand out from the crowd.

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- All Knobs Send out MIDI Controllers
- Arpeggiator per Sound Syncable to MIDI
- 8 Part Multitimbral & 10 Note Polyphonic

RRP
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M-BD1 SOUND MODULE

UNDER HALF PRICE!



Over 50% off on this top quality bass & drum module. Packed full of superb acoustic and electronic sounds of typical Roland quality, the M-BD1 is 28 note polyphonic and 8 part multitimbral, and has 2 built in FX processors. Makes an ideal addition to any MIDI setup, providing the bread and butter sounds for a wide variety of tracks.

Very limited quantities - order now to avoid disappointment.

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£169.99

M-GS64 SOUND MODULE

ALMOST 60% OFF!



654 top quality Roland sounds (and 24 drum kits) for under £250? That's right! And what's more you get 64 note polyphony, 32 part multitimbrality and 4 outputs thrown in! The MGS64 features a complete range of eminently useable sounds, from pianos to pads, synths to snare drums and basses to brass. If you need a sound in a hurry, the chances are you'll find it here, and the MGS64 is fully GM and GS compatible for all you MIDI file buffs out there. Only a few on this incredible end of line clearance deal. Don't wait too long!

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£249.99

RHYTHMTRAK 234 DRUM MACHINE

While drum machines have remained little changed in recent years, the 234 certainly brings some fresh thinking to it, together with a brand price! As well as 31 the iconic drum set percussion sounds, it also includes a list of the 234 also incorporates some of the best effects treatments we've ever heard, together with a huge range of Linn and other electronic sounds, and 30 bass programmes. Programmers such as beat, pitch and filter sweeping can be edited in real time, while pads can be set to trigger whole programs for the ultimate in musical creativity.

NEW PRODUCT
£199.99

TR-RACK SYNTHESIZER RACK

NEW KORG

Love the sounds of the Korg Trinity range but don't have room for another keyboard? Here's the answer you've been waiting for! Huge screens for easy editing, four outputs, 32 polyphony, and the huge fat sounds that Korg are famous for - from long evolving pads to exciting effects. Initial stocks are very limited - order now to avoid disappointment.

RRP £999
£949.99

MC-505 GROOVEBOX DANCE WORKSTATION

NEW Roland

Take an MC303 Groovebox add an extra effect processor, a D beam infrared controller, a RAM card slot, genuine vinyl appearance and what for? The MC505! Well not quite in fact... The MC505 also has up to 4 times per voice, more user patches and patterns (256 and 200), and up to 64 note polyphony. 8 front panel sliders make mixing a breeze. Initial stocks are very limited - call us now!

NEW PRODUCT
£949.99

MC 303 ALSO AVAILABLE only £399.99

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- Fraction of the Price of an Original
- External Input to the Filter
- Exclusively Available at Turnkey

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DM5 DRUM MODULE

OVER 60% OFF PRICE



The DM5 offers superb performance features and an excellent selection of drum, percussion & FX samples putting over 540 all-new studio drum sounds into a 1u rack space, many recorded in true stereo and with ambient effects. It's Expanded Dynamic Articulation feature allows sounds to change volume, tone, and pitch according to MIDI velocity. The Random Sample feature realistically varies the sound of the drum as you play. The DM5 includes an ultra-fast trigger-to-MIDI converter with 12 trigger inputs, 4 audio outputs and a backlit LCD display. The drum sound for you is waiting right here!

RRP £429
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Another Turnkey megadeal!

P50-m PIANO MODULE

ALMOST 60% OFF!



At this price, can your setup afford to be without a piano module - no more need to load up lengthy samples or draw up valuable polyphony! The P50-m takes the dazzling sounds from Yamaha's flagship stage piano, the £5000 P500 including grand and upright piano, Clavinova, VerveLine, Clavinova and DX electric sounds. Many instruments are simulated in stereo, but sampling edition, stretch control, vibrato and more are 32 different effect types (2 simultaneously) in stereo from as well as a 3 band equalizer. 32 note polyphony means you should never run out of notes, but for those with a heavy right foot, two include an auto sustain mode for a whopping 64 notes, and there's an auto sustain release response curves to choose from to suit any playing style.

RRP £389
£169.99

A bargain at the full price, this amazing deal means that stocks will not last long - call for yours now!

RY8 RHYTHM MACHINE

The RY8 has to be the most versatile rhythm machine on the market. At well as 128 of Yamaha's finest drum and percussion samples, 12 drum pads, 200 preset patterns, 50 user patterns and 12 customizable drum fills, the RY8 also has a selection of 10 interesting sounds including bass and strings, guitars, horns and many more. There are 20 additional, 200 accompaniment patterns, playing 1 bass, 2 rhythm and 1 lead part, chord changes are user definable and there are 4 options to each pattern. But there's more! Plug in a game or a mini computer and the built in patch to MIDI interface allows you to play any of the instrument sounds directly without a MIDI keyboard or special interface. MIDI in and out (syncs to MIDI clocks), built-in tuner, battery or mains power, it's absolute bargain!

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Novation Supernova

Polyphonic Synthesizer Module

SIMON TRASK previews the Supernova, Novation's most ambitious synthesizer module to date.

From humble beginnings in the early '90s with the MM10 keyboard add-on for Yamaha's QY10 Walkstation sequencer, UK company Novation have steadily built a strong reputation for themselves as developers of affordable latter-day analogue monosynths, based on the success of the BassStation, one of the earliest recreations of TB303-style analogue bass synthesis. However, the company's latest synth module, the Supernova, is set to take them into an altogether more ambitious league, in which they will join the growing ranks of digital synths that model traditional waveform-based subtractive analogue synthesis in software.

NEW MODEL SYNTH

A 3U rackmount unit with the sort of controller-rich front panel we've come to expect from Novation, the Supernova is an all-digital instrument which uses a more developed version of Novation's proprietary Analogue Sound Modelling technology, as

pass, band-pass or high-pass filtering, with 12dB, 18dB and 24dB/octave roll-off options, plus an overdrive function. The filtered output is then passed through a familiar ADSR volume envelope and on to a multi-effects section which lets you use up to seven effects — distortion, reverb, chorus/flanger/phaser, delay, pan/tremolo, EQ and comb filter — in a variety of configurations. Two freely assignable ADSR envelopes and LFOs are also available as general-purpose modulators. The oscillator section has a 5x5 modulation matrix for each oscillator, while in the filter section you can independently modulate filter cutoff point and resonance amount from any of five mod sources — the two envelopes and two LFOs just mentioned, plus mod wheel. Effects, too, can be dynamically modulated.

The oscillator, filter and effects sections each have a button labelled 'Special', which is reserved for accessing further features to be added via operating system updates. Owners will be able to download these from Novation's web site and then upload them into the Supernova's flash ROM via MIDI from a sequencer or other MIDI utility.

Novation's new module also features a programmable arpeggiator, syncable to internal or MIDI clock, with not only

512), and it's here that things start to get really interesting, creatively speaking. As you might expect, Performance mode lets you play up to eight Programs independently or in keyboard split/layer textures via MIDI. However, more unusually, you can also have up to eight arpeggios running at once, which turns the Supernova into an exciting compositional tool. And as if that wasn't enough, each of the eight Parts in Performance mode has the same effects-processing capability that's available to an individual Program in Program mode. That's right — you don't sacrifice anything in Performance mode (well, OK, you don't get eight times the polyphony). Eight audio outputs, in addition to the usual stereo pair, provide scope for separate routing of effected Parts to a mixer.

Arpeggio note data can be transmitted live via MIDI, as can all front-panel sound edits, so you can record live arpeggiator-based performances into an external sequencer. The pre-production model I spent a couple of hours with, in the company of Novation's Phill Macdonald, didn't allow arpeggiated parts to be dropped in and out live from the front-panel Part buttons — a feature I'm hoping will be added for the production version.

WATCH THIS SPACE...

My initial impressions of the Supernova are that it has a natural, realistic and satisfying analogue sound, enough programming functionality to provide a rewarding combination of sonic versatility and depth, and a user interface that will prove accessible enough to make programming an enjoyable experience. Also appealing are the module's rich multi-effects functionality and the live compositional possibilities of its multiple arpeggios. I can't wait for the full review...

SOS



first employed on their 808/909-emulating drum module, the DrumStation. The Supernova is also Novation's first polysynth, coming in a choice of 16- and 32-voice models, with an optional 16-voice expansion board allowing the polyphony of the cheaper model to be upgraded.

For each voice of polyphony the Supernova has three fully independent oscillators (each with its own virtual sync oscillator), two ring modulators, and a noise generator. In this section the module also provides three special mod effects — Sync Skew, Formant Width, and Soften — for altering the oscillator timbres.

Oscillator outputs are routed through a mixer section into a multi-mode resonant filter section which offers a choice of low-

standard up, down, up/down and random patterns, but also 128 preset and 64 programmable monophonic patterns and the same number of polyphonic patterns. LFO rates and delay effect rate can be synced to the arpeggiator.

Values for all the parameters mentioned above can be stored for each Program memory. The 32-voice Supernova has 1024 Programs, while the 16-voice model has 512, expandable to 1024 with the 16-voice expansion board fitted.

STAR PERFORMANCE

Novation's new module also has an 8-part multitimbral Performance mode (the 32-voice model has 512 Performance memories and the 16-voice model has 256, expandable to

E 16-voice model £1299;
32-voice model £1699;
16-voice expansion board
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Dynaudio BM15A

Powered Monitors

PAUL WHITE listens to Dynaudio's latest powered nearfield monitors and counts the days until he has to give them back.

I must confess that I've always liked Dynaudio monitors, so when the BM15As came along, I was more than keen to try them out. Technically, the active 2-way Dynaudio BM15As are nearfield monitors, but they're a little larger than most nearfields and are more likely to sell in quantity to project studio owners who want a compact and accurate full-range system.

CONSTRUCTION

The cabinets, which are supplied as a left/right mirror-image pair, measure 455 x 290 x 387mm, and appear to be fabricated from ready-laminated board that's notched and then folded to produce the cabinet top, bottom and sides with no visible breaks in the vinyl laminate. The MDF baffle has rounded

edges and is fixed to the main body of the cabinet by 10 cap-head bolts. Each cabinet weighs around 19kg.

