

THE

DIGITAL SPECS EXPLAINED

What more bits and higher sampling rates *really* mean

1ST FOR REVIEWS

Issue 49
June 98
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The UK's No.1 Recording Magazine

Yamaha 01V

Yamaha redefine
the affordable digital
mixer...again!

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Thomas Dolby

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DIY Synth Overdrive Project

A Year At Strongroom Studios

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WHAT I REALLY, REALLY WANT

Guess what I get asked most often? No, it's not "Chris, would you like to take me out to dinner?" (that's a close second!), but "What gear would you buy for your own studio?"

Now I guess it's not the most stupid thing to ask, because here at *The Mix* we do get to see all the latest recording gear as it comes out, and often even talk to the designers to get an idea of the thinking behind each product. Theoretically, I should be able to say what is the absolute best – the ultimate in recording set-ups.

But it's not as simple as that, is it? The ultimate set-up for one person may be completely and utterly different to someone else's dream set-up. In fact, gear selection is such an individual thing that you could get an almost infinite number of permutations – ask 100 people what their dream studio would be, and you'd get 100 different answers. And truth be known, I myself could give you ten different answers as to what I'd like to have in my studio, depending on what day it is, whether Cancer is in Libra, or whether it was scotch or vodka that I got caned on the night before.

But despite all my evasive ramblings, the original question remains (and will continue to be asked): "As Editor, what would



Pic taken at Mac's Studio in Bath

you buy for your own studio?". Since it doesn't look as if I can get out of this one, I've thought about how I could answer that question in a way that might be of any use to you, the reader. Clearly any system that I chose would be totally individual to my requirements, and not necessarily one that would suit the requirements of the majority of users. On the other hand, many elements of a recording set-up are constant, whatever specific models or combinations you finally end up with.

Okay, so here's the deal. I'm going to put together a little series that follows the

process of putting together a project studio set-up, and looks at the individual components in turn. Gear will be chosen on the basis that I like it and it suits my requirements, but also for the fact that it interfaces and functions together in the most seamless and transparent way, while also giving the highest possible sonic performance. It won't be the most expensive of gear, either, so that we don't end up with a system that you'll need a Lottery win to fund. Best get on with it, then...

Finally, some good news to finish on. Next month will be the 50th issue of *The Mix*, and to mark the happy occasion we'll be putting together a very special edition for you. We'll be looking back over the last four years at the most groundbreaking gear and most innovative music that has appeared in *The Mix*. There'll be a few surprises to look out for, too. In the meantime, I'm coming over all emotional like – I just wish I could buy you all a pint of Jack Daniels...

Chris Kempster

Chris Kempster, Editor

CONTRIBUTORS TO THIS ISSUE



ALAN BRANCH
Alan is one of London's most in-demand engineer/producers.

Recently, he's produced a new single for Bedlam Ago Go, remixed Monkey Mafia, Junior Delgado, Shed Seven, and US R&B stars KCI & Jojo, and worked with the Royal Philharmonic Orchestra and London Community Gospel Choir. It's a miracle Alan found the time to review the new AE200 monitors for us – his secret is a constant supply of black coffee laced with Red Bull...nicel



TREVOR CURWEN
Trev is on the fast route to production superstardom, thanks to his dazzling blend of engineering nous and natural musclanship (Is that bit okay, Trev? – Ed). Currently in the studio producing an album for a new signing on Sony S2, Trev has also had a hand in recent releases from Spiritualized and Portishead. His ambition, though, is to record the screaming Hammond and rockin' piano of *The Mix's* editor. Well, one has to have something to aspire to...



JONATHAN MILLER
No relation whatsoever to the famed Doctor, Jonathan cut his milky white

recording teeth in the late '80s at Newcastle College, under the watchful gaze of a certain Mr Ian Waugh, no less; himself no stranger to these hallowed pages. Jonathan now specialises in the ancient art of the hi-tech music interview – check out his Stateside meeting with synthesizer pop pioneer Thomas Dolby on page 76.

FUTURE MUSIC
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About... THE Mix

The Mix is the essential accessory for the recording studio. Our equipment reviews, written by working producers and engineers, give you an impartial opinion of the latest studio and recording gear, and our interviews get to the heart of the current techniques and issues in the recording industry.

The Mix CD helps you produce better music, by providing studio-quality samples and MIDI files, demos of the latest software and hardware, and audio tutorials demonstrating contemporary recording techniques.

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TOP GEAR

Four years ago – in the very first issue of *The Mix* – we brought you an exclusive preview of Yamaha's groundbreaking Promix 01 digital mixer. Now we have the first sighting of the all-new 01v, offering even more bangs for your bucks. See how far mixing technology has come with our preview on page 32...

Yamaha 01v (c.£1600)
Digital Mixing Console
Previewed on page 32



PHANTOM +48V

13 15

14 16

100V (UNBAL)

IN OUT

2TR PHONES

26dB 26dB 26dB 26dB

9 10 11 12

13/14 15/16

MONITOR 2TR IN

LEVEL MONITOR OUT

LEVEL PHONES

DIGITAL MIXING CONSOLE **OLV**

L STEREO R

PAN HIGH

F HI-MID

G LO-MID

LOW

CLIP

-3

-6

-9

-12

-15

-18

-24

-30

-36

-42

-48

11 12 13/14 15/16

STEREO MASTER

1 RETURN 2

SEL SEL

SOLO SOLO

ON ON

ON ON

SOLO

MEMORY

-1/DEC

PARAMETER

+1/INC

CURSOR

ENTER

11 12 13/14 15/16 STEREO MASTER

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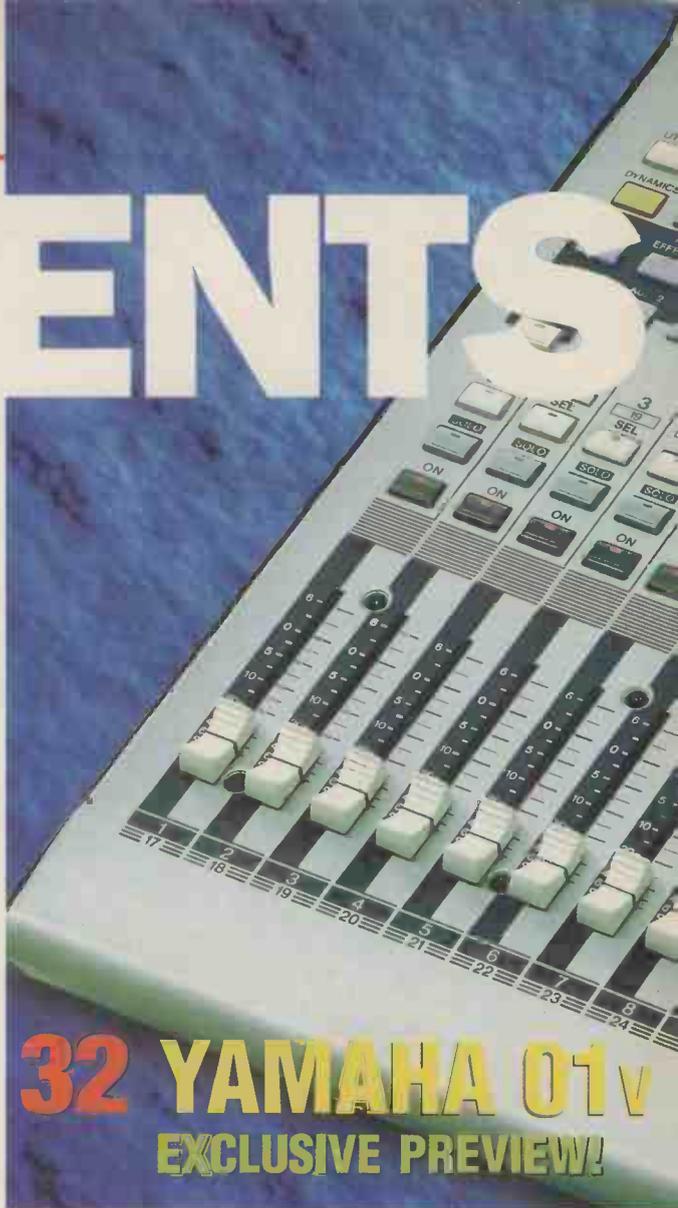
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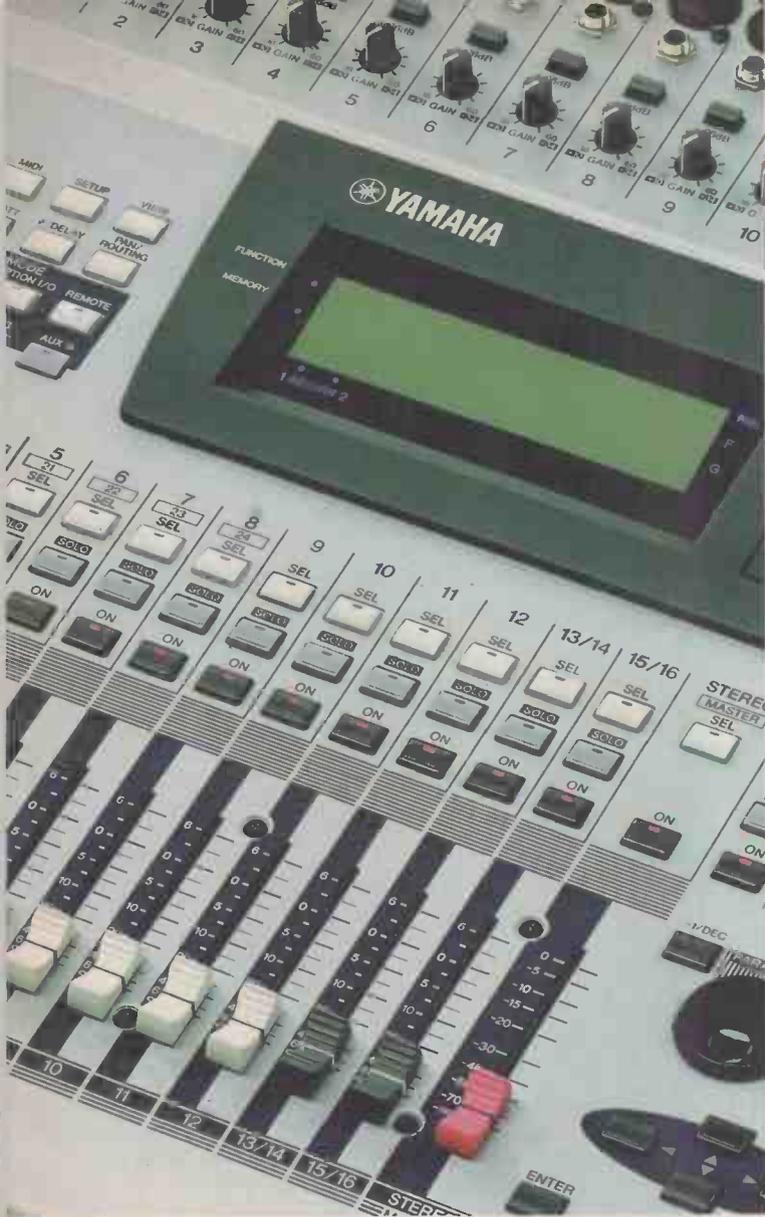
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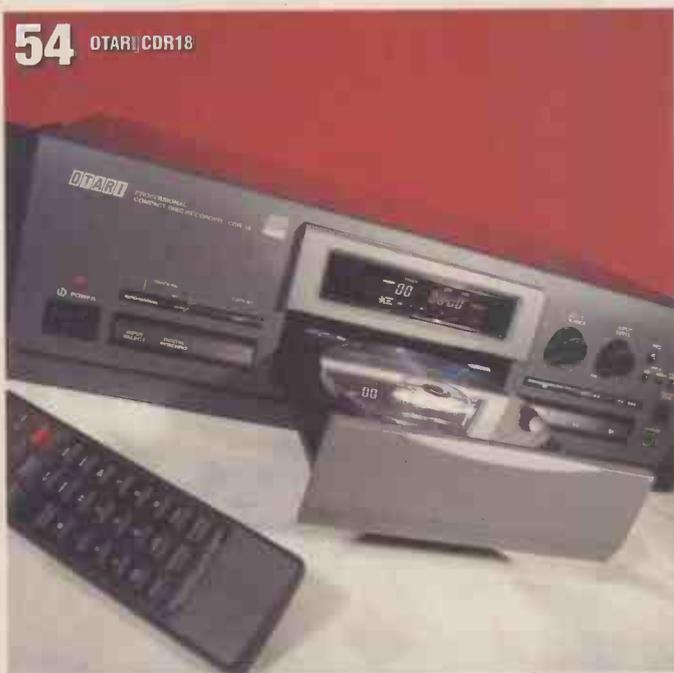
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2002-12 RQ