A 28mm Esotech soft-dome tweeter comes in at a crossover frequency of 1.7kHz and takes the response right up to 21kHz, while the 240mm bass/mid driver takes the low-end response right down to 40Hz (-3dB point). A fairly sharp 5th-order crossover slope is used to minimise the overlaps between the two drivers at the crossover point, and the tweeter dome is afforded some mechanical protection by means of a three-bar metal cage. This may be removed if required.

The bass/mid driver is typically Dynaudio: it utilises a synthetic cone suspended in a soft roll surround, with a large vented dust-cap covering the 100mm voice coil. The voice coil and magnet are the same as used on Dynaudio's 12-inch driver. Both drivers are recessed into the front baffle, as is the moulded plastic cabinet port. A green LED shows when the monitor is working normally and a red LED warns of clipping on the LF driver feed. Both drivers have their own discrete MOSFET amplifiers — 100 Watts for the tweeter and 200 Watts for the bass/mid unit. A slow-attack

pros & cons

DYNAUDIO BM15A £1939

pros

- Excellent overall sound quality with a wide frequency range and pinpoint imaging.
- Plenty of level for those who like to mix loud.

cons

- Um, I'm working on it...

summary

These are extremely nice powered monitors that provide full-range monitoring in a relatively compact format. The overall sound quality would be hard to beat at any price.

SOUND ON SOUND

optical limiter is used to protect the tweeter against overload damage.

There are knobs on the back of the speakers to tweak the LF and HF levels, for optimising the monitors to their surroundings. These provide a more than adequate +/-3dB range, though it looks as though the previous

"The BM15As have to be amongst the nicest speakers I've used at any price."

user or reviewer of this particular pair had experimented with them set close to their extremes! There's also a -10/+4 sensitivity switch. All that remains is the power switch and the mains lead inlet, though I will just mention that although the amplifier heatsinks cover a large area of the cabinet back, they are fairly shallow and don't restrict your monitor positioning options.

LISTENING TEST

Ultimately what matters is what you actually get out of these black boxes, and on paper you can achieve a maximum of 120dB at a distance of 1 metre from a single unit. However, quantity says nothing about quality, which I'm pleased to confirm is well up to



what I've come to expect from Dynaudio. Unlike most so-called nearfield models, the BM15As have a smoothly extended bass response that reveals what is really going on in that elusive bottom octave, though if you need to go even lower the Dynaudio ABES (Active Bass Extension System) can be used with the BM15As to achieve a low-end response of 3dB down at 35Hz.

The stereo imaging on these speakers is amongst the best I have heard. Indeed, at one point I thought I'd identified a new percussion element in one of my test records, but it turned out to be my pet rat Dylan chewing an empty toilet-roll tube directly behind my chair! There's no weakness or discontinuity at the crossover point, and while the speakers have a very slightly forward characteristic, it doesn't get in the way of accurate monitoring and in some ways makes it easier to hear detail. Vocals remain smooth, even at fairly high listening levels, and the response to transient bass sounds is very tight and well controlled.

Importantly, the sound, and even the

stereo imaging, remains sensibly consistent if you move off axis, and despite their open, detailed sound you can listen to the BM15As for long periods with no sense of fatigue. Of course, with a maximum SPL of around 120dB, there's more than enough level to make your head ring, but I prefer to monitor at sensible levels and consider the extra power as headroom! Absolutely everything in my test collection passed with flying colours, and even material that brings out the edginess in lesser monitors sounded smooth and pristine through the BM15As. Of course, if you do have a nasty mix playing, the BM15As will let you know in no uncertain terms, but that's what a good monitor is all about. What's important is that the speakers seem to have no vices of sufficient magnitude to mask the shortcomings in a recording.

SUMMARY

As you can tell, I like the BM15As very much indeed. As medium-sized monitors for the smaller studio after serious results, they are pretty close to perfect, and yet they're by no means the most expensive small powered

monitors around. The frequency range is ideal for full-range monitoring in smaller studios with little or no special acoustic treatment, and the sense of detail and imaging is superb. Though they are possibly on the bright side of neutral, this is only by a tiny amount, and, as I said earlier, if this helps you pinpoint detail it's not such a bad thing. The BM15As have to be amongst the nicest speakers I've used at any price, and they make a very worthy addition to an already fine range of monitor loudspeakers. In fact I can't find anything not to like about them, which is going to make the pros and cons list tough to finish!

SOS

£ £1938.75 per pair including VAT.
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Valve Signal Processor

PAUL WHITE finds that though the new Charisma has only two channels instead of eight, it's lost none of its original charm.

SPL's original Charisma (reviewed in *SOS* November 1996) was an 8-channel device designed for use with 8-track recorders, and its aim was to add valve coloration and saturation effects in a very controllable way. Now the company has released a 2-channel version, so that people who don't need to process all their tracks at once can use the Charisma process on either individual mono tracks, a stereo subgroup, or a whole stereo mix.

The Charisma's two channels have identical sets of controls. Its internal circuitry features a pair of dual-triode ECC83 valves running at 230V (though the input and output circuitry is solid state and uses SSM 2141 and 2142 balancing drivers, which permit unbalanced use without level loss). Elaborate power-supply design is used to keep hum and noise from the valve stages to an absolute minimum, and a rear-panel ground-lift switch is fitted to isolate the circuit ground from the chassis ground. Both balanced jack and XLR inputs and outputs are fitted on the rear panel, and power comes in via the usual EC socket and lead.

WHAT DOES IT DO?

Developed by SPL's own designers, in conjunction with Manfred Reckmeyer, the creator of the original Charisma, this unit is designed to generate the beneficial side-effects associated with the best vintage valve equipment, notably that elusive quality of warmth and dynamic compression. The effect can sound like tape saturation (unsurprisingly, since the non-linearities of valves and analogue tape under high-level conditions are

quite similar).

The valve's behaviour is governed by the Drive and Charisma controls: the Drive control adjusts the level of the signal fed into the valve stage by up to +24dB, and the Charisma control varies the valve's saturation characteristics. A Gain control adjusts the output level of the processed signal, and each channel has its own bypass button — a sort of Charisma bypass (I used to work with somebody fitting that description!). As Drive is increased, the valve starts to operate in its non-linear region, but because valves saturate softly, rather than clipping in the way that most transistor circuits do, the effect is to add subjectively musical harmonics, while at the same time restricting the dynamic range by compressing individual waveform peaks.

With most valve devices, drive level is the only factor the user can vary, but SPL have added the Charisma control so that you can alter the way the valve sounds when it saturates. Varying the Charisma setting changes the saturation effect from hard to soft, and from what I can tell this determines how quickly the valve becomes non-linear once a certain signal level has been reached. Though the effect is different to compression, there is an analogy to be drawn between the soft Charisma setting and soft-knee compression, where the effect increases progressively with level. The Hard

“SPL have added the Charisma control so that you can alter the way the valve sounds when it saturates.”



pros & cons

SPL 2-CHANNEL CHARISMA £469

pros

- Very easy to set up.
- Very controllable.
- Authentic valve saturation sound.
- High standard of mechanical design and construction.

cons

- The Process LED gives only an approximate indication of how the unit will sound, so you really have to count on your ears when making adjustments.

summary

A very controllable way to add either subtle valve coloration or more obvious valve distortion to any audio signal.

SOUND ON SOUND

setting, on the other hand, features a rapid transition from clean to coloured when the signal exceeds a specific level. The manual describes the Soft side of the control as providing warm, smooth sounds, while the Hard side creates punchy, crisp sounds.

The 2-channel Charisma has no on-board metering but does feature two LEDs designated Max and Process. The Process LED lights when the signal level is high enough to cause the tubes to start behaving in a non-linear fashion, and the Max LED warns that any further level will cause clipping. However, the manual wisely points out that the Process LED can only be a guide, because some signals, such as drums, can stand very heavy processing before much change is evident, whereas some types of musical signal can sound over-processed at such low levels that the Process LED may not even have come on.

IN USE

When I first switched on the Charisma, only one channel was working, so I removed the cover and found that one of the ECC83s had worked loose in its socket. I guess the unit must have received quite a jolt in transit, as the

Charisma

valves are securely seated in good quality sockets, but this did make me think that perhaps sockets fitted with spring retaining clips might be a good idea. Once the valve was pushed back home, the unit worked perfectly.

I tried the Charisma with single voices, solo instruments and full mixes, and found that it delivered those characteristics normally associated with 'the valve sound' very authentically and controllably. It also confirmed what the manual warns of: namely, valve distortion doesn't suit every sound source. Some musical sounds suffer from rather unpleasant intermodulation distortion when valves are deliberately pushed into saturation, and in such cases you might find that running the valves below the level at which the process LED comes on gives a subtle but tangible effect that does remain musical. The Charisma's effect on vocals also tends to vary from singer to singer, but I prefer to err on the side of minimum saturation to keep the sound natural and clear. A soft setting of the Charisma control, with the Process LED

coming on only occasionally, seems a good bet. Heavier processing can be used to beef up synth or percussive sounds, especially those with spiky waveforms, and because of the way in which tubes saturate you can gain a significant increase in perceived level without increasing the actual peak level at all. This can be useful when recording to a digital medium, as it helps protect against peaks.

The more assertive Hard setting of the Charisma control seems best suited to percussive sounds, where a little crunch is perceived as better attack and more power rather than as obvious distortion, though it's also possible to use this setting as a type of limiter, just to catch peaks. There's also enough Drive available to move out of coloration and into obvious distortion, and this setting may be useful to treat sampled organ patches or to further process electric guitar tracks. The real trick is to listen, and not be tempted to overdo the processing — quite often, if you can hear a definite effect you've gone too far. Original valve mics were

designed to be as clean as possible, not to deliberately distort the sound, so with most vintage gear you don't get significant amounts of distortion until signal levels are very high.

SUMMARY

There are numerous boxes on the market that claim to let you add the valve sound to your music as if it were some kind of sonic stock cube that you could sprinkle on, and some do the job more successfully than others. As usual, SPL have taken a somewhat different approach to their competitors, by making the valve overdrive characteristics user adjustable, so that it's possible to get any amount of coloration at any signal level, and to choose between a soft, progressive coloration and fairly tough saturation. If you're into the sound of valves working hard, this is certainly the most controllable and flexible box I've yet tried for achieving that sound.

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Fostex DP8

Digital Switcher

PAUL WHITE tries a simple but useful digital switching system that can be used with S/PDIF or ADAT-format signals.

As more items of studio equipment become digital, the problem of patching them together grows increasingly complicated, because, as with analogue gear, you occasionally need to change your setup to perform specific tasks. In the analogue domain the job is generally done with mechanical patchbays, but there's no direct

optical, and vice versa. If you feed in an ADAT signal, you'll get an ADAT signal out, and if you feed in S/PDIF from a DAT machine or similar source, then S/PDIF is what you'll get out. You can't merge data streams (that would require a digital mixer), though it is quite possible to split one input to feed several destinations.

THE HARDWARE

The DP8 is presented as a shallow 1U rackmount device (wall-wart powered, of course), with two phono ins and outs (channels 1 and 2) and six optical ins and outs (channels 3 to 8). Inputs 7 and 8 are located on the front panel for convenient access when patching in

digital equivalent. There are some programmable digital patchbays around, but these can be expensive and difficult to operate, especially when you only want to make a simple patching change. Life is also complicated further by the fact that there are several types of digital connection format, predominantly ADAT optical, AES/EBU XLR and S/PDIF on both phono and optical ports.

Fostex have come up with one solution to the problem, in the shape of the DP8, a non-programmable 8-in, 8-out digital routing box where the routing is controlled entirely by rotary switches. Both phono and optical inputs and outputs are provided, but there's no XLR option.

The secret of the DP8 is simplicity — there's no data conversion or other clever processing inside. The most complicated thing that happens is that phono ins are converted to

visiting gear, whereas all the others are on the back panel for permanent connection. The brief manual states that dust caps are fitted to all optical ins and outs, and that these should be replaced when the optical ports are not in use, but the review sample came without dust caps.

The only user controls are eight rotary switches, each of which relates to one of the eight outputs. Turning a switch selects which of the eight inputs is routed to that output; there's no 'off' position, so one of the eight inputs is always selected. There are no restrictions on which signals are routed to which outputs, but clearly there's no sense in routing an ADAT optical input to a phono output, as the data stream will still be in ADAT format and thus will be unreadable by an S/PDIF phono input. However, optical S/PDIF can be sent to a co-axial phono S/PDIF output with no problem.

The simplest way to connect equipment to the DP8 is probably to use I/O 1 for one

pros & cons

FOSTEX DP8 £199

pros

- Inexpensive.
- Very simple to use.

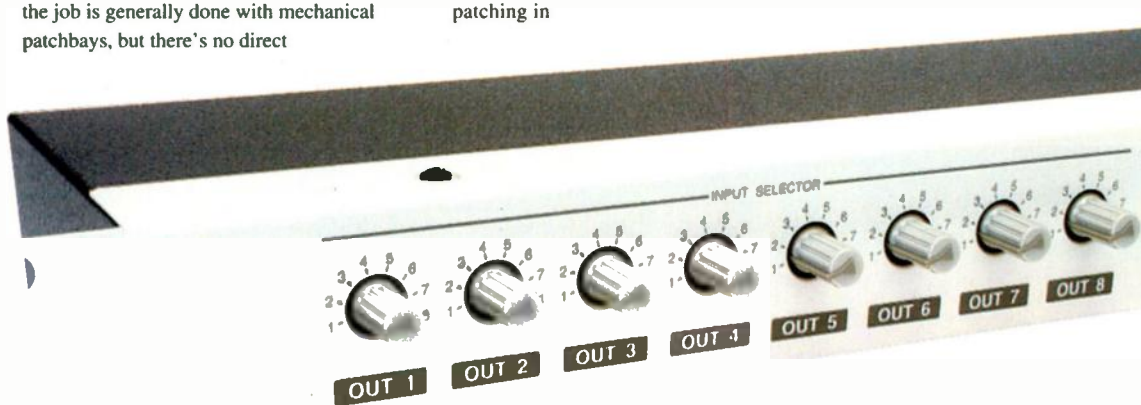
cons

- Insufficient co-axial channels for studio applications where the requirement is mainly to switch S/PDIF phono connections.
- No 'off' position on the switches.

summary

The DP8 is a simple and affordable solution to a number of digital patching problems.

SOUND ON SOUND



machine, I/O 2 for another machine and so on, though you don't have to work in this way if you don't want to. There's room above the selector knobs to fix a strip of tape carrying the names of the connected devices, but there's no official scribble strip. Furthermore, because the DP8 doesn't have a programming system it might be useful to write down the knob settings for your most common patches, so that you don't have to figure out everything from first principles every time.

IS IT USEFUL?

The DP8 is such a simple device that I hardly need to talk about how it performs in use (suffice it to say that signals go where they're supposed to go), but I think a few suggestions on where it might come in handy are in order. In a studio where there are, for example, two DAT machines and a computer with a digital interface, the DP8 could swap between a configuration where one DAT machine is connected ready for cloning tapes onto the other machine, and a completely different setup where one DAT machine might be used

as the A-D converter feeding the digital card and the other monitoring the card's output. Similar situations could occur with ADATs, digital mixers and ADAT-compatible soundcards, where sometimes your ADATs will need to be connected to each other for track copying and cloning, while at other times you'll want to connect your ADATs to your soundcard or mixer. I know, in my own digital editing setup, that there are times when I'd like to be able to change my digital connections more easily, and with a device such as the DP8 I could feed the output from my editing system into both DAT machines at the same time, to simplify patching when making two simultaneous DAT copies from disk.

To me, the greatest limitation of this device is the fact that the I/O ports are mainly optical, while most studio DAT machines have co-axial phono S/PDIF connectors. Of course, if you're using mainly ADATs this is an advantage. If all the outputs had been available on both optical and phono simultaneously (as was the case for the programmable Midiman Digipatch unit we looked at in the December 1997 issue of SOS), the connectivity options would have been rather more



“The secret of the DP8 is simplicity — there's no data conversion or other clever processing inside.”

flexible. Incidentally, the manual warns against using two or more DP8s in cascade, because of the risk of introducing clock jitter. Other than that, the unit is simple in concept and does just what it says on the tin!

SUMMARY

This box is ideal for anyone who has a fairly simple digital setup and who needs to switch between relatively few configurations. The ratio of optical to co-axial connectors makes the DP8 most useful for those who have equipment with mainly optical interfaces, and because the optical connectors can also handle ADAT information, there are numerous applications in ADAT-based studios (or systems using the ADAT protocol).

This isn't a unit that needs the hard sell — you either have an application for it or you don't, and if you do you'll be choosing between the DP8 and something programmable and more flexible, that's probably a lot more expensive.

SOS

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Joe Meek VC5 Meequaliser

3-band EQ

While this outboard EQ provides little more than a decent desk EQ in the way of facilities, it does have that distinctive vintage Joemeek sound at a price that won't break the bank. PAUL WHITE meeks out.

The Joemeek Meequaliser appears to offer no more than you'd be likely to find on the EQ section of a typical budget desk — high and low shelving controls, plus a single sweep mid. However, no matter how similar the control layout, or even the paper specifications, equalisers by different designers always sound different. This particular 2-channel design is based very closely on a circuit originally used by Joe Meek in his own studio, and is said to comprise simple bass and treble shelving

in all cases). This connection is, of course, unbalanced. Power comes from an internal supply connected via an IEC lead.

The front-panel controls are both simple and familiar, though they have no centre detents. Treble comes first, providing up to 18dB of cut or boost at a fixed frequency of 8kHz. The Bass control offers the same range, but at 100Hz. Around 16dB of cut and boost is available from the mid-range controls, with a second pot sweeping the frequency between 600Hz and 3.5kHz. The mid-range Q varies with frequency, from around 1.2 at 600Hz to a tighter 2.5 at 3.5kHz. This has less range than I usually like from mid controls, as I find it valuable to be able to get into the 150-200Hz band to modify errant bass sounds, but I'll reserve judgement until after the listening test. The final control, accompanied by a dual green/red LED level indicator, provides up to 12dB of overall gain or attenuation. A separate bypass switch, with status LED, is fitted for each of the two channels.

ALL SYSTEMS GREEN

I tested the VC5 Meequaliser alongside the 3-band EQ section of one of my own small consoles (one that I regard as being reasonably good), and in all respects the VC5 produced nicer sounding results. With drums, for example, the bass control on the VC5 adds

weight but doesn't mess up the mid-range or create an unnatural sound — it simply acts like a volume control on the bass elements of the sound, which is how I feel it should be. The treble control emphasises cymbals and transient hits, but you have to add quite a lot before the sound gets aggressive or spitty, whereas I only had to add a little of my desk EQ before the top end took on a rattly quality.

The mid-range control works very sweetly, and you can pile on a lot of boost without feeling you're overdoing it. Again, trying similar settings with my desk EQ resulted in a rather more nasal sound.

Re-testing with vocals showed the bass control on the VC5 to be particularly good at bringing out the chest resonance of the voice in a very natural and controlled way, while my

pros & cons

JOEMEER MEEQUALISER £349

pros

- Warm, musical sound.
- Not excessively expensive.
- Simple to operate.

cons

- 3-band, fixed-Q format makes it less flexible than some other models.
- Limited mid-sweep range.
- Only one mid band.

summary

The VC5 Meequaliser is a simple, straightforward 3-band equaliser with a warm, natural sound. What it lacks in flexibility it makes up for in sonic charm.

SOUND ON SOUND

desk EQ (fixed at 80Hz rather than 100Hz), seemed almost to miss it entirely. I put this down to the gentle slopes of the VC5, which must bring the bass EQ right up into the mid-range, though no curves are provided to corroborate this impression. Similarly, with mixed material, modest amounts of EQ are effective in sweetening the overall sound without giving it that phasey, disembodied quality that desk EQs often seem to impart.

FIRST AMONG MEEQUALS?