CD CONTENT



This month we bring you a wild variety of drum loops to sample, along with the usual helping of gear demos, and music software for Mac, PC, and Atari

About the Studio Series CD

Every month, the *Studio Series CD* brings you a selection of top-quality samples that you can collect to build your own sample library. Each CD is themed, with one instrument/sound-type featured at a time, and using the colour coding system (right) you'll be able to locate samples quickly and easily.

MIDI files and synth sounds on the CD also follow the theme – this way you have instant production tools at your disposal. Need a drum track? Just go to the correct CD, load up the samples and corresponding MIDI files, and you're away...

BRASS/WOODWIND

VOCALS

DRUMS/PERCUSSION

ORCHESTRAL

FX/AMBIENT

SYNTHS/KEYS

GUITAR/BASS

16 KIT #5
Aha...it's only 4 this time

17 Programmed Loops
5 programmed loops from Pete Lockett

18 Drum & Bass Loops
4 loops using sounds from the Korg TR Rack

19 Hip Hop Loops
4 Hip Hop loops using sounds from the Korg TR Rack

20 Funky Loops #1
Sega music master Richard Jacques dishes up some funky rhythms:
(i) Funk 1
(ii) Funk 2
(iii) Funk 3

21 Funky Loops #2
More loops from Richard Jacques
(i) Shuffle 1
(ii) Shuffle 2 (jazz)
(iii) Disco 1
(iv) Soul-funk

22 Funky Loops #3
Even more funk...
(i) Funk ballad
(ii) Loose funk
(iii) 7/4 funk
(iv) Fast funk

SAMPLES



Ethnic percussion guru Sri Peter Lockett offers multiple samples on his favourite pieces of kit

7 North African Bendir
9 Bendir drum loops

8 Brazilian Berimbau
7 Berimbau drum loops

9 Spanish Cahon
8 Cahon drum loops

10 African Shekere #1
9 Shekere loops

11 Shekere #2
10 more Shekere loops

Peter Lockett shows his prowess for kit playing with these funky loops

12 KIT #1
5 live acoustic drum loops

13 KIT #2
Another 5 acoustic drum loops

14 KIT #3
Yet another 5 loops

15 KIT #4
You guessed it...5 more loops



TS

VOL 6: DRUM LOOPS

TRACK



SOFTWARE

Every month we aim to bring you a great selection of music software: shareware, demos of music applications and fully-working programs you can use.

MIDI FILES

A plethora of funky loops to fuel your drum programming inspirations:

Peter Lockett MIDI files
Richard Jacques MIDI files

PC SECTION

DSPFXdem

Demos of the very impressive Virtual Pack effects plug-ins

spambu32

If you're fed up with getting nuisance spam messages on your Email, try Spam Buster. It has a range of options for filtering out spam before it gets to your mailbox

Magix demo

Demo of the reasonably-priced Magix Music Studio Deluxe package, which includes a MIDI sequencer and multi-track d-t-d recording software

MAC SECTION

CyberMozart

A computerised version of Mozart's musical dice game. The program takes all the hard work out of composing and dice throwing – press the button and up pops another variation

PushBtnBach

An algorithmic composition program which generates a new minuet in the style of Bach each time you push the Compose button

Disinfectant:

A free, very highly-regarded virus checker. There are a vast number of viruses and if you think your Mac is acting strangely, or has become slow, run Disinfectant over it

ATARI SECTION

Akai Sample Exchange

Read and write to Akai disks directly, making slow sample transfers a thing of the past. Supports both double and high-density disks, and AIFF format samples

Sampler v0.61

A small utility for playing AVR samples. Play, view, and then transfer via MIDI (to any MSDOS-compatible sampler), any mono or stereo AVR format of any frequency ▶

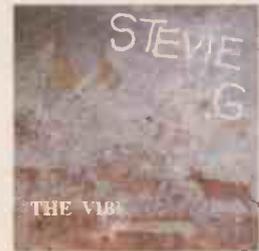
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REGULARS

Demo of the Month

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Commercial pop sensibilities allied with insistent rhythms, and hailed by our newly-appointed panel of experts as having releasable qualities.



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- (ii) String machine through Phaser
- (iii) 'Cosmic' synth through Chorus and Flanger in parallel

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- (ii) Drum loop through Hall reverb
- (iii) Drum loop through Plate reverb
- (iv) Drum loop through Ring Modulator
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- (vi) Drum loop through Phaser and Echo

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2 factory demos using the new sound set

6 Korg Z1 'Contemporary' soundcard: Multis
Check out the performance sounds of Korg's new soundcard

8 Multi (performance) sounds demo'd

▶ Robobop

Latest version of a MIDI-based rhythm programmer. This version has oodles of example files, MIDI file support, and preset kits to use

Merlin 2

A very versatile but esoteric shareware sample editor with plenty of editing tools, including waveform synthesis

Crazy Sounds

An auto folder patch for the Crazy Sounds demo on last month's CD-ROM

LATEST...LATEST...LATEST... FRANKFURT '98 MUSICMESSE

A special report from this year's premier European Music Show. Paul Mac is our man on the spot

For five days in March, the massive Frankfurt exhibition centre played host to a music fair of extraordinary proportions. An annual highlight in the gear watcher's calendar, the Frankfurt Musicmesse this year saw nearly 2,000 exhibitors show off the latest and greatest of everything from didgeridoos to digital desks. Music technology certainly did not play second fiddle; the pro light and sound section took up 50,000 square meters, spaced over six floors. Anybody who went expecting just a second helping of NAMM launches was misinformed. News and natter were rife, and several manufacturers saved some pleasant surprises for the European arena. *The Mix* put on its Euro-vision goggles and went sight seeing...

Akai steal the show

Undoubtedly the biggest talking point of the show was the announcement by Akai that they are putting the finishing touches to two new samplers, the S5000, and the S6000. Both boxes stand tall, mainly to accommodate their huge graphic LCD displays, which rid the Akai family of operators' scorn. The S6000 is, as



standard, a 128 voice, 32-part multitimbral device, capable of addressing up to 256Mb of sample RAM. There are eight stereo outputs, multi format digital I/O, four channels of 20-bit multi-effects processing, and plenty of new operational features. How does the choice of 15 different filters grab you? What about six DSP utilities like phase coherent timestretch, BPM matching, and parametric EQs?

The S5000 is a 64-voice, four stereo output machine without the multi-effects, though all of the differences can be put right with the various upgrade options. Akai have even made a clean sweep in the sample format department. Instead of continuing with their proprietary Akai format samples, they've decided to move over to

DOS format disks with .WAV file compatibility.

The demo at the music show was very

The latest sampling technology from Akai

impressive, and considering that the software is still incomplete, there's no doubt that Akai will be top contenders for the sampler supremo crown. The samplers are due to be on sale from August and September, with target prices of £2,000 and £3,000 for the S5000 and S6000 respectively.

New Yamaha console

The extraordinary things people can do with long red sausages had nothing on the extraordinary new digital console that Yamaha launched at the Frankfurt Musicmesse. Following on from their successes with the pioneering O1, O2R, and O3D consoles, Yamaha have updated, upgraded, and stuck everything in a package that they say will pack all the power of the O3D and O2R consoles for a lower price. Enter, the O1v 4-buss digital console...

The O1v has 24 inputs, 14 outputs (eight of which are assignable), 20-bit conversion, and 32-bit internal processing (44-bit EQ processing). Automation is aided by a 99 snapshot capacity (all controls), and motorised faders. There is on-board dynamics processing and a host of other effects provided by two on-board multi-effects processors. One option card slot in the rear is available for a variety of I/O configurations, including 8-track digital I/O and an additional four analogue outputs



Yamaha's O1v





Soundlink, and two 1212s for VST ensured brisk business at the Korg stand

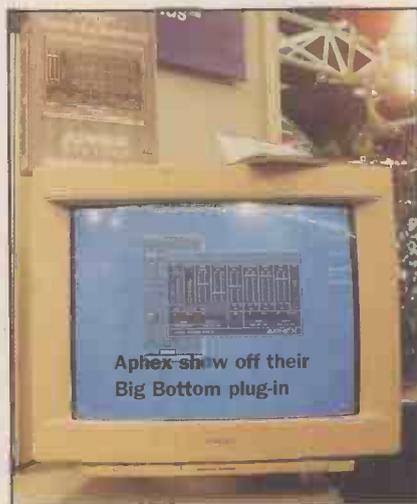
(enables eight track recording). See page 32 for our in-depth preview of the 01v.

Korg double up

A trip to the Korg stand revealed more than just the SoundLink system demo it first appeared to have on offer. The clever chaps at Steinberg and Korg have now developed a driver that allows two 1212I/O cards to work with Cubase VST, giving a total capacity of 24 tracks. Also, when VST V4 is released (expected July '98), it will support no less than four 1212I/O cards, putting VST on a new level for many potential users. The new two-card driver is hot from the developers office, and is available on the web.