This isn't an EQ for making radical changes to a sound, but more a sweetening EQ for use in situations where you need to make tonal changes without sacrificing the natural character of the original sound. It's probably fair to say that it's most useful on mixes and vocal tracks, where it works exceptionally well, but it's also flexible enough to work with guitar and bass, providing the type of change you're after isn't too radical. Obviously there are better equalisers around if you're prepared to spend the money, and there are equalisers with rather more flexibility, but as with the existing Joemeek products, the VC5 has a smooth, friendly character that should win it a lot of friends. If you're disillusioned with your desk EQ, but can't afford one of the big-name esoteric outboard equalisers, the Meequaliser could be exactly what you need.

SOS



controls with a mid circuit based around an inductive filter — one that uses a wound-coil inductor rather than a capacitor in a gyrator feedback circuit. Indeed, Ted Fletcher (the man who refined Joe Meek's original designs), has few kind words to say in favour of typical desk equalisers based on gyrator circuitry.

Built into the familiar Joemeek green 1U case, the Meequaliser has TRS jack ins and outs that can be used balanced or unbalanced. In fact there are two identical outputs per channel, just in case you need to split the signal. Additionally, each channel has a direct insert TRS jack socket that can be connected to a console's insert point with a regular stereo jack cable (though there are still one or two mixers that wire their inserts the opposite way to everybody else, so this may not work

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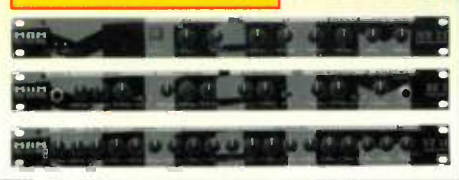
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ENSONIQ

PAUL WHITE talks to
one of the seminal
figures of the electronic
music era, pioneering
synthesizer designer
Bob Moog.

Bob Moog's name is synonymous with analogue synthesizers, but these days you're more likely to find him experimenting with MIDI theremins and alternative MIDI control systems. His company, Big Briar, manufactures both inexpensive traditional theremins and a far more sophisticated MIDI version housed in a splendid mahogany cabinet. On Bob's business card, his position with Big Briar is described as 'Grand Poobah', which makes a refreshing change from all that President and Chairman stuff! I caught up with Bob Moog at the opening of Turnkey's new in-house synthesizer museum and 'Loopstation' showroom and asked him about the past, present and future of electronic music.

When you set about designing the Minimoog

to be both affordable and portable, did you agonise over which modular features you could include and which you'd have to leave off?

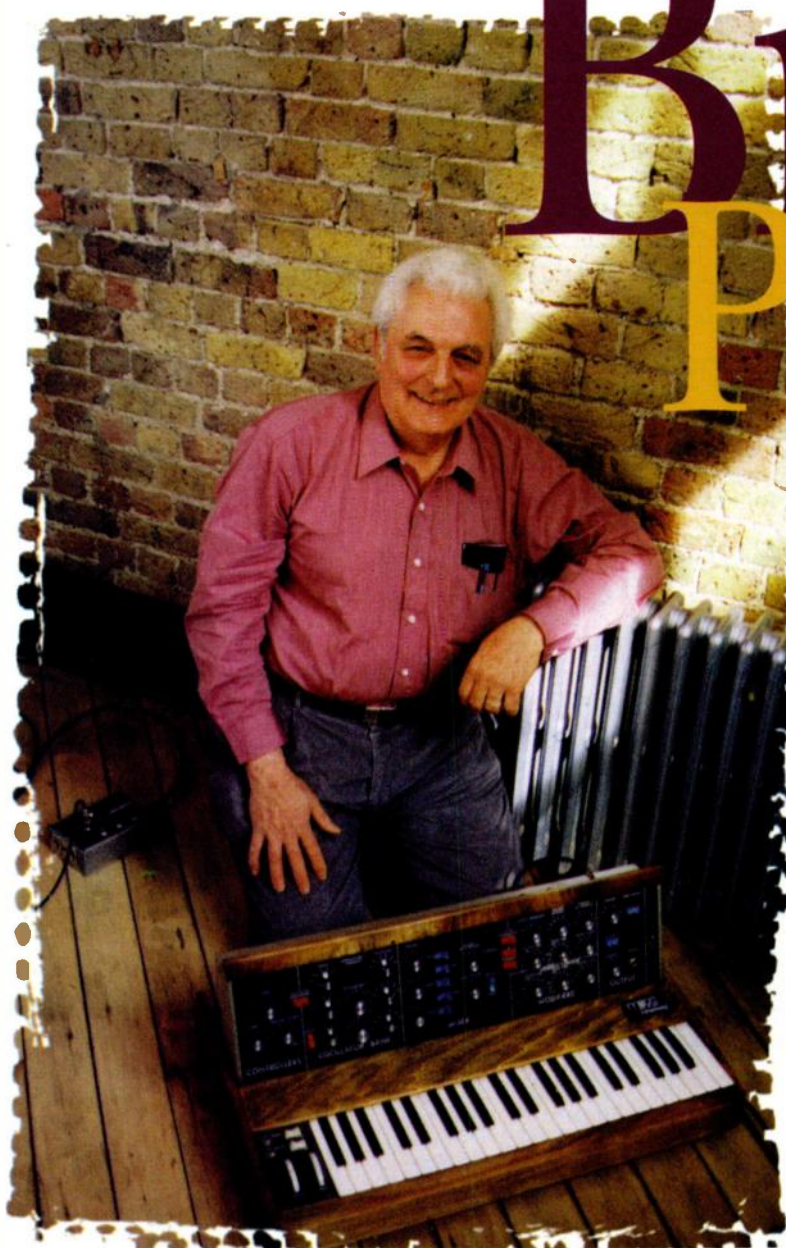
"The first trial feasibility prototype consisted of modules — I think there were two oscillators, a filter, a VCA and one or two envelope generators. It also had a very small keyboard, which was maybe just a couple of octaves. Of course, that wasn't enough, so we began adding things back in, and by then we knew what people liked most — what they had to have for a basic voice."

Is there anything from the modular system that you really feel it would have been nice to include if you could have at the time?

"It would have been nice to have had patching, of course, linear frequency modulation would have

into the Briar Patch

BOB MOOG



Bob Moog's new company is working on a new version of the Minimoog, scheduled to be ready around the end of this year: "The specification I've set myself is that it should sound like the original Minimoog, but it should also be stable and reliable."

been interesting, perhaps synchronisation of oscillators and a fixed filter bank. When it comes to modular synthesis, there was no idea of how much was enough. The simplest modular systems were just one cabinet systems and were probably about as powerful as a Minimoog, but we always understood that we could add any number of extra modules. The flexibility was just down to how many modules you had."

Do you think synthesis lost anything when it went polyphonic? The controllers that you built into those early machines seemed applicable more to single note lines than they were to chordal work.

"Oh yes, of course. A polyphonic instrument with a keyboard, from the point of view of the player, is more like an organ. A synthesizer to my mind is more of a lead instrument or monophonic instrument where you put all your attention into getting a sound that changes in interesting ways. With a polyphonic instrument, what you need is a sound that changes in simple ways. Nevertheless, a lot of instrumentalists were very happy to have polyphonic synths, such as the Prophet Five, the Memorymoog or the Oberheim stuff, because even though you played it like an organ it sounded pretty good."

DIGITAL SYNTHESIS

We now have digital synthesizers claiming to replicate the sound of the original analogue

synths with absolute tuning accuracy and stability, but do you think that the sound has lost something?

"I think the absolute accuracy and regularity of digital systems detracts from an aspect of the sound that is pleasing and comfortable to our ears. I like analogue sound better, but I'm sure that as time goes on and digital systems get better, you'll be able to simulate those pleasing imperfections and uncertainties. Right now I don't think that anyone really knows sufficient to make an accurate enough model so that an informed listener could not tell the difference. I don't think there's a digital system in existence that would fool anybody in a side by side comparison."

Which imperfections of analogue do you think are the most important in creating that pleasing sound?

"The things that really distinguish analogue instruments from digital instruments are right at the edge of perception — we have trouble pinning them down and describing them accurately. A lot of it comes down to the fact that analogue instruments are not exactly accurate in the way that digital instruments are. Acoustic instruments are not exactly accurate either, and with an analogue synth, when there are two oscillators slightly apart, the rolling beating that you hear is not perfectly regular — it has a random or drifting component to it that keeps our ears from getting fatigued."

Does physical modelling interest you as an area worth pursuing, or do you feel it might be a dead end?

"Oh no, I think it's probably the most fruitful digital synthesis area to explore right now. You can go every way from modelling a real physical system like a violin, all the way to modelling something fictitious that's never been heard before. If I were to work with a digital system for my own edification and enjoyment, it would be physical modelling."

Synthesis methods, such as physical modelling, give us more parameters we can control in real time, so what improvements do you think are possible in that area given that a typical keyboard player has got a couple of free feet, maybe the left hand, and perhaps the opportunity to use a breath controller?

"Ah, the optimum control system! I don't think there's such a thing as the optimum control system, but there are a lot of good ones and more will come. That, I think, is the big area for the near future. I believe it is a mistake to think in terms of one parameter for one finger, another parameter for another finger, but somehow you should be able to control many high level parameters that have to do with things that we hear. For example, if we had a sound with 40 overtones, I don't think anybody would want to be able to control the overtones individually, but we may want to be able to control a whole band of overtones at once. With MIDI now, you can build a controller and then use the output of that controller to vary any parameter you want, and I think that type of experimentation could shed some light on what aspects of sound musicians like to control."

As a guitar player, I've experimented with MIDI guitars, which are pretty imperfect things, but the one thing I do like is being able to apply

different degrees of vibrato at different speeds to different notes. Is that something that could be translated into keyboard terms, for example by using a key with a position-sensitive surface?

"I've built a few keyboards like that and they were described in the *Computer Music Journal* maybe six or seven years ago. I began with a regular wooden keyboard and then put a touch sensitive coating on top of each key so that the key was position-sensitive to where you placed your finger in two dimensions. That's very interesting, but it's also expensive to do. There are various ways of approaching that problem in engineering terms, but the real difficulty is getting musicians to study it — to put behind them the techniques they've learned and to try something new."

Surely this will always be a problem as long as the keyboard is the main player interface for electronic music?

"That's right, and that's why I'm more interested these days in alternative controllers. The multiple touch-sensitive keyboard that I developed was built around a conventional keyboard because that was something that was available, not necessarily because the keyboard is the best means of control."

Aside from theremins, what other forms of non-keyboard controller have you explored?

"One that everybody talks about is what you see in the Beach Boys *Good Vibrations* video, a ribbon controller that we made back in the mid '60s. I think that sort of thing would be interesting to explore further. Another approach I find interesting is something built by Wendy Carlos, which she calls a Circon. It's really a big pointer that rotates through 180 degrees, and you hold the end of the pointer in front of a scale that shows the notes being played. This gives you some kind of visual feedback, and though it controls pitch in the same way as a ribbon controller, it feels different. Wendy has tried the theremin and the ribbon controller, but she likes the Circon because of its feel, and that's very important."

Essentially though, it's basically a frequency pot with a pointer attached to it.

"Yes, but the size and the shape of the part you put your hand on, exactly how smooth it is, how fast the frequency changes when you move it — all those things affect how it feels, and that's part of my craft, getting those things as close to right as we can."

THEREMINS

Moving onto theremins, they used to be notoriously unstable — one of the oscillators has to be free to drift so that you can use hand capacitance to change its frequency. How have you improved the stability — the only way I can think of to make a MIDI theremin would be to do a quick autotune routine every time a MIDI Note Off occurred?

"Well, we could do something like that, but in fact we don't, though it would be useful for applications such as having a theremin set up in a museum where you can't have somebody tuning it up all day. Our instruments are fairly stable, but they're not 100% stable, they couldn't be, because the temperature and the moisture content of the air affect the tuning. In practice it doesn't matter too much because you quickly feel where the notes are and compensate for any changes in tuning — you

WHAT'S IN A NAME?

"I sold my interest in Moog Music in 1978 and after that, the company continued for a few more years, then ran down. A few years ago, there was no business activity whatsoever coming out of the old Moog Music and the company was getting rid of all the old service inventory, showing signs that they were about to abandon the use of that trademark. Now, under US trademark law, if you stop using a trademark, it lapses and is considered to be abandoned. That's what Moog Music did.

"A man called Don Martin applied to register the Moog trademark, which ordinarily, he would be entitled to do, but there's another aspect to US trademark law in cases where the trademark is the name of a well known person and where use of that trademark might confuse the public as to whether or not that person was involved. That's where we are now — Don Martin applied for use of the trademark first, and I've subsequently applied for use of the trademark, so we have to wait for a legal resolution.

"I've registered the Moog trademark in France and Germany and applied for it in a number of other European countries, but the situation is rather different in the UK where another party has claimed the right to my name. That's a problem for us right now, and again we will have to wait for a legal resolution."

"I don't think there's such a thing as the optimum control system...that, I think, is the big area for the near future."

“A synthesizer to my mind is more of a lead instrument... where you put all your attention into getting a sound that changes in interesting ways.”



Bob Moog's 'deluxe', mahogany cabinet MIDI theremin. Like the standard model (inset) it has two antennas, one for pitch and the other to generate a control signal, usually for amplitude.



▶ basically play the instrument by ear. You don't think in terms of putting your hand in exactly the same place to get a given note.”

I guess that if you feed the output of a MIDI theremin into a sequencer, you're going to see oceans of pitch bend data and not much in the way of note information.

“That's right, there's almost no note information, though there are a couple of different MIDI modes you can choose to use. In one there is a Note On message when you begin a sound, then when you go back to silence, there's a Note Off. Everything in between is pitch bend, and that has a range of plus or minus four octaves.”

So editing a performance could be tricky!

“Yes, and we're interested in working with sequencer manufacturers to get some good graphic editors, because there are some very interesting things you can do with graphic editing if you display the pitch bend contour as a function of time, and just move it around a bit. You can, in principle, correct notes, change the amount and speed of vibrato and things like that.”

The theremin is an intriguing instrument, but is the old capacitance-controlled oscillator technology the best way to do it? For example, wouldn't it be more stable if you wore a small transponder on your finger, then used a radio system to continuously calculate the distance of the transponder from the sensor? Couldn't you use one of the passive transponders that are used in anti-shoplifting tags?

“The advantage of analogue theremin technology

is that it is absolutely continuous, whereas having something like a supersonic transducer would provide the data in steps, which would take time to compute.”

Unless you checked it at a high enough rate that it was effectively continuous. After all, what comes out over MIDI is essentially a series of steps.

“Yeah, we update the pitch information 200 times a second, though you can select a lower update rate if you want to. It turns out not to be a problem that this is an analogue device, and as an engineer, I'm not sure that any other transducer type that I know of would have all the musical advantages of the traditional theremin.”

ALTERNATIVE CONTROLLERS

What do you think about some of the optical MIDI control systems that have been developed?

“I think they hold promise as controllers, but they're different from the theremin. With the theremin, you can get up to a distance of less than a centimetre and still be playing. This is ideal for the playing range of the arm, around 60 cm, whereas optical controllers work over a different range. Buchla's

Lightning [infra-red light-based alternative MIDI controller] is interesting in that it is two-dimensional, so you can move your hand from side to side and control another parameter. They're two different types of controllers that are appropriate for two different types of gestures.”

As Bob had brought a theremin with him, I had to give it a try! Because there's no physical feedback other than what you hear, it takes some getting used to, but even so, I could appreciate the appeal of the instrument. I asked Bob if he had considered extending the control capabilities into three dimensions.

I guess that if you were to develop an effective three-dimensional scanning system covering the space around the antennas, then you could have control over pitch and two other parameters from one movement.

“Yes that's right, whereas the theremin has two antennas, one for pitch and the other to generate a control signal, usually for amplitude. There is another MIDI mode where we can assign the antenna outputs to any MIDI controllers at all — pitch bend, filter, modulation or even for turning lights on and off. There are all sorts of theatrical applications. There's also a footswitch and pedal input for further control.”

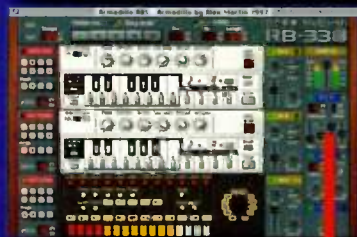
Obviously you're always thinking of new ways to provide more performance control. Is there anything you can talk about without giving away too many secrets?

“Well, I can tell you what we've done so far, but there are also things I don't want to talk about, not because they're secret, but because they're less than ▶

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- ▶ vapourware and may not turn out to be good ideas. However, there are four MIDI modes on this instrument, one of which is a conventional theremin where the right hand antenna sends out pitch bend and the left hand antenna sends out one of a small selection of control change messages. The second is a more general continuous controller, where either antenna can be assigned to any MIDI controller. Third is a chromatic mode, where we use Note On



Some of Bob's early Moog modules.

“I think the absolute accuracy and regularity of digital systems detracts from an aspect of the sound that is pleasing and comfortable to our ears.”

messages to quantise the space around the antennas. There's a selection of 16 different scales you can play like air harp or air guitar. That's very different from playing with continuous pitch change. The fourth mode is called Smart Theremin mode, where we use a combination of Note On and Pitch Bend to add pitch bend to whatever MIDI note you happen to be playing. In normal theremin mode, the note is always middle C plus pitch bend. This last mode is appropriate for playing things like sample playback, because samples don't usually work well when they're being bent over four octaves, they're best used over a relatively narrow range.”

RESURRECTION OF A CLASSIC

Does your vision extend much beyond theremins at the moment — is there something else you'd particularly like to explore?

“Well, I love thinking of new things, but I'm running a small business now, so we need to think of having new products that people will buy. We've been very gratified at the acceptance of our theremins, but that market is very small, so now we're looking at introducing some new products going back to analogue synthesizer-like things. There's a high awareness of the musical value of analogue instruments amongst musicians these days, so I expect that in around six months time we'll be introducing a set of effects that are organised more like analogue synth modules than the usual pedals. There'll be things like filters, ring modulators and so on. We're also working on a new version of the Minimoog which should be ready by the end of this year.”

Will that be a replica of the original design or will it be enhanced in some way?

“It'll have all the basic sound quality and function of the original model, but with a few

additional things like synchronisation and different ways of controlling the filter. We'll use 1990s components instead of 1960s components — you can't get 1960s components any more, and even if you could, I'm not sure we'd want to use them! I'm an engineer, and an engineer will build a design to meet a specification. The specification I've set myself is that it should sound like the original Minimoog, but it should also be stable and reliable.”

Is that going to be a difficult task when, as you said earlier, some of the things that make the original sound distinctive are actually quite subtle? Is there a danger that you might 'throw the baby out with the bath water'?

“Between my associates and myself, we're pretty confident that if we design something that doesn't sound like a Minimoog, we'll know it. We won't sell anything that doesn't sound like a Minimoog. As an engineer I'm confident that if we spot something that isn't right with the design, I'll know how to fix it. At worst, we could go back to doing things as they were in the old instrument, but I don't think it will come to that. We'll be keeping the original ladder filter circuit, but using modern transistors that should be quieter and more reliable.”

INTO THE FUTURE

“Beyond that, I'm interested in all types of alternate controllers. Wendy [Carlos] and I have talked about us manufacturing a Circon-like device, and we certainly know how to build ribbon controllers. I can foresee a ribbon controller with MIDI output.”

Would this be a new kind of instrument, like a device with ribbons replacing strings?

“I was once asked what I thought the future held in store for electronic music, and I predicted that musicians who played electronic instruments would own their own finely crafted controllers which would be very sophisticated and quite expensive, and for a performance, they'd plug this into a generic sound generator, the same way musicians today plug into a generic PA system. And I'm amazed today at how fast we're approaching that. I also predicted the advent of MIDI, and I missed it by only one year. This was back in 1976. Now you can plug a sound card into your computer and emulate fairly closely, not exactly, but fairly closely, just about anything. You get all that stuff on a card now, so if you look 10 or 20 years ahead, I think it's safe to say that sound production is going to be generic. With just a little bit of money, you'll be able to make any sound you want, and the real expense will be in the device that you use to play and control those sounds.”

Presumably, different players will demand different things from their controllers, so does that mean the controllers themselves will end up being modular?