Aphex on a disk

The famous Aphex Aural Exciter and Big Bottom processes are now available as TDM plug-ins for ProTools systems. It has taken some time, but Aphex are now happy that the analogue harmonic distortion enhancement process they have nurtured into an industry standard is just as good inside a computer as outside. The plug-ins are distributed by Stirling Audio Systems



Soundscape make a bit for the home user

(0171 624 6000), and cost £351 and £469 respectively.

Soundscape surprise

At the Soundscape stand we expected to see the latest upgrades to the solid, creative PC-based hard disk recording system that they are now famous for. What we didn't expect was a new PCI soundcard built and priced for the more modest project studio users and pro users alike. The Mixtreme card is exactly that. It has two TDIF ports on it, which adds up to an incredible 16 digital outputs on a single card, and it will be supplied with the Soundscape V2 MIXER software, so users can take advantage of third-party plug-in effects. The card is actually capable of mixing 32 PCI bus audio channels directly to its 16 outputs. The American retail price has been set at \$700, and you can get more information from **Soundscape on 01222 450120.**

VST enhancements

The list of Steinberg's Frankfurt announcements is very long. The big news, however, is that the next version of VST XT will actually be Cubase



VST 24 and Yamaha support – what a pair!

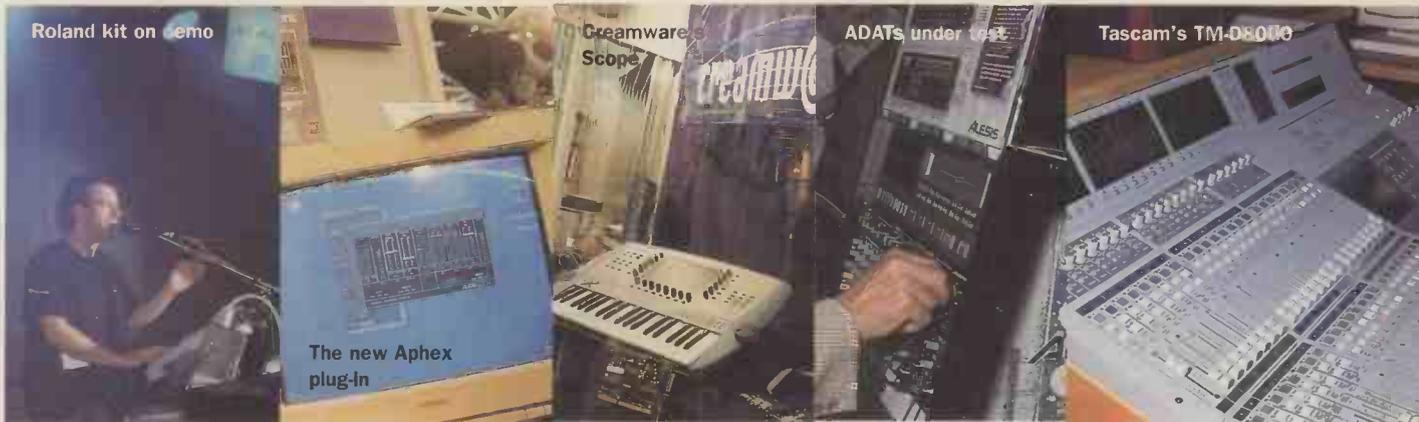
VST/24. Yes, that means 24-bit recording, playback and file export capability, with the bonus of 96kHz support! The maximum non-hardware channel count has been increased to 64. In addition, Steinberg announced that VST/24 will support Yamaha's new DS2416 PC card, giving 24-bit resolution throughout the system and more processing power than you'll know what to do with. Finally, Emagic users will be getting the VST treatment - Emagic have committed to using the VST plug-in format.

Creamware look forward

Creamware, a company best known for their TripleDAT audio editing technology, used the Frankfurt show to announce their all-new Scope system, an integrated, cross-



All smiles for the 20-bit ADAT



platform sound design system based around a new PCI card. The card uses 6 Sharc DSP chips to support a planned software family that includes FM synthesis, virtual analogue synthesis, physical modelling, additive synthesis, granular synthesis, and resynthesis, with the engine open to third-party support. The guts are 24-bit I/O, with 32-bit processing and 96kHz sample rate support.

Monster kit

I couldn't pass the Technosaurus stand without stopping to goggle at the incredible wall of knobs and switches assembled there. They're all part of the massive Selector Modular Synthesizer. Definitely analogue for the discerning, this monster is constructed from 13 modules, including triple resonator, octal subharmonic oscillator, and dual waveshaper sections. The system isn't cheap (\$130 to \$360 per module), but it is the ultimate analogue beast. **For UK enquiries, contact TSC on 0171 258 3454.**

It's a monster of a synth allright

New Drawmer MX

Drawmer have been gradually building their new MX range of affordable dynamics processors, and *The Mix* has given you the details as they have become available. The latest addition, shown for the first time in Frankfurt, is the MX50 Dual De-esser, price £285. With full and split band processing, a frequency range from 800Hz to 8kHz, and an 'Air' switch for maintaining high frequency integrity, it promises to be more than just another De-esser. Look out for a full review in *The Mix*. **Drawmer can be contacted on 01924 378669.**



Allen & Heath hope to make an impact with the new GS3000

A&H GS3000

It's been a while since Allen & Heath made their first major impact on the project studio with the GS3 console, complete with automated muting. At Frankfurt they showed off the newest GS console: the GS3000. It's an in-line 8-buss console with a choice of 24 and 32-channel frames. Channels feature 4-band EQ (fully parametric mid), and there are two dual stereo channels as standard (more if you want them). The MIDI mute automation is there, and as if this wasn't enough, there are two patchable valve pre-amps built in! Get the lowdown from Allen & Heath, on **01326 372070.**

t.c avalanche

The boys and girls at t.c electronic have been very busy. Their stand was bustling with new products and upgrades for the year ahead. In the hardware arena they have pitched in with a new microphone preamplifier: the Gold Channel. It has 24-bit A/D conversion, 96kHz EQ and dynamics processing, and the full complement of digital interfacing. It will be available in Spring '98 with retail price currently set at \$2,495. It seems that t.c are branching out into other manufacturers' products as well. A new multi-effects card, the TC Unity for the Yamaha O2R will be shipping by May. In software, t.c electronic were showing





The elusive Mackie digital 8-buss

Lexicon MPX100

AKG Solid Tube

GS3000



off multi-band dynamics processing plug-in for ProTools TDM (\$999), a new Direct X /VST plug-in package, Native Essentials (£159), and new graphic and parametric EQ plug-ins for Direct X users. More information from Raper & Wayman: 0181 800 8288.

Roland revolution

There were three major highlights in the long line of new Roland products announced at Frankfurt. First up, the

product that created the biggest buzz on the stand was the all-new 1680 hard disk recorder (£1750). It's got 16 real tracks, 256 virtual tracks, 24-bit resolution, and all the mixing, editing, and processing gizmos that have made the VS series so popular. This was definitely the most exciting recording product of the show.

Next up, the SP-808 (£1,099) an all-singing, sampling workstation with an 8-track hard disk recorder thrown in into the bargain. This is a genuine dance machine with phrase sampling, lo-fi effects, virtual analogue processing, and the D-Beam controller (everything you wish a Theremin was) for mid-air parameter control.

And finally, there's the new Sound Canvas software synthesizer: the VSC-88Me. Yes, it's a cross-platform SC synth that works in real-time for just £99. This product also heralds the beginnings of a new Roland Company, EDIROL, who will begin trading in April and who will be distributing the Roland desktop music products, and a new Video editing system. **More from: Roland UK Tel: 01792 702701; EDIROL Tel: 0181 956 2224**



The Roland VS range of hard-disk recorders sunning themselves on the stand

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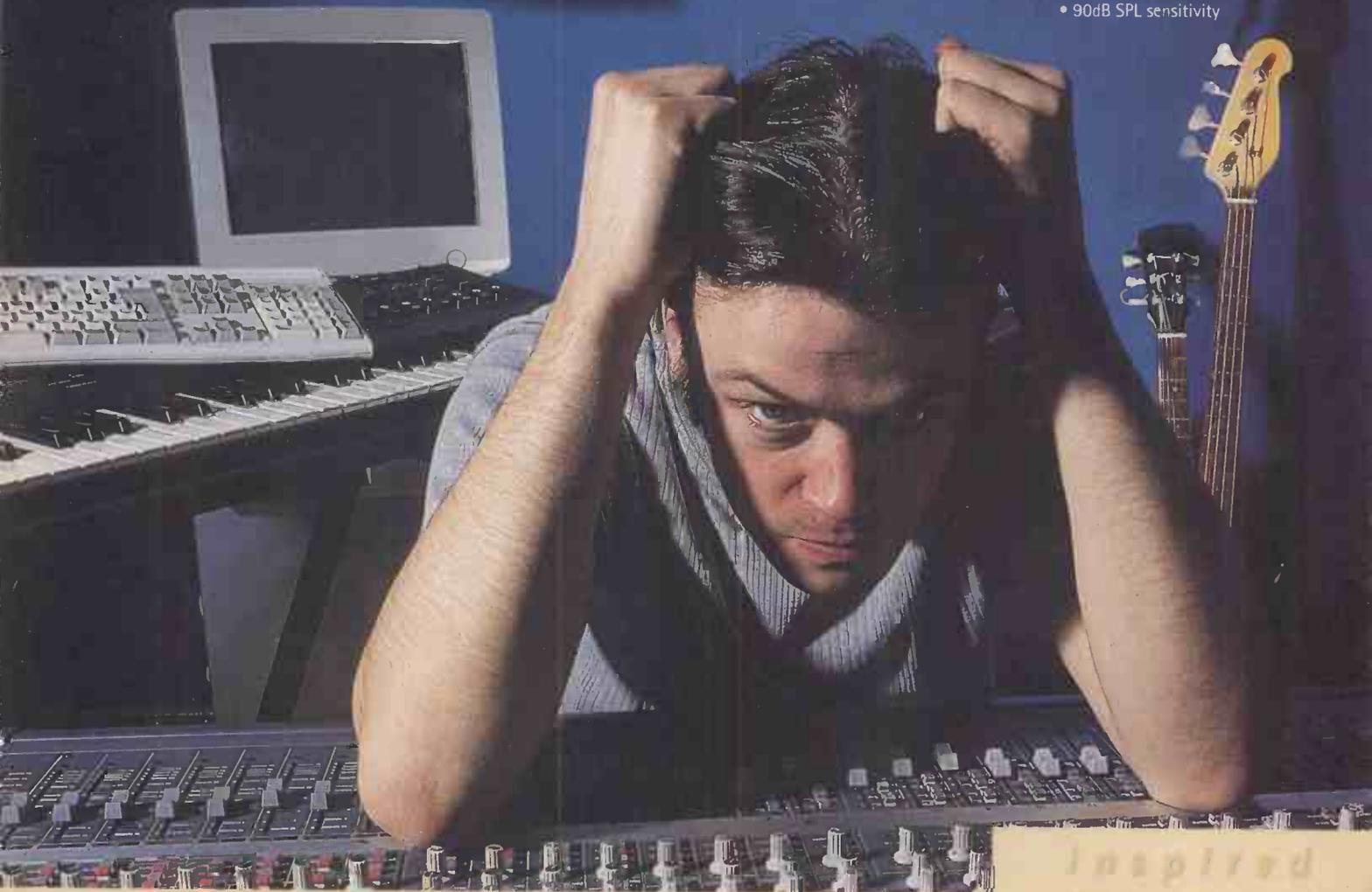
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A FIRST FOR ORAM

Oram Pro Audio have released a batch of new gear this month, including their first compressors. Sonicomp I (£1,595) is a 1U rackmount linkable 2-channel compressor with LED metering, while Sonicomp II (£1,733, pictured) is the higher-end model and is 2U high with large VU meters. Both models have individual LDR (light dependent resistor)/solid state switching, link switch, bypass switch, and rotary pots for

input level, threshold, ratio, attack, release, and output level.

Also from Oram, Octamix (£1,179), a 1U rack-mountable 8-channel mixer, and a makeover for the Microphone WorkStation (£2,281) 2-channel mic-pre with 4-band EQ, with improved features and specs.

More from: Oram Pro Audio
Tel: 01474 815300



TOP OF THE MARKET TO YOU

A new high-end Alesis drum module will be on the market this spring. The DM Pro is 64-voice, 20-bit expandable, and is both a sound module for MIDI composers and a drum trigger module for electronic drum performances.

With 64-voice polyphony and a 16 Mb ROM containing over 1,000 different sounds, the DM Pro is the most sophisticated Alesis module on the market. Up to four samples can be layered on each sound, and sounds can be customised with envelope control and onboard multi-

effects. 16 trigger inputs are provided, and six audio outputs.

Also in the high-end market from Alesis, the Q20 master effects processor. Providing a full range of effects, up to eight can be run in series, parallel, or fed back into themselves. 300 programs in total are supplied, 100 preset and 200 spaces earmarked for user-designed programs.

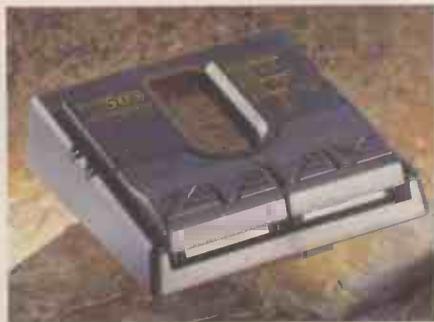
Price: DM Pro £799; Q20 £899
More from: Sound Technology
Tel: 01462 480000

ZOOM! SHAKE THE ROOM WITH NEW AMP SIMULATOR

There's three new guitar processors on offer this month from Zoom. First, the 503 Guitar & Bass Amp Simulator (£100, pictured), which is meant to re-create the sound of famous 'industry-

standard' guitar and bass amps, as well as enhancing the particular sound of a guitar or bass.

Next up is the 3000S Performance System, (£300), a pedal multi-



effects system for well-heeled guitarists, with 37 effect types and 80 pre-stored patches. And if you want to transform yourself into Peter Dinklage, a headset mic is included

for the famous talk-box effect (which is coming back into fashion, y'know!).

Finally, there's the 504 Acoustic (£100), which offers a combination of multi-effects for electro-acoustic guitars, and an acoustic guitar simulator for electric guitars.

Prices: 503 £100; 504 Acoustic: £100; 3000S £300
More from: Exclusive Distribution
Tel: 01462 481148



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IN BRIEF

The minidisc marketplace is hotting up, with two new recorders on sale from Denon this month. The DMD-1000 (£301) is a full-sized model, while the portable DMP-R70 (£300) offers seven hours of continuous recording or nine-and-a-half hours of continuous playback. More from Hayden Laboratories: 01753 888447

MTR's HPA-2 (£112) is a stand-alone mains powered stereo headphone amplifier with one main and one aux input. A hi-fi-type 'loudness' button adds bass and treble boost, and each of the two outputs has its own volume control and mono button. More from MTR Ltd: 01923 234050.

New record label/distributors Medium Moose are looking for distribution-ready material on CD to include in their spring catalogue. They specialise in world, dance, new age, ambient, folk, jazz, film score, and synth music. The company are also looking to sign artists for recording, release and promotion – send demos to Medium Moose Records, The Old Coach House, Cackle Street, Brede, East Sussex, TN31 6DX. More from: 01424 882661.

Korg demonstrator Steve McNally is in the UK for a whistle-stop tour showing off the new 'Entertainment Series' keyboards. You can catch him on: 23 April, Birmingham; 24 April, Nottingham; 25 April, Burnley; 26 April, Dudley; 27 April, Ipswich; 28 April, Torquay; 29 April, Worthing; 30 April, Bridgewater; 1 May, Bournemouth. For venues and times contact Korg: 01908 857100.

Producer Alan 'Dark Side of the Moon' Parsons has resigned as Vice President of EMI Studios Group.

Stirling Audio have taken on distribution of SPL (Sound Performance Lab), the German signal processing company.

A new budget signal processing plugin bundle is available from Waves. The cross-platform EasyWaves bundle (£125) includes AudioTrack (EQ, compression, expansion, and gating) and EzVerb (a reverb with 21 different set-ups). More from SCV: 0171 923 1892.

Loudspeaker system designers ATC have branched out with the new SPA2-200 (£1,750), a standalone stereo power amplifier. The design is based on the amps featured in ATC's renowned active studio monitors. More from HHB: 0181 962 5000.

DYNAMIC DESIRES



If you thought there were no original dynamics processes left, SPL have just proved you wrong with their latest creative effect, the Transient Designer. Using a technique they call 'Differential Envelope Technology' the Transient Designer imposes a threshold-driven envelope filter onto the audio signal with familiar controls like attack and release. In this way, transients are either accelerated or slowed down, and sustain portions are either lengthened or shortened.

Initial reports suggest that the effect is more

subtle and musical than straight compression, and SPL claim that all instruments in a mix can benefit. For example, they say that "The attack of a bass drum or sample can be given emphasis to increase the power and penetration of the mix," and, "Acoustic or electric instruments can be mellowed to reduce their attack." We look forward to seeing it.

Price: £998
More From: Stirling Audio Systems
Tel: 0171 624 6000

FOR 8-TRACKS ONLY...

Alesis' new Studio 24 is a console designed specifically for 8-track studios. Jim Mack, Alesis VP of Marketing, explains why: "Most small mixers attempt to handle every application in audio – studio use, live sound reinforcement, and so on. We set out to make the Studio 24 the ideal console for the 8-track, single-ADAT studio. Now, for less than the price of the original ADAT, you can put together a Studio 24 and our new ADAT LX20 and get the audio quality necessary for record release."

The studio 24 is an 'in-line' console, featuring eight mono and four stereo inputs, with two stereo groups for submixes. It includes eight phantom powered mic preamps, three band EQ with swept mtd, four auxiliary sends, and two stereo auxiliary returns.

Price: £625
More From: Sound Technology
Tel: 01462 480000

KORG GET HEAVIER

For those who prefer a weighted piano action on their synth, Korg's new N1 should be on the checklist. Featuring the same 88-note keyboard as on the SG Pro X piano, the N1 uses the AI synthesis system as used on the N5. With 18Meg of sample ROM onboard, the N1 gives you all the acoustic and synth sounds of the N5, but with additional pianos, organs and electric pianos.

Here's a few tidbits for you: 563 multi-samples, 286 drum samples, two stereo effects units with 48 types of effects, 1,169 sound programs, 302 combinations, velocity and aftertouch response, and an arpeggiator. Phew!

Price: £1,399
More from: Korg
Tel: 01908 857100



Get your hands on these bits

Soundtracs have completed a new digital suite to show off their Virtua and DPCII consoles. Located at their head offices in Epsom, Surrey, the suite will be permanently staffed by qualified engineers, and will also be used to show new users how to achieve the most from the consoles.

More from: Soundtracs
Tel: 0181 388 5000



IN AND OUT AND IN



Need a unit that'll manage your inputs and outputs? The LA Audio SPX2 is a stereo source selector and pre-amp primarily designed to augment the number of inputs, and the range of monitoring facilities, available on budget consoles. It can also be used for such applications as tape dubbing and digital

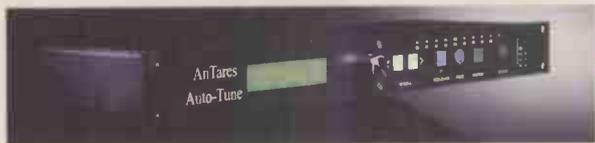
workstation recording. The SPX2 features six selectable inputs with a variety of connection formats and two independently controlled outputs.

Price: £299
More from: LA Audio
Tel: 0171 923 7447

PERFECT PITCH IN A BOX

The ProTools plug-in Autotune, is to be released this month in hardware rack format. Auto-Tune Rack, from AnTares Systems, is an automatic real-time pitch corrector which corrects solo vocal or instrument tracks to the required pitch without distortion or artifacts. The rack can be used in live settings as well, and vibrato can be added or eliminated, or special-effects created.

Grammy award-nominated producer Rhett Lawrence commented "Auto-Tune is one of the most innovative and useful production tools to hit the recording industry in years – an incredible time-saving device."



Price: £999
More from: Unity Audio
Tel: 01920 822890

FREE ASR-X UPGRADE

Ensomq have announced a significant upgrade to the ASR-X workstation, available free to all current owners. The ASR-X combines a sampler/resampler, synth, sequencer, effects processor and mixer together in a desktop design with pads. The upgrade can be downloaded from www.asr-x.ensomq.com.

Here's a rundown of the upgraded features

- Song Mode allows the user to chain sequences together in a song playlist
- Input Record Quantize allows quantization while recording
- SCSI disk copy
- SMDI Transfers
- faster ASR-10 loading
- support for ISO-9660 CD ROM enables the ASR-S to read .WAV and AIF files from any ISO-9660-format CD ROM
- Time Compression/Expansion for time-stretching and time-shrinking samples
- EFE/EFA File Support

More from: Key Audio Systems
Tel: 01245 344001



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IN BRIEF

Signex are replacing their industry-standard **Isopatch 'A'** gauge patch panel with a redesigned model. The new Isopatch has 48 fully-enclosed jacks, with a chromed ring for improved 'feel' when plugging and unplugging. Prices from £94 to £116 for a 1U panel. More from Isotrack: 01202 247000.

The *Mix* roving photographer **James Cumpsty** is running a personal selection of his work at London's Portobello Gold. The exhibition features his photographs of musicians over the last ten years, and runs until May 6th. More from Portobello Gold: 0171 460 4910.