“You can already customise guitars or have a custom guitar made, so why not MIDI controllers? You're still a human being, you're still using your hands, and the same sort of things are going to continue to make you feel good.”

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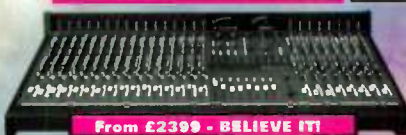


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The Rhythm method

EFFECTIVE DRUM PROGRAMMING

Even a killer rhythm pattern won't make the grade if it's played with lacklustre sounds. In the concluding part of this series, NICHOLAS ROWLAND puts on his sound designer's head and explains how you can re-tread your tired timbres...

In the first instalment of this series, I made the point that one of the main attractions of sampled rhythm loops is often not the intricacies of the rhythm pattern itself, but the sonic character of the loop. This character might come from the particular ambience of the recording or the accidental presence of other instruments which add an unexpected twist to the drum rhythm. Or it might be there because someone has employed a whole bank of effects to fling the sounds to within an inch of their lives.

We've already looked at more extreme approaches to rhythm programming, in last month's issue. But in this final session of tub-thumping I'd like to talk about a number of techniques for manipulating drum and percussion sounds — techniques which can be used to make even the most boggish of bog-standard drum machine rhythms sound that bit more interesting.

But first a disclaimer. What I'm outlining here is my personal armoury of techniques: I'm not claiming to cover the whole spectrum of possibilities. And remember — parameter values can go down as well as up.

TAKE IT TO THE LIMIT

The first place to look for inspiration is in the manual. In other words, it's always good to know what your equipment is actually capable of (missus). Many drum machines and sound modules have various on-board facilities for customising sounds, such as programmable pitch, decay, and timbre. Some also give you control over such parameters as sample start point, velocity-controlled pitch-bend and velocity-sensitive crossfades between samples.

These parameters can be used in both subtle and not-so-subtle ways. As a simple example, you can add interest to a straightforward rock-style rhythm pattern by using different pitches of the same snare drum on different beats. Or try

shortening the decay values on each successive beat of a snare fill, so that the sound tightens up as it reaches the climax of the roll.

Some drum machines allow you to spread a percussion sound across the drum pads so you can easily play it at different pitches. Rather than just tapping in a straight 8th- or 16th-note hi-hat pattern, with the voice at the same pitch, try programming in your hi-hat or other top-line percussion instruments (such as shaker, tambourine and so on) more as melodic riffs. (As an aside on tuning voices like conga and bongos, don't try and tune them to some precise melodic pitch — somehow this has the effect of making them disappear from the mix.)

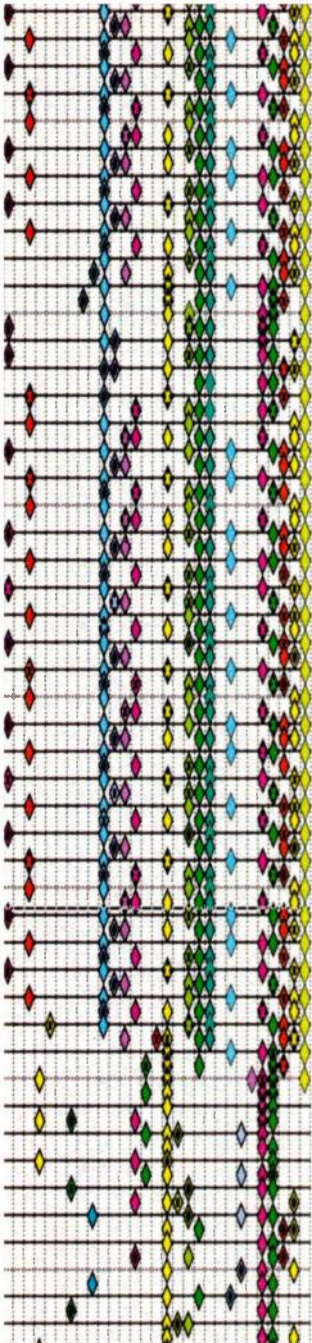
I mentioned last month that extreme tunings of sounds can yield some unexpected results. Yamaha's RX5 drum machine, for example — a veritable giant of its time — allowed transposition of samples over a staggering eight or nine octaves. You quickly discovered that at very low pitches electro-toms sounded like small explosions, while splash cymbals turned into J Arthur Rank-style gongs. Sadly, the designers of many other drum machines which offer tunable drum sounds see fit to restrict the pitch ranges to 'realistic' values — a pity, really, as I don't feel you really get to know the true gut-wrenching potential of a vibraslap until you've heard it at subsonic levels.

PAN HANDLING

Conventional wisdom dictates that when you place a drum sound in the stereo spectrum you should take your lead from how it would sound if you were standing in front of a drum kit. In other words, bass and snare dead central, hi-hat panned slightly to the right, ride cymbal slightly to the left, and the toms spreading from half-right to half-left in descending order of pitch. (Unless, of course, your drummer happens to be left-handed, in which case the kit placement would be reversed.)

These rules are all there to be broken, of course, though I would stress that panning effects are best applied only to sounds in the mid- to high-frequency range. As you probably know, it's much harder for the human ear to accurately pinpoint the directional presence of low-frequency sounds such as bass drums. Generally, then, gratuitous panning of bass sounds is a waste of time.

Where a rhythm has fairly busy high-frequency percussion elements (that is, hi-hats, ride cymbals,



BREAKING THE STEREO BARRIER

Many drum machines and sound modules are equipped only with a pair of stereo outs. Yet conventional rhythm track recording wisdom dictates that bass drums are recorded dry and snares have gated reverb applied, while hi-hats and other top-line percussion benefits from a touch of ambient reverb.

If you can't multitrack the various elements of the rhythm separately to tape, sample the hi-hat parts with the necessary EQ and effects and run this loop alongside the bass and snare part, as supplied by the drum machine. Panning the snare and bass to opposite sides of the stereo spectrum allows you to then treat them with separate effects and EQ. Of course, when doing this you might want to consider applying the techniques mentioned elsewhere in the sampled part of the rhythm — for example, recording at a low resolution or trying out the 'octave-apart' trick.



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EFFECTIVE DRUM PROGRAMMING

- ▶ shakers and the like) try panning these elements hard left and right. This immediately opens up the soundstage and helps it to feel less cluttered. Extreme panning of tom sounds can also work quite well in what, for want of a better phrase, we'll call 'jungle rhythms' (or, if you want the Politically Correct term, try 'tom-intensive ethnically orientated beats').

If you want to add a new twist to the machine-gun snare-drum rolls which usually come as standard issue with dance tracks, first program two rolls using separate snare sounds. Then either cross-pan them during the roll; start them at opposite ends of the stereo spectrum, then bring them together; or start them together and widen them out. Couple this with volume fades or changes in pitch to add extra "gosh" factor.

MIDI METHODS

The above ideas are easy to apply if you're using a MIDI sequencer to control drum sounds from an external unit. With a fistful of MIDI Controller commands you can simulate ping-pong echoes, tempo delays and dub-style delay effects. (In fact, sequencers such as *Cubase* offer a MIDI delay program as part of the furniture.) Regard these features as your friends.

You can also create simple echo effects by copying a drum pattern to another sequencer track, then moving it forward by, say, a 16th note. You could then try assigning a different style of drum kit to this second rhythm pattern. If you were using a big-sounding rock kit for the main rhythm, you could try a softer jazz kit played at lower volume for

the 'echo'. Obviously, you can take this technique a few steps further. For example, you could have a series of echo tracks built around just one element of the rhythm, with each 'repeat pattern' assigned to a different set of drum sounds.

SET PHASERS TO STUN

If you're triggering a drum machine or sound module from a sequencer, you'll probably have noticed how doubling up the pattern (ie. sending the same information down the same MIDI channel twice) causes the double-triggering of the sounds to create a kind of phasing effect. This can be quite useful for giving floppy drum machine sounds a much harder edge. Try trebling or quadrupling up and see what happens.

The phasing ploy can be used to accent individual sounds, and is effective when creating big, bad bass drum sounds. If you want to go further down this road, try programming two bass drum samples on the same beat, but pitch one of them up by two or three octaves.

GRUNGE HILL

As a spin-off from the interest in analogue synths, there has been a revival of interest in the use of lo-fidelity techniques to give rhythm loops more roughage than a bucketful of All Bran. If this is the kind of territory you're interested in exploring, there's plenty you can do to dirty up your dance drums.

The basic advice here is to connect your drum machine through anything you think might distort the sound in some way — guitar pedals, the filter section of an analogue synth with an external ▶



Zoom's 1201, Sherman's Filter Bank and the North Pole resonant filter plug-in for Cubase VST (Mac) all offer valuable treatments for the grunge merchant on the prowl.

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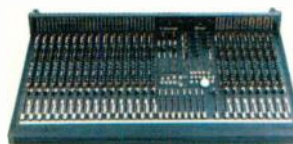
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- ▶ input... even a miked-up bowl of custard if you feel it'll create something interesting.

Effects treatments are an obvious place to start. Even budget units now offer various sound-crunching lo-fi presets. The Zoom 1201, for example — at a mere £99 — offers a number of 'lo-fi' settings, plus a vocoder. Effects plug-ins for programs such as *Cubase VST* are another useful tool for the grunge merchant on the prowl. Steinberg's *Grungelizer* and, more recently, the *Trancemitter* plug-in are worth a look, while the *BIAS SFX Machine* gives you a range of effects from radio tuning drift to ring modulation. One piece of freeware I've recently come across is Stephan Sprenger's *North Pole* resonant filter plug-in for *Cubase VST* (for Mac users only at this stage). Go to <http://www.prosoniq.com/sms/sprenger.html> for details of how to download.

“Try sampling (at low resolution) a beat-box rhythm at twice the tempo you need it, then play it an octave lower...”

There's also a range of external filters to suit every price and pocket, including the Mutator, the Sherman Filter Bank, the Waldorf X-Pole, the FAT Resinator and the wonderfully named Lovetone Meatball. Guitar pedals are also a particularly good source of mangle-isation. Not only are they comparatively cheap, you also get the added bonus of gratuitous hum, noise and distortion, particularly if you overdrive the inputs.

For the grunge programmer on a budget, there are a number of DIY options — all part of general home recording tricks of yesteryear. For your own

'played down the telephone' effect, try running your mix through a low-pass filter set at around 3kHz with a little bit of resonance. Combine this with some sampled vinyl surface noise trimmed to the length of the drum pattern and triggered alongside. You can also try recording your drum machine through a miked-up guitar amp, preferably one with a dodgy spring reverb that's been dropped several times down a flight of concrete steps. Or record your rhythms to tape, then play them back on a portable cassette player turned up loud. Stick a microphone in front and enjoy.

SAMPLED DELIGHTS

Samplers provide another creative behaviour-modification tool. For a quick-fix lo-fi effect, try sampling your drum machine pattern at a low resolution and then trigger it from your sequencer as you would a loop from a sample CD.

If you know your sampling maths, you'll be aware that when you play a sample an octave higher than its original pitch, the sample is in fact running at twice the speed. And conversely, if you play it an octave lower it runs at half the original speed. So try sampling (at low resolution) a beat-box rhythm at twice the tempo you need it, then play it an octave lower than the sample key it was assigned to. The result is a detuned version of the rhythm running at the correct tempo. Obviously, you can play around with the tempos and sample playback speeds to arrive at different combinations of these tempo/detuning parameters. If anyone has a mathematical formula for determining the precise results of this approach, I'd be glad to hear it.

When sampling your own loops, it's a good idea to always apply some kind of effect during the sample recording process — reverb, chorus, flange, distortion, EQ, filter. Basically, what we're interested in is messing up the frequency content a little, to try and blur the edges of the original drum voice. Once you start pitching the rhythms up or down, the results will be that much more interesting.

IN THROUGH THE OUTBOARD

Here are some (very general) observations on the use of external kit with drum sounds:

• REVERB

Percussion always benefits from a touch of reverb, though the precise settings will generally be determined by what's going on with the rest of the track. For a harder-edged sound, go for plate reverbs. Gated reverbs appear to have long gone out of fashion as the *de rigueur* effect for snares — I certainly never touch 'em myself, guv. But you might want to try reverse reverb as a once-in-a-blue-moon special effect on fills. For all our sakes, though, please use sparingly.

• EQ

If you want to create ground-shattering basses, it's not just a question of cranking up the low end. The 'bass-ness' of a sound is more defined by the sum of frequencies and the shape of the wave than the fact

that it inhabits a frequency deeper than hell itself.

If you must play around with EQ, try boosting at around the 80Hz mark. But you might also want to try cutting the mid-range back slightly, to tighten up on the muddiness which often results.

• COMPRESSION

Unlike real drums, the sounds from drum machines are generally well-behaved enough not to require much in the way of compression. However, if you want those larger-than-life big beats, try a low threshold value (-20dB or lower), a ratio of 12:1 or lower, and a release of around 40-80ms. Then play around with the attack times until you get a hard-edged sound.

• TEMPO DELAY

Tempo-related delay is one of the most underrated rhythmic tools in the drum programmer's kit, and provides a good way of creating complex-sounding rhythms from otherwise simple percussion lines. Some delay units kindly allow you to simply punch in

the tempo and the musical value of the delay you want, and they will then make the necessary calculations. The rest of us need to keep a calculator or a tempo delay chart about our persons.

To work out the sum, divide 60 by the BPM value, then divide again by the desired sub-beat (4 for a quarter note, 8 for an eighth note, 12 for an eighth-note triplet). There are also lots of freeware tempo-delay calculators available on the Internet. A trip to the Shareware Music Machine site (<http://www.hitsquad.com/smm>) produced links to various examples for Windows PCs, Macs and Ataris.

• PITCH SHIFTING

Tempo-related pitch-shifting delay can be another useful tool. For example, try feeding a single hi-hat beat into a pitch-shifting delay, set to give eighth-note repeats that rise or fall by a semitone with each repeat. Then stand back and be amazed. You can also use pitch-shifters to create dub effects which rise and fall in pitch throughout the pattern.

Clearly, you can apply this basic technique to entire rhythms or just sections of them. For example, you could investigate the potential of sampling the hi-hat and top line of percussion, then running that as a detuned rhythm loop against a bass and snare pattern provided by your drum machine/sound expander.

Another technique related to the one above can be used to produce ethnic-sounding, lo-fi percussion tracks. Again, this trick is based on the fact that samples played an octave higher run at twice the usual speed. Let's say you sample a rhythm loop on middle C. Now play it back using the G below and the G above. This works particularly well with patterns made up of latin and hand-held percussion — bongos, congas, shakers and so on. You usually end up with a plucky-plucky percussive line at the top and a heavy-sounding tom tom-style beat running underneath.

AND FINALLY...

If you want to add a touch of real-life ambience to your rhythm tracks, as well as bringing in all that touchy-feely human stuff I was banging on about in the second instalment of this series, why not record part of your rhythms live, using *real* instruments? While I recognise that most people don't have the luxury of a full drum kit to call on

— or, indeed, the kind of neighbours who would tolerate the noise — it's relatively simple to add percussion parts to bass/snare rhythms with tambourines, shakers, maracas and other instruments. You might even consider vocalising these sounds. Providing you're not the sort of person who feels self-conscious going "tss-te-tss-te" or "che-che-che-che" into a microphone, you might find you actually enjoy it. In one memorable (and, I have to admit, drunken) session, a friend and I once partnered a drum machine pattern with the sound of cutlery being shaken in a tambourine and recorded through a guitar pedal flanger. But we've both had treatment for it now.

Clearly we're beginning to stray into territory normally inhabited by fresh-faced *Blue Peter* presenters, but just before we fall into the abyss, I might as well encourage you to raid the kitchen for pots, pans, glass jars and bags of rice, with which to construct makeshift rhythm instruments. Just make sure an adult is present whenever you attempt to use the scissors.

And there you have it. Go forth and make beautiful beats. I'm off to watch that old *Blue Peter* episode where John Noakes makes a drum machine dust-cover out of squeazy washing-up-liquid bottles and a length of sticky-backed plastic.



Peak 2.0 The Innovation Continues

Following the success of Peak, their acclaimed audio editing software, BIAS have announced Peak 2.0, a major new version that expands the comprehensive set of audio editing tools and adds some exciting new possibilities to the software that will reinforce Peak's position as the standard for audio editing on the Macintosh.

High end features include:

Real-time Adobe Premiere plug-in access that allows effects to be changed and auditioned while Peak plays. Peak 2.0 also includes access to TDM and AudioSuite plug-ins. DAE support has been provided for direct support for third-party audio cards from Digidesign. SMPTE time code synchronisation is perfect for multimedia and audio-for-picture production and Peak's new QuickTime support allows digitised movies to be imported and synchronised to the audio with better-than-frame accuracy. Peak has the ability to record, edit and process in 8-, 16-, 24-, and 32-bit resolutions. The new Playlist feature offers an easy way to arrange audio sequences, apply real-time effects and burn the audio sequence directly to a CD-R recorder. This enables Peak 2.0 to take a project from initial recording, editing, processing to final CD production.

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An improved user interface in Peak 2.0 includes a new customisable tool bar and floating palette that gives instant access to the editing tools.



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Peak 2.0 Highlights

- Playlist with CD burning
- Record, Edit & Process in 8, 16, 24 & 32 bit
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Beat Club

ZOOM RHYTHMTRAK 234 DRUM MACHINE

New drum machines are few and far between these days, but as NICHOLAS ROWLAND discovers, this one has a lot to offer even in a world full of computer sequencers.

In this sequencer-driven, multitimbral world, you would think that beat boxes might have hung up their virtual drumsticks some time ago, out-gunned by alternatives which are often far more versatile and a great deal more expandable. However, the fact is that at the budget end of the music technology evolutionary scale the dedicated drum machine still has its place — for live playing, for non-MIDI musicians, and for those times when you simply don't want to turn on two grand's worth of computer technology just to beat out a simple cha-cha-cha. That explains steady sales of models like the Alesis SR16 and the Boss Dr Rhythm series of drum machines. And it also explains why Zoom's first departure from the effects units for which they are justly renowned takes the form that you see here on these pages. Actually, 'drum machine' is a slightly too tight-fitting phrase for the new RhythmTrak 234, as its

subtitle — 'drums/percussion/SFX/bass' — might suggest. First, it offers loads of sounds: not just drums and percussion but melodic basses of all shapes and timbres. This in itself makes it interesting for guitarists, keyboard players and instrumentalists looking for a rhythm section. Second, it offers some novel ways of manipulating these sounds in real time. Third, along with its 99 preset and 99 user programmable patterns, it gives you the facilities to play with loops DJ-style — building up and breaking down rhythms layer by layer. Fourth, all this is yours for a modest £199.

PLASTIC FANTASTIC

The RhythmTrak is sounding good before you even start to remove the packaging. Take it out of the box and it looks very good indeed. It's a well-designed piece of kit, with a low-profile grey plastic case and the fan-shaped arrangement of the main drum pads giving it, to my eyes, a pleasing, slightly futuristic appearance, like something you might expect to play a crucial part in the plot of a *Star Trek* movie. On a more down to earth note, the RhythmTrak also feels as though it has the mettle to stand up to the kind of (un)fair wear and tear that drum machines usually experience in their lifetimes. The rectangular shape of the 13 drum programming pads makes it easy to tap them with

two fingers — ideal when you feel the urge to simulate the opening bongo roll from the Pearl & Dean theme tune. They are also velocity sensitive, with a choice of seven sensitivity options. Above each pad — and, indeed, above most of the other buttons — is a tiny LED which lights whenever that pad is played or whenever the sound assigned to it is triggered. This is extremely useful when you're editing a drum pattern which uses lots of different sounds, as it enables you to quickly identify which pad/sound combination is playing. As the drum pads are also used to access many of the machine's programming features, these LEDs also help you keep track of which editing function is live at any one time. With clear labelling, a logically laid out front panel and the main 6-digit, 7-segment LED in the centre of the unit, the RhythmTrak is very easy to get to grips with, even without recourse to the manual. And as I didn't have a manual for most of the review period, I speak from experience.