Spice Girls' drummer **Andy Gangadeen** has purchased a studio system to take round the world with him on the Girls' live tour. Andy will use the system, which includes Yamaha 02R and 03D consoles, Fostex D160 digital multitrack, and Genelec 1030a active monitors, to work on his own projects during his 'spare time'.

The **Joemeek SC3** compressor (£2,349) will be available in 24-bit form from mid-April, making it completely compatible with the latest technology, including ProTools 24. Also from JoeMeek, the new version VC3 Pro Channel mic preamp/compressor/enhancer (£199). More from Sound Valley: 01494 434738.

Bias have upgraded their Peak and Peak LE digital audio editing software (reviewed in *The Mix*, Issue 42). Both versions are now at 2.0, with enhanced features and new tools, and Peak will now run on all Digidesign audio hardware that supports DAE, including ProTools 24 and III, and AudioMedia III. More from SCV London: 0171 923 1892.

Studiohire have expanded their stock with a plethora of musical instruments purchased from the BBC. The items now available for hire include a whole range of orchestral instruments, as well as some more unusual items including sitar and lute, and vintage keyboards. More from Studiohire: 0171 431 0212.

La Rocka studios in London have purchased Cubase VST, which they are running alongside their analogue multitracks on a Mac 9500 with a Korg1212 I/O card. La Rocka have also purchased new mics and outboard in the form of a Neumann U47 mic, Drawmer 1960 valve compressor, and two Focusrite Green EQs and mic amps.

02R on a card?

Yamaha are out to exploit the growing demand for PC-based recording systems with their new 'DSP Factory', an integrated 32-bit, DSP-based digital mixing and effects processing DSP card. The DS2416 card will allow full control of its considerable DSP power from the most popular software applications. As a bonus, there are two on-board multi-FX processors based on the ProR3 and REV500 units.

The five DSP chips (also used in the 02R and 03D digital mixers) employ 32-bit internal processing, with 44-bit

resolution for EQ, and will allow, say Yamaha, "02R quality mixing in a 24 input/16 buss configuration." Standard on-card I/O consists of two 20-bit analogue I/O, and 24-bit capable digital I/O. To accommodate more I/O, Yamaha have released the first in a series of peripheral products: the AX44, a 4 in/out analogue expansion unit that fits into a tower case drive bay. Up to two AX44s can be connected.

Price: Expected to be around £700
More from: Yamaha-Kemble
Tel: 01908 369269



New Z1 sounds

On the CD TRACK



Korg have introduced a new selection of sounds for their Z1 modelling synth. The Contemporary Card is dedicated to providing the latest and freshest timbres for those working on dance, synthetic, and experimental music.

A team of top programmers from around the world have put together 256 sounds, 32 multis and 15 apreggiations plus a complete demo sequence to demonstrate all the variations available.

You can hear the new sounds

in action on *The Mix* cover CD, with two of the factory demo songs, as well as a bunch of individual multis demo'd.

Price: £129
More from: Korg
Tel: 01908 857100

Ready, DRAW!

Drawbar organs are coming out thick and fast these days, with Hammonds, Rolands, Oberhelms, and now the 'Virtual Tonewheel Drawbar Expander' from Blue Chip Systems. The OX7 puts a set of drawbars in a handy 'keyboard-top' box and imitates the sound of classic Hammonds using software modelling. All the essential parameters are adjustable, from percusslon, lesle, vibrato, keyclick, distortion, and reverb. Classic organs that are modeled are the Hammond B3 and H100, and the Wersl Hellos/Galaxis and Spectra/Atlantis.

Also new from Blue Chip is the AXON MIDI guitar system, which the company claim solves the problem of slow pitch recognition by analysing the initial impulse of a plucked string, so determining the pitch almost before the note sounds. The hub of the system is the AX100 controller, which takes care of all the MIDI shenanigans. An optional sound board provides up to 676 internal sounds, 21 drum kits, and 32-note polyphony. Splits across strings and along the fretboard are possible, and pick-ups have been developed for all guitar types.

Price: OX7 £1099; AX100 £699-£799
More from: Cimple Solutions
Tel: 0181 904 4141

DIGITAL ENSLAVEMENT AT ABBEY ROAD



London's Abbey Road Studios have recently expanded their collection of TL Audio equipment with a M-2 8-channel valve mixer. The mixer has already seen action in sessions with Ruby Turner and Ravi Shankar. Engineer Alex Marcou, who has been using the mixer since its arrival, commented "When given the choice, I always record onto analogue, but when forced to record digitally, the M-2 enables me to obtain a digital recording with analogue characteristics."

Price: £4,699
More from: TL Audio
Tel: 01462 490600

NEW HDR SYSTEM

A sub £1000 cross-platform hard disk recording system has just been launched by MOTU (Mark of the Unicorn). The 2408 system runs on both Mac OS and Windows, and offers 24 simultaneous I/O, and real-time effects, with optional expansion to 72 channels.

The system consists of the PCI-324 PCI card and the 2408 rackmounting I/O. The PCI-324 features three 'firewire' connectors for connection to up to three 2408 I/Os, an ADAT Sync In connector for accurate time lock with ADAT compatible machines, and a Digital Timepiece Control Track connector, for sample accurate synchronisation with MOTU's Digital Timepiece universal A/V synchronizer.

A single 2408 I/O can provide up to 24



simultaneous I/O channels, arranged in three assignable banks of eight channels each. Physical I/O consists of eight RCA analogue inputs (20bit, 64x oversampling), three 8-channel TDIF I/O connections, and three 8-channel ADAT optical I/O connections. Three S/PDIF connections provide additional stereo I/O, and stand-alone format conversion between ADAT and TDIF is also possible.

The 2408 system comes complete with its own audio workstation software, with waveform editing, automated mixing, and plug-in compatibility with MOTU's own Audio System format, and Adobe Premiere format.

Price: £995
More from: Musictrack
Tel: 01462 812010

BOMBS AWAY

Into the battlefield that is the digital multitracker market, Fostex have released the second version of their DMT-8 VL. The new version is supplied with a 1.6 Gb drive as standard, allowing up to 37 minutes of 8-track recording. The software has been upgraded to version 2, providing features such as Mix Bounce, which allows users to create digital stereo left and right mixdowns of their 8-track masters on the same hard disk; nine virtual reels, and a new graphical preview function for faster editing. And it comes with the 8339 SCSI interface for fast backup and restore to external media.

Current DMT-8 VL owners may purchase an 'eprom' upgrade kit for £29, and will be reassured by SCV's Service Department, who contend that "any competent individual can undertake the fitting operation with ease".

Price: £999
More from: SCV London
Tel: 0171 923 1892



THE CONNECTION IS MADE

If there's such a thing as an exciting MIDI interface, Opcode's new Studio 64XTC is probably it. Like its sister product, the 64X, it features four MIDI ins and six MIDI-outs, with full SMPTE reading and writing, and can be used with both PC and Mac.

But the 64XTC goes even further with a built-in ADAT sync port; simultaneous Wordclock and Superclock; a Video Reference input; and the soon-to-be-released Sony 9-pin card to enable 9-pin compatible audio and video products to be controlled from a sequencer.

The 64XTC is compatible with a wide range of Windows and OMS MIDI software, including Digidesign, Emagic, Steinberg, and of course, Opcode. There, we told you it was exciting.

Price: £429
More from: SCV London



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let's be 'avin yer letters, then!**

Amigas alive! (continued)

Another Amiga advocate wishes to make his feelings clear after reading *Letter of the Month* in issue 47:

Please, please, please feature some Amiga stuff in the mag. I've had an Amiga for a few years and over that time have gathered, via magazines and public domain, various sequencer disks including Bars & Pipes, Music X V1.1, Tiger Cub, and Octamed. The various magazines have supplied enough info to get the disks up and running, but have never gone deeply enough to do anything other than scratch the surface of what they are capable of.

Dave Griffiths, Stockport

Chris Kempster replies...

Do you really think we'd bother wasting good space on an obsolete platform that's only good for games and tracker programs? Oh, go on then...yes, you'll be pleased to hear that from next month we'll be doing a regular column dedicated to making music on the Amiga. It'll be called (surprise, surprise) *Amiga Toolbox*, and will feature the same heady mixture of news, reviews and advice as our *Mac*, *Atari* and *PC Toolboxes*. Are you happy now?

He's a big softy really. Is there anything else you think we should be covering in *The Mix*? Tell us about it.

Automaton (continued)

A couple of letters to add to our ongoing discussion of musicianship versus the programmer.

With the advent of computer-aided design and desktop publishing, it was evident that purchasing a very expensive pencil won't make you a Michelangelo. So it's also obvious that the availability of electronics and the digesting of various materials doesn't produce musicians. Most output is just tracks or sounds, but not song or music, because there's something lacking called inspiration. Like soundtracks with the pictures missing, there's just not enough

beef. It's so easy to whack out stuff that sounds like other things. If, for example, a guitar three-piece took the same approach, people acquainted with the resulting rumble would hear soon the lack of content and stop them. Let's see how long people are fooled by cool sounds, FX, beats, loops, and so on, until they shout, "The emperor's new clothes!" Okay, the verse/chorus thing's not the last truth. It's just harder to avoid it and not fall into the 'clever', or aimless dribble. At the end of the day it's still about ideas, quality, and why some music gives you goose pimples, or makes you melt with joy.

Frans Stummer, Müldorf

I, along with my musician mates, seem to feel that there simply is no argument with regards to the 'are programmers real musicians?' issue. Within our 'posse' there are guitar players, vocalists, and drummers, as well as programmers and techno people such as myself. We all admire each other for what we do and use our skills to help each other to produce the best results possible. Although one of my friends is a classically-trained rock guitarist and composer, he appreciates and understands my love for technology and helps me with the more conceptual aspects of making dance music, even if it is far from his preferred taste. And the situation works well in reverse too. The same mate will be happily strumming along content in the knowledge that everything he plays will be faithfully recorded on my hard disk recorder,

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Email us: themix@futurenet.co.uk

whilst I sit admiring his talent and using mine to make his music sound as good as it should be. So, no arguments please. We all do what we do 'cos we love to make music.

Alex M, Warwick

There are some interesting points coming up in this discussion – lack of originality, lack of energy, peace, and love for your fellow man. Keep them coming. We're off to hug trees.

Message in a bottle

I'm glad to see such qualitatively good articles in your magazine. Especially the articles that feature Atari software – these are very interesting. Most German music and computer magazines are close to the industry and they only write about these products where the manufacturer places big advertisements. Congratulations. Max Nupert, Email supplied

Yeah, there's an English magazine that does that as well. Anyway, we would have made this *Letter of the Month*, if it wasn't for our integrity.

Internet Forum

Want more talk? Then check out the FutureNet HiTech Music Forum, a live Internet chat page. In the coming months we'll be relaying the best bits from there, in here, and relaying the best bits from here, in there. So type <http://www.futurenet.com> into your browser and say hello to the rest of The Mix-reading world. You can advertise gear for sale, ask questions, stick your oar in on any of the subjects discussed in *Open Mic*, or start your own argument. See you there.



Jack off

Yes audio gear is too expensive, as is everything in this country. Compare the prices with the USA and Canada, and that will reflect the true value of musical gear, and it gets transported by air/road/boat to all four corners of the USA and Canada, so what f**ng excuse has this country got for robbing us? And reading reviews in magazines justifying the price of musical gear in this country – reviews by simpletons who also demo the reviews onto CD, and it sounds bloody sh**y month in, month out. Bear in mind Sir George Martin and The Beatles – the sound quality is absolutely bang-on – no hype, no CDs, no MiniDiscs or computer software, in fact, the human touch and mind is the best computer.

People cannot shop with confidence these days, fearing that the gear they have just purchased will be out of date and bang goes a thousand quid by the time they have just got to grips with the manual. I say b**cks to the reviewer of *The Band* magazine who this month reviewed the Korg D8 Digital Studio, and tell him to get a decent brain to impress us true musicians. The answer to your 'Automaton Bit The Answer' [a referral to the 'technology versus musicianship' argument] is yes, bloody sad w**kers – zombies – the newborn chick and the parent baboon mentality [?! – Ed]. Industry standard these days is evident in its poverty and soulless crap attitude, and they have CVs and qualifications and training in all that cak. Radio proves that. DJs that all stink of one family of clones in love with crap broadcasting of crap they call 'top notch'. Was Sir George Martin bottom notch? No way. All the Chelsea Kensington Wimbledon jobs for sound-alikes on the radio is unbearable trash from Tory status quo dictators trying to forcefeed us, but in fact they are starving us.

Jack Elgood, Letchworth

Chris Kempster, err, replies...

Let me shoot down – I mean, answer – your points one at a time:

(1) "Audio gear is too expensive, as is everything in this country" – Have you thought about emigrating? [for our sake as well as yours!]. Seriously, though, recording equipment has never been cheaper than now, and though some imported gear may seem expensive compared to its cost in the country of origin, often UK-built gear also seems expensive when exported around the world.

(2) "Reviews by simpletons" – I wouldn't call any of our reviewers simpletons, especially when many of them are successful producers and engineers in their own right. How many Top 10 albums do you have to your name, Jack?

(3) "Sir George Martin and The Beatles – no hype, no CDs, no MiniDiscs or computer software" – Well I can't argue with that. But if you're suggesting that they wouldn't have used the latest technology available, then you couldn't be more wrong. George Martin

was known for using the latest technology available to him, and Sergeant Pepper featured a host of innovative recording techniques? And I think that if you were to visit Martin's Air Studios today, you might just find the very latest in recording technology available.

(4) "I say b**cks to the reviewer in *The Band* who this month reviewed the Korg D8" – Well, I say b**cks to you, my friend, for I was that reviewer. In your first point you say that everything's too expensive, but could you have paid just £850 for an 8-track recording system plus effects even 10 years ago? I think not, but that's exactly what the D8 offers.

As for your other points... can I offer some advice? Get a new hobby (and a girlfriend, and a life...) and leave music-making to those who are grateful that today's technology allows them to record their music to a higher quality than ever before.

Ooooooooooh. A hot one this. Does anybody else have anything to say?

It really happened (continued)

After reading some technical support funnies in the last issue of *The Mix* in *Open Mic*, I thought I would send you some more tech support funnies, which are actually excerpts from a *Wall Street Journal* article

by Jim Carlton. Hope you like them.

1) Compaq is considering changing the command "Press Any Key" to "Press Return Key" because of the flood of calls asking where the "Any" key is.

2) AST technical support had a caller complaining that her mouse was hard to control with the dust cover on. The cover turned out to be the plastic bag the mouse was packaged in.

3) A Compaq technician received a call from a man complaining that the system wouldn't read word processing files from his old diskettes. It was later found that the customer labelled the diskettes then rolled them into the typewriter to type the labels.

4) A Dell customer called to say he couldn't get his computer to fax anything. After 40 minutes of trouble-shooting, the technician discovered the man was trying to fax a piece of paper by holding it in front of the monitor screen and hitting the 'send' key.

5) A Dell technician received a call from a customer who was enraged because his computer had told him he was 'bad and an invalid.' The tech explained that the computer's 'bad command' and 'invalid' responses shouldn't be taken personally. Shane McDonnell, Email supplied

Thank you, Shane. Anyone else got some atrocious audio stories? Send them in now!

Letter of the Month

Creative cock-up?

(Reference: *The Mix*, issue 47, Help File 'Compound Conundrum').

It should be of interest to your readers to know that certain editions of the AWE64 Gold soundcard do not work properly with bog-standard Roland PC-200 keyboards. Creative is aware of this, as are readers in despair in *The Mix* and *Future Music*. But the heavy advertisement campaign seems to continue with no official explanation.

I bought my first AWE64 Gold in Oslo, Norway, traded it back to the retailer, got a nother one, and finally got one directly from Ireland. It works, but I didn't bother anymore. Sold it to my brother. No one ever told me that my bog-standard MIDI keyboard wouldn't work with the all-standard 'sound blaster' soundcard. Someone should tell the talented readers of your mag that there are other good soundcard options available. The AWE64 Gold seems to be trouble – be warned. And I guess a serious magazine like *The Mix* can fill their pages with multi colour advertisements for products that do work, flawlessly, with all sorts of standard MIDI equipment.

Erik Meyn, Norway

We went straight to the source for an answer on this one. Here's what they had to say:

Creative Labs have had reports of some customers experiencing difficulties with the AWE64 Gold and the Roland keyboard. Our development team in Ireland are looking into the problem and would like to speak to any Creative AWE64 Gold soundcard users who have had similar difficulties. We would like to extend our apologies to anybody who has had this experience – please call our technical support hotline on 01189 344744 where we can check the problem with you, with a view to returning your card for a short period for testing and to rectify the problem.

Kate Lovegrove, Creative Labs UK

Are there any other topical questions you want answered by a manufacturer, distributor, recording studio, or industry personality? Give us the job of getting a response. We have hotlines to everything [what, even Kate Winslett? – Ed].



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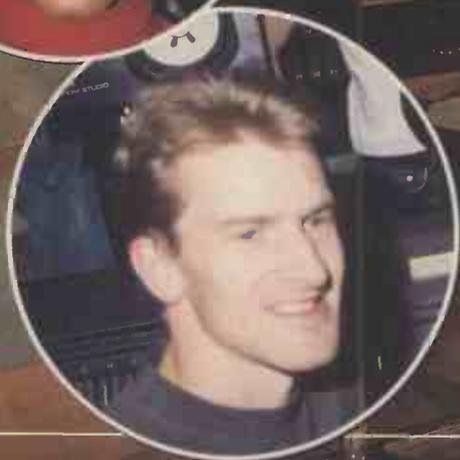
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STANDING STRONG



● Strongroom

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In its 13-year history, **The Strongroom** has proved to be one of the most versatile studio complexes around. **Nick Serre** follows a year in the life



“Back in 1985 we were just one studio” says owner Richard Bootes. “By 1989 we’d opened up the second studio, and got involved with Jamie Reid on the interiors.” (Jamie Reid is, of

course, famed for his artwork for the Sex Pistols, and The Strongroom’s studios are all host to his anarchic decor.) Since that time, The Strongroom has built three main studios; host to, respectively, SSL, Neve, and Euphonix consoles, as well as smaller studios, and numerous programming rooms which are rented out to producers and engineers.

“In the mid ’80s we were attracting a lot of mid-price clients” explains Richard. “We had an Amek console, and by 1987 we also had what you might call an experimental MIDI suite, too. MIDI was still in its early stages, but, as ever, we wanted to offer the latest technological developments.” After a few years developing their knowledge of sampling and MIDI, the Strongroom team made a conscious move toward becoming a top-flight facility. “We built studio two in 1989,” reminisces Richard, “and that was the turning

point really. We provided a studio where you could mix, but it also had all the MIDI and computer side integrated into it. We did that quite a long time before anybody else, and that really gave us a leg up.”

By the early ’90s, it became apparent that The Strongroom could not survive as a mid-price studio, and so the team took the decision to become a top-flight studio. As Richard recalls, “It came to a point where a lot of the work people had been doing here they could now do in programming rooms, or even at home, so we replaced the Amek desk with a Neve. It was a smaller one, only 48 inputs, but then we added an SSL in another studio, and started to attract bigger clients.” 1996 saw the inclusion of a Euphonix CS2000 console, and the lineup of equipment was virtually complete. “I’ve always wanted to be able to offer all the variations,” Richard enthuses, “I’ve never wanted to go all SSL or Neve. The Euphonix offered the perfect environment for studio two, which was going to become surround sound.”

Surround sound is high on the agenda for The Strongroom, and they have already mixed numerous film scores and even some commercial singles, including Erasure, and currently, Underworld, on their Dolby 5.1 surround sound system, installed in the Euphonix room. Monitoring for the system is provided by a Neil Grant Boxer six-way system based around T5 and T3 monitors. Ever at the cutting edge of technology, The Strongroom have been quick to embrace the concept of surround sound despite the fact that it is still a rarity in single or album recordings. “There’s more and more support from record companies regarding surround sound and DVD” observes Richard. “I think at this stage it’s still quite experimental, but there is a definite interest occurring.”

In addition to Strongroom’s own studio complex, and their associated rented studios, there are other offshoot projects involved too. There’s Strongroom (and Pacific) Records, (“Mainly a dance label set up a couple of years ago – we’re just about to release the first compilation CD” says Richard), Strongroom Management, seminars on surround sound, and, just completed, the Strongroom bar/restaurant, which is destined to be a hive for producer and musician intercourse (purely social, obviously).

Strongroom Management represents six engineers, producers and programmers whose work covers a diverse range of styles, from Jamiroquai’s Mike Nielsen, to Roachford’s Dave Pemberton, and the Prodigy engineer, Luke Gifford. Many of the producers and engineers



FEATURE ■ THE STRONGROOM

have been with The Strongroom for years, often starting as assistants or runners. "Our priority here is to make the most of the people who work here. The studios developed from their skills and vice-versa, and it got to the point where they no longer needed to be sitting around studios learning their skills. They needed to be developed as producers, so we took on the business side as well. Two of them, Mike Nielsen and Neil McLellan, started off as assistants here, and now they are top-class producers with their own studios here. I just believe in growing and developing with the people that are working here."

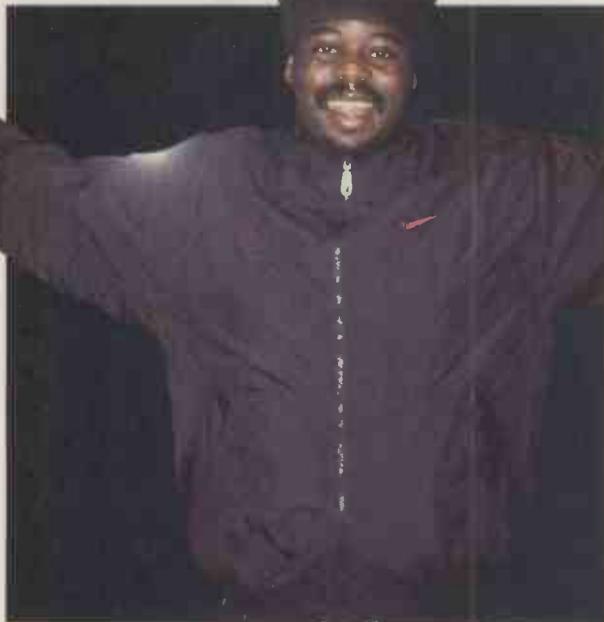
To this end, there is a very communal feel to The Strongroom, with numerous producers and artists working on various projects as well as interacting on ideas. The newly-opened bar will add further to this, and, as Richard concludes, "I think it will really serve as a focal point for everybody. We've got the six production rooms here, too. Those are used by people we don't manage, but they really are part of the family. Aside from meeting in corridors, there was never really a central point, so we're hoping the bar will spark off a lot of ideas and creativity."

So what has the last year seen The Strongroom Euphonix studio doing? MD Rob Buckler takes us through it all:

July 1997

We were putting the version 3 software onto the Euphonix console so we had a testing period during July. Artist-wise, we had a guy called Fayney come in in July. He's Courtney Pine's engineer; he was in for a while doing bits and pieces. He was doing his own kind of thing at that point in time. That was a bit strange, because he booked studio two thinking the SSL was still in there. He was loath to do the album on the Euphonix, but he did, and they were all really pleased with the results. The other band we had in were called Locust; Mark Van Hoen was producing, with Luke Gifford engineering. They were into recording live stuff. They were in for a few days and were using studio two. We also had an individual called David Carr, that was quite an interesting one. About a year ago *Future Music* ran a competition for their readers to send in a demo tape. The panel decided on the winner, and you could win a day mixing in the studio. He won. The other band we had in were Arc Angel, which Mike Nielsen was producing, with Dave Pemberton engineering; a real Strongroom team effort. That was July in Studio 2 in a nutshell.

Courtney Pine's tree stunt



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August 1997**Beverley Knight**

Arc Angel actually carried over into August, still with Mike and Dave, to finish off the project. They were in for quite a while in all. I think the album took a little longer to finish than they had anticipated, but it sounded great by the end of it. August was quite a busy month. We also had Beverley Knight doing a single and some remixes. That was also engineered by Mike Nielsen, and Colin Emmanuel was producing.

Also Locust came back in again, so Luke Gifford was busy engineering that for most of the month. Another band was Bianca Kinane; they were in for a couple of days recording and mixing with producer Joe Crisp. Tim Weidner was engineering that. He works out of Sarm quite a lot, so he's pretty familiar with Euphonix. He did some of the M People stuff. Towards the end of August we had Kiki Dee in. That was engineered by a guy called Andy Strange. Again, they were in for just a few days, working on album tracks for Kiki.

September 1997

In September we did some bits and pieces with Strongroom Records. That involved getting the various bands in for a compilation CD that Strongroom Records are due to put out later this year. Although the record side of Strongroom has been around for a couple of years, the management side has been more of a priority recently. There are some new acts that we're looking to sign later in the year, using the engineers and producers we represent, but the next step is to get this CD out, of acts we've already signed to either Strongroom or Pacific, so the profile is high when we get stuck in to the new stuff. It's mainly dance-based material, and we've got some real talent up-and-coming. Studio-wise, it was a pretty quiet month, really. We did one day with Talvin Singh, who was producing Jai Uttal, and I guess he liked the studio, because he's working on his new album here now. It was a very quiet September, but we were going through the process of negotiating for the new console, the Euphonix CS3000M, which was exciting, since we'd heard a lot about the improvements over the 2000, and were keen to get our hands on the beast.

October 1997

In October we had a band called Krusty in, from Norway, mixing an album project for ten days. That was mixed by a guy called Mads Bjerke who works in one of the programming rooms upstairs. He works with Spring Heel Jack, too. Soon after that, Spiritualized came in just to do a mix, also with Mads, and Jason Spaceman producing, and that was the last session on the Euphonix CS2000 console. The whole studio got a refit to make space for the new CS3000M console. The whole room was rebuilt, so the room was out of action for two weeks. Rather than install the new desk without doing further work, we wanted to substantially upgrade the studio, and that meant taking out the walls and the floor, taking out old furniture and realigning all the acoustics of the room, rehousing the speakers, and realigning all the speakers, to improve upon the existing surround sound set-up. It was a major refit, but it seemed silly to install the desk, and then build the room around it. The whole studio was also rewired. Only then did we have the new console installed. So that was three weeks out of the schedule.

November 1997

The newly refurbished Euphonix studio was finally finished on November the 11th. We had a band called Marvel in from New Zealand, produced by Mike Nielsen, and during November we also did the first real surround sound mix. It was an Erasure track, 'First Contact', produced by Gareth Jones and Phil Harding and mixed by Dave Pemberton. That was basically done to illustrate what could be done in surround sound, particularly for Euphonix, DTS and Strongroom surround. That was specifically done for the seminar on surround sound which we ran later in the month. We were all overwhelmed by the end result, and have used it as a demonstration track when we do seminars for producers and engineers on using surround sound for single and album releases. Then we had a band called Into Another which was being produced by Neil McLellan, and they were in for a few days towards the end of the month, again on the new console. It was around this time that there was such a buzz about the new desk, and some people were a bit intimidated by it. But it proves how straightforward it is to use, because by the end of the month it seemed second-nature working on it.

December 1997

December was a busier month. Things were obviously hotting up with the new console, as word got around. Sunlight Experience were in, which was the latest project that Mike Nielsen produced. He also engineered it. Also at the beginning of December we had the surround sound symposium, as we called it, which was basically Euphonix, DTS and Strongroom getting together to demonstrate what can be done with surround sound. David Tickle flew in from LA. He's Prince's engineer, and he also did a lot of the last Belinda Carlisle album in surround sound. We had about 150 people down over a few days, and it went down a storm. We were running mixes in stereo and then with surround sound, mainly using the Erasure track. Then we had a major album project here, called Stony Sleep. They were doing a new album being mixed by someone called Machine from New York. He's been using Euphonix a lot over in the States, where there are still a lot more of them around than over here. He was there until Christmas time. It was a pretty big project, but he seemed really pleased with the whole set-up.

**Busty: big and upfront. We luv 'em!****January 1998**

January was quiet, being post-Christmas. We had a guy called Matt Winn in; he was from Deeno, for a while. We also did a lot of training days. It works quite well that when we don't have many paying sessions, we can do a lot of producer and engineer courses. We had John Coxon, and Dave White from Euphonix in. George Schilling did a day. Tony Harris also did a day with us - we had quite a few in. The seminars work really well, and we're really build-



Prodigy (pictured) engineer Luke Gifford is represented by Strongroom Management

ing up a good base and getting a lot of feedback from those sessions. It also helps us, because we can always learn things from each other. Be that to do with the studio or production techniques in general, it's beneficial to everyone involved. We had SSV in for a while, as well a Kerry Ann, and then a band called Dela Cota. All of those projects were a matter of a few days, so the January emphasis really was on the training aspect.

February 1998

In February we had 911 in, produced by Phil Harding. That was one of the first sessions that Phil did on the Euphonix. He was a bit frustrated because he hadn't had a chance to use the desk yet. He'd recorded all the parts in his own studio, but wanted to use the Euphonix for mixing it. The results were great, and he was really pleased with the desk. We had Ken Ishii, who was self-producing some material, with Luke Gifford engineering. Sunlight Experience were in for quite a long time, working on an album project with Mike Nielsen. We also had a band in called Deep Joy. We did a film soundtrack for Hans Zimmer. He didn't actually come in himself, it was one of his engineers, but apparently he was overwhelmed by the end product. That was done in 5.1 surround, and using some bizarre methods we managed to get the large orchestra literally spinning round the room. After that we had Dela Cota back again to continue on their project.

March 1998

Bedlam Ago Go's album was completed, and Dave Pemberton started work on some new top-secret projects. We also had Dela Cota working on their album project, and we've been doing more training. What happens there is, we book a day over to whoever it is going to be, either a producer or engineer, and Graham from the Euphonix office comes along, who's the UK trainer. He comes down to the studio and just takes them through the console. We provide the delegate with a two-inch tape, and basically they just sit there and have a bit of a play. Some people bring in their own material, and some use stuff that we've got and use the time as a kind of tutorial session. Some people come in and record live bands. It depends how they want to work it really, and what they need to learn about the desk. We encourage people to come down even if they do know the console, because there are so many aspects to it that people don't necessarily know about, so we feed off each other. Actually using the desk in a studio environment with the latest software is more enlightening than spending a day at Euphonix. The Strongroom is pretty much the only place where that happens.

April 1998

We released the first Strongroom Records compilation CD. It's a compilation of the dance acts that have been signed to Strongroom Records over the last couple of years, and hopefully will act as a springboard for the other artists we're hoping to sign later in the year. April also sees the long-awaited opening of our restaurant/bar complex, which I'm very excited about. The downstairs will have a 5.1 surround sound system, so we'll be doing playbacks and continuing the seminars there." Studio-wise, the DVD development takes off with an Underworld project, which is a kind of experiment with the 5.1 system. Mike Nielsen is producing that, and he's really excited about it. It's material for their new album, which they're writing with specific surround sound elements in mind, so that should be interesting. Following on from that, there's more sound to picture work to do. Also, there's a well earned break in store.

May 1998 – June 1998

Adding to our management roster, Strongroom are also looking at a few artists to sign to Strongroom Records, in the light of the compilation release. Sunlight Experience are in again with Mike Nielsen to finish off their album. It was all recorded at residential studios, but they felt The Strongroom was the best place to come and mix it. We're not too sure what's happening after that, but we'll certainly be continuing the training days and seminars; they are becoming a pretty crucial role for us, and as I've said, they are really useful for exchanges of ideas. As is the bar, which will be fully up-and-running by this time. A lot of people are waiting with bated breath for that, and we really think it will be a success in terms of bringing people together as well as incorporating some of the technical aspects of the studio. We'll also be developing the surround sound aspect even more. A lot more people are more interested in the notion of surround sound now, because it offers them a new dimension, and it's something completely new. Part of our ethos is to provide that service, and we're more than happy to educate people about the possibilities.

Euphoric: Phil Harding on the Euphonix

With production partner Ian Curnow, Phil has produced some of the pop classics of the last ten years. From Kylie to Jason, and more recently, *East 17* and *911*, he's a producer who knows a potential million-seller when he hears one:

"Even though we've got the capability to mix tracks in our own studio within The Strongroom complex, we do most of our mixing in studio two. Getting to grips with the Euphonix didn't take anywhere near as long as I thought it might, particularly in view of the type of sessions that take place. Studio two is really dance-oriented. It's really more of a one man show with the Euphonix, so you can't really have loads of people grabbing faders on a mix, because it will affect more than just that. One person controls it and that's the way the session runs and it's cool.

The first session I did was the experimental Erasure soundtrack, with surround sound, and that was fantastic and went down well on the open day we had for it. We tend to record on analogue and then into Cubase Audio, although if we could afford it we would probably replace it with the Radar. Unfortunately we don't have a spare 20 grand at the minute.

It looks like we're doing a TV project soon, but I can't say too much about it at the moment. It's a music industry spoof and the people that are in it are hoping that it will be as funny as *Spinal Tap*, but as a series. It requires quite a bit of incidental stuff. We've been keen to move into TV and film for a while now. That's a major thing on the horizon.

We're probably going to do more with 911, the next album. Most of the bands we work with nowadays tend to sort of have about two or three production teams. It works for us cause it means that we are free to other things too.

We'll be using more surround sound too. It really seems to be taking over in the States, and it will only be a matter of time before it gets here. At the AES last September, I was really surprised to see how widespread it was. I had been waiting for it to happen and the revolution had already started!"

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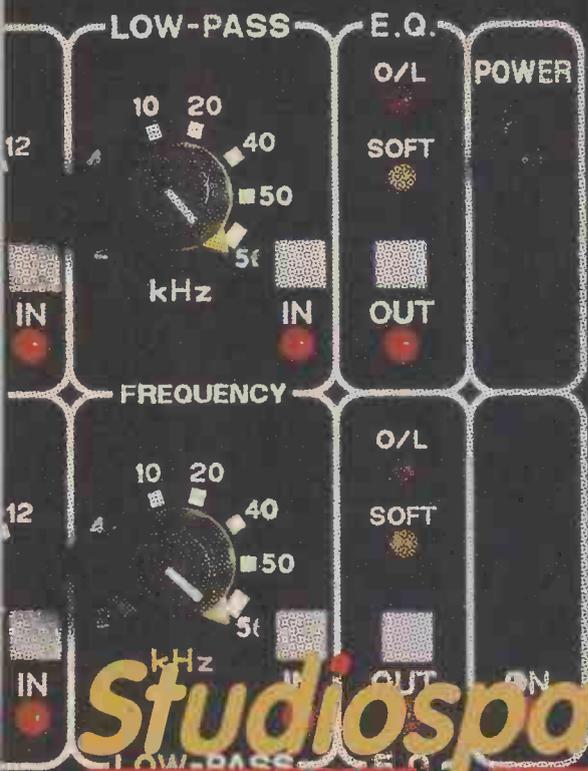
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REVIEWS

**EXCLUSIVE
PREVIEW**

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YAMAHA 01v



This month...the first look at Yamaha's 01v digital mixer, plus Akai's DPS12 hard disk recorder, Tubetech's luxury MEC 1A voice channel, and more....

Who tests the gear

Our team of equipment reviewers are all audio industry professionals, experts in their chosen fields – engineers, producers, musicians, software specialists and audio journalists. This means that you can trust the opinions expressed in their reviews.

How the gear is tested

Wherever possible, the gear we test is used in actual sessions. Indeed, some of the biggest-selling records this year will have acted as testbeds for our reviewers.

We believe that to truly evaluate kit properly, it needs to be tested in studio conditions – not a dark room!

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Products that are judged to be outstanding by our reviewers are awarded the 'Editor's Choice' tag. In a standard review, this means that the product offers exceptional performance for the price it retails for. In group tests, there may be two awards – 'Best Performance' and 'Best Value'. The 'Best Performance' award will go to the product that offers the best performance *irrespective of price*. The 'Best Value' award will go to the product that offers the best price/performance ratio.

Hardware

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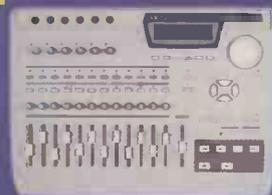
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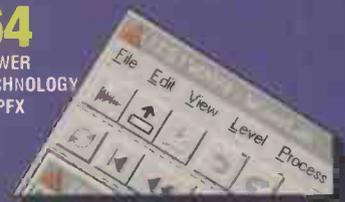
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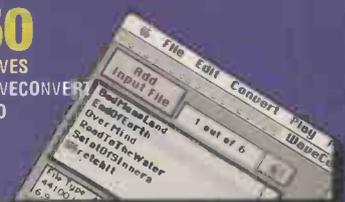
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YAMAHA 01v

Digital Mixing Console approx. £1600

Yamaha are almost ready to unleash their latest digital console on the project studio market. Bob Dormon takes an exclusive peek for us

Rupert Murdoch dominates the newspaper industry, Bill Gates dominates the software industry, and it's probably fair to say that Yamaha dominate the compact digital console industry. What all three of these commercial giants share is an apparent monopoly that brings us such moments in history as 'It was *The Sun* wot did it', and the millenium bug.

So will Yamaha's high-profile presence in the digital audio marketplace bring about any undesirable elements in years to come? Lest we forget the Taiwanese programmers who, on the Chinese version of Windows '95, typed in abusive alert messages for their overbearing Chinese neigh-

bours to read, maybe come the twentieth anniversary of the DX7, all of Yamaha's digital consoles will plunge down to a sample rate of 4kHz and start playing an 8-bit version of 'The Birdy Song' for half an hour, just to remind everyone exactly how far we've come.

Of course, none of this would matter if it weren't for the fact that so many people are buying into Yamaha's comprehensive range of digital consoles. Possibly the fact that they give you so much for relatively little cash is indeed the timely reminder of how far we've come. In just 50 issues of *The Mix*, which was launched with a preview of Yamaha's ProMix 01, we're able to view side-by-side the progress that's been made with its successor, the 01v.



All the analogue inputs are located on the top panel, leaving room on the back for all this lot!

Overview

Before we get started, you should know that there's only one Yamaha ProMix console, namely the O1, and that none of the others (O1v, O2R, or O3D) bear the ProMix title. The original ProMix O1 was indeed a ground-breaking product and signified a revival in Yamaha's interest in producing affordable, compact, digital consoles. For semi-pro budget users, this was an area which had been all but dormant since the 8-channel DMP7 appeared in the late '80s followed by the DMP11 and then the DMP9 in the early '90s.

Needless to say, the arrival of the ProMix O1 brought about the sonic fidelity that we've come to expect from digital systems, plus a range of excellent built-in effects together with automation capabilities that are now part and parcel of any Yamaha digital mixer. Some people are never satisfied though, and although the price was right, the ProMix O1 lacked any digital interfacing other than a single S/PDIF output, which was fixed at 48kHz.

The options that appeared later, in the form of the O2R and O3D consoles, are certainly tempting and provide all the features that were lacking in the ProMix O1, yet the inevitable catch was, as always, a higher price tag.

Enter the O1v

The O1v is the same size as a ProMix O1, but it's a very different console that includes many of the DSP and routing features found on the O3D. (For more background info on the O2R and O3D check out our *Digital Mixing Special* in issue 47 of *The Mix*.) The most significant feature of the O1v is that it has multi-channel digital interfacing capabilities, enabling the console to work entirely in the digital domain with AES/EBU, Tascam TDIF, and Alesis ADAT multi-channel digital interface protocols.

The 18 channels that were available on the ProMix O1 have been expanded to 24 on the O1v, all controlled with 14 motorized faders plus the master fader. The layout is similar to the O3D as you need to 'flip' the faders to access another layer of channels (17-24). The row of 12

faders in white plastic are the mono channels; these have both balanced XLR and TRS 1/4" jack inputs, plus phantom power, switchable in banks of six.

The two grey/green faders next to the red master fader are stereo channels 13/14 and 15/16 and are accessible via balanced TRS 1/4" jacks. In the reviews of the O3D and the ProMix O1 before it, it was suggested that Yamaha should allow the 2-track returns to enter the main mix buss so that users could play along with tapes.

It seems that Yamaha listen, as above the input gain pot for channels 15/16 on the O1v is a switch that allows the 2-track analogue return to be fed to channels 15/16 if desired. Also, the digital 2-track input can be routed to channels 13/14 for processing, or fed directly to the stereo mix buss, which is ideal for interfacing with a sampler.

However, unlike many of the cheaper portable digital multitracks out there, it would seem that the O1v does not have an on-board sample rate converter, so you'll need to make sure that whatever comes into the main mix buss this way is running at the appropriate sample rate for your system set-up. For those of you with DAT tapes recorded at different rates, you won't be able to hear the playback properly (when digitally interfaced to the O1v), unless the clock output of the DAT machine is slaving the O1v.

Having to flick over to external clock control could be a nuisance though (the O2R and O3D have separate signal paths for a digital 2-track return monitor bus), as the O1v 2-track monitor is for analogue sources only. The obvious way around this is to use the 2-track monitor inputs to listen to your DAT's analogue outputs so you can playback your DAT recordings regardless of sample rate, and without having to bother with any digital clocking prerequisites.

The second mixing layer is home to channels 17-24, which default to become the input channels for whatever interface card you have fitted. In a recording set-up these channels provide monitoring for the recorded tracks while channels 1-16 are

configured for the input sources to be recorded. In a mixing situation, channels 17-24 can be assigned to the channels on the other layer (1-16), which has its own particular benefits.

EQ, dynamics, and delay

The interface channels 17-24 have only a basic 2-band parametric EQ, although these bands can be individually switched over to become shelving EQs, whereas the channels on the other layer have a 4-band EQ as featured on Yamaha's flagship con-

SPEC SHEET

Inputs:	16 analogue, plus 8 optional digital ins (ADAT, TDIF or AES/EBU)
Outputs:	4 assignable analogue, optional 4 extra analogue outs or 8 digital outs, coax digital stereo outs, analogue stereo outs on XLR
EQ:	120 bands, including 4-band parametric EQ on all main input and output mixing channels, and 2-band EQ on secondary input channels
Effects:	2 internal stereo multi-effects, 42 preset programs and 57 user programs
Scene memories:	99
Fader:	60mm
Display:	320 x 80 dot LCD
Frequency response:	20Hz to 20kHz
Dynamic range:	110dB (DA converter, stereo out), 105dB (AD+DA, to stereo out)
MIDI:	In, Out, Thru TDIF, ADAT, or AES/EBU interface cards, DA interface, rackmount kit

sole, the 02R. Typically when mixing, channels 1-8 will be swapped over to receive the input from an interface card linked to a digital multitrack which, as stated earlier, defaults to channels 17-24.

Consequently, the analogue audio sources