Around at the back you'll find a power switch, the input for the supplied 9V transformer (wall-wart alert) and a small rotary control for overall volume. Along with these are stereo outputs on quarter-inch jacks, an audio input, two inputs for control pedals, and a MIDI In socket. The lack of a MIDI Out did cause me to raise a few eyebrows — or, more correctly, to raise my two eyebrows several times. However, as the RhythmTrak 234 is aimed primarily at the solo instrumentalist, or the gigging musician, rather than at the fully fledged MIDI studio muso, I'm sure most potential users won't see this as a disadvantage. That said, I would like to have seen at least one more auxiliary output, particularly on a unit offering melodic bass sounds, since these are often likely to require separate processing from the drum sounds.

SOUNDS GOOD

The RhythmTrak has a total of 174 basic sounds, including the basses, which are assembled in various combinations to give 124 drum kits and 50 melodic bass patches. The styles into which the kits are grouped (displayed on the front panel) show that the emphasis is firmly on contemporary popular styles — rock, funk, hip-hop, techno and rap. That's confirmed by preset patterns which cover styles such as rock, thrash, metal, punk, techno, acid jazz, hip hop, funk, big beat, R&B, ska etc... not a paso doble or a Gay Gordon in sight. It's all competent (and occasionally inspiring) stuff. As each preset comes with an appropriate bass line, they're great to jam along to. Each kit consists of 13 instruments, with the first 100 kits comprising conventional collections of drum sounds — in other words, bass drum, snare, three toms, hi-hats, crash and ride cymbals, with the rest of the numbers usually made up with latin and ethnic percussion sounds. The last bank of 'Percussion/SFX' kits consists of collections of more exotic sounds, ranging from temple blocks, tablas and gamelan, to off-the-wall FX such as thuds, squeaks, ghostly howls and reversed cymbals. Among this list you'll also find a brush snare set, classical orchestral collection, and a set of cymbals. Overall, the individual sounds are excellent, and many of them also have a distinctive, slightly grainy character which is not unappealing. There are plenty of crowd-pleasers in the form of

big ambient rock drums, feisty hip-hop kits and snappy techno sounds. The TR808 and TR909 imitations are pretty good, with the bass drums in particular having plenty of bottom end. And among the ethnic percussion you'll find some of the best drum machine tablas I've ever come across.

A RhythmTrak pattern can make use of any combination of three drum kits, plus one sound from the bass bank (each one of these pattern elements is henceforth known as a track). This means that for each pattern you have access to a total of 39 drum sounds, plus bass. Note that the kit and bass assignments are memorised as part of the pattern data, so switching to a new pattern brings up the appropriate kit selections. You can also program an overall volume for each track and save that as part of the pattern data.

A PATTERN IS EMERGING

Even if you haven't used a drum machine before, you'll find the pattern programming and playback functions very easy to get to grips with. Both step-time and real-time recording are available, with the basic stop, start, pause and record duties handled by four tape transport-type buttons in the top right-hand corner. Pattern length is programmable between 0 and a generous 99 bars, although options for time signatures are rather restricted at 2/4, 3/4 and 4/4. Progressive jazz rockers will have to look elsewhere. Possible quantise values are 4, 8, 12, 16, 24, 32, 48 and Hi (in other words, quantise off), with 16 being the default. The quantise value also determines the timing of the auto-roll function (controlled by the elongated repeat/step key below the drum pads) as well as the length of the rests when inputting in step time. You can also apply a swing function, to shuffle-ise the pattern, and make offset-timing adjustments to give the pattern more of a human feel. Tempos can range from 20-250bpm, and it's good to see that the RhythmTrak has a tap tempo function, which was often lacking even from more expensive drum machines of yore. With facilities such as programmable count-in and click volume, plus an easy delete function (both for individual instruments and whole patterns), programming the RhythmTrak really is very straightforward indeed.

SHAPING UP

During programming you can make use of the Sound Jammer function — the slider on the left-hand side of the panel — which allows you to continuously adjust the pitch, volume and tone (known in RhythmTrak speak as 'Sound Change') of individual instruments as you record. Pitch and volume behave in much the way you'd expect. But the effect of the 'Sound Change' function varies from sound to sound. In some cases, moving the slider up will lengthen the decay and increase the attack of a sound. In other cases, it will allow you to crossfade between two variations of the same sounds — for example, between a ride cymbal 'surface' sound and a ride 'bell' sound, or between a closed and open hi-hat sound. At other times you can toggle between two completely different sounds — a clap and a cowbell, for example. This is a great tool, even though you are restricted to just one Sound Jammer function at a time. You can

pros & cons

ZOOM RHYTHMTRAK £199

pros

- Easy to use.
- Great looking.
- Has bass sounds.
- Innovative features, including real-time 'jamming tools'.

cons

- No MIDI Out, which could be a problem for some users.
- Lacks super-detailed editing facilities.
- The dreaded wall-wart!

summary

The RhythmTrak 234 offers a lot of bang (not to mention kick, snare, hi-hat and bass) for the buck.

SOUND ON SOUND

“The RhythmTrak is an excellent debut outside the company’s usual sphere of operation.”

A SUITABLE BASS FOR TREATMENT

Calling up a bass patch assigns it chromatically across the 13 pads in semitone steps. In default mode, E2 is the lowest note. You can transpose the patch as a whole, or set individual notes for each pad, in a range from A1 to A4. These settings are then memorised as part of the pattern. Another useful function is the fine-tune facility, offering a 435Hz-445Hz range. There’s a very comprehensive set of bass sounds, ranging from twangy indie-style bass guitar samples to pumping analogue synth soundalikes. In between, there are funk pops and slaps aplenty, hybrid bass/percussion sounds, and a rather impressive gritty bass slide. The Sound Change function allows you to further express yourself by bringing out the resonance on synth basses or beefing up the bottom end of acoustic guitar samples.

▶ also use the Sound Jammer function when playing the pads along with a pre-recorded pattern or song. However, it has no effect on the pre-recorded pattern itself during playback. Incidentally, when the Sound Jammer function is not activated, the slider doubles up for virtually all other data entry functions — another factor which makes the RhythmTrak easy to use.

FEEL A SONG COMING ON?

Songs are assembled from blocks of user patterns. Technically, you can’t use the preset patterns in this way, though you can get round the restriction by copying presets to user locations. Each song can consist of up to 255 steps (one step equalling one pattern) and the RhythmTrak can store up to 99 songs. Tempo and volume changes can be stored as part of the song, while bass tracks can be transposed up or down by up to six semitones. With these parameters at your disposal it’s possible to construct fairly complex backing tracks for, say, a live performance. As with all hardware sequencing devices, though, the real limit is available memory. In the RhythmTrak’s case this weighs in at a reasonable 13,000 notes.

GETTING INTO THE GROOVE

While the concepts of pattern and song programming should be fairly familiar, pressing both song and pattern buttons on the RhythmTrak allows you to explore stranger territory: RhythmTrak’s world of groove play — described in the manual as playing with patterns “like a DJ spinning records”. You can assign any of the RhythmTrak’s 99 groove loops, or any of the 99 user-programmed patterns, to any one of the 13 drum pads. The pattern starts playing as soon as you touch the pad, and if you touch the black bar as well it will continue to loop until you stop it by pressing the drum pad again. You can build up and break down percussion tracks layer by layer, with a maximum of four patterns playing at a time. Once again, those tiny LEDs keep you, the customer, informed at all times as to which pad is active. However, you will need a good memory, as there’s nothing to indicate which loop is assigned to which pad. You will also need a good sense of timing and accurate button tapping skills, as the various loops don’t automatically lock in with each other — they just start whenever you hit the pads. This is a source of potential embarrassment or a great creative bonus, depending on (a) your rhythmic abilities or (b) your sense of creativity. Those whose (b) outweighs their (a) might be interested in the prospect of assigning the same loop to two different pads, then starting the second one, say, a beat or two after the first to create impressively complex polyrhythms. Like the preset patterns, the preset loops cover a multitude of ‘modern’ styles: impressive big beat and hip-hop workouts, delicate ethnic percussion lines, thumping bass lines and twiddly arpeggios. You can also alter the global pitch, volume and tonal characteristics of the loops in real-time via the Sound Jammer control.

However, this is something of an imprecise science: only those with a good sense of pitch will be able to manipulate the melodic loops to create something approaching a tune. Nevertheless, it’s a great function and you can have lots of fun...

ABOVE THE DIN

Judging by its single MIDI In, I wasn’t expecting great things from the RhythmTrak’s MIDI specification, but in fact I was pleasantly surprised by how comprehensive the spec is. Each of the three drum kits assigned to a pattern can be triggered over a separate, programmable MIDI channel, as can the melodic bass patch. A special Auto mode for the bass means that when the RhythmTrak receives a GM sound source bass select message, it automatically switches the bass track to the appropriate MIDI channel. Kits and basses can also be called up using pre-assigned program change numbers. In the sync department, the RhythmTrak 234 will slave to an external MIDI clock and recognise MIDI starts and stops. All the Jammer parameters can be accessed via MIDI and all the sounds will respond to pitch bend — what more can the creative rhythmster want? What you can’t do, though, is program patterns remotely — in other words, record a bass line using a keyboard. And obviously the lack of a MIDI Out also means that you can’t dump RhythmTrak data to any external devices or use it to trigger external modules.

Along with MIDI control, you can also access the Jammer functions via a continuous controller footpedal (such as Zoom’s very own FP01). An on/off footswitch type (such as the Zoom FS01) allows remote starting and stopping of playback too. You can also program the unit so that a pedal of this type will trigger any of the sounds or switch between two specified sounds. This last function allows you to switch between an open and closed hi-hat sound, if, for example, you were using the RhythmTrak 234 as a sound source with MIDI-fied drum pads.

VERDICT

I raise my hi-hat to Zoom. The RhythmTrak is an excellent debut outside the company’s usual sphere of operation. Indeed, given its highly competitive price, I’d happily live with the RhythmTrak’s failings, which, I must stress, are relatively few. The bottom line is that the RhythmTrak not only delivers a lot for the money, but manages to come up with several new twists on what you would have thought is now a very tried and tested formula. To paraphrase Zoom’s corporate slogan: Catch it if you can. SOS

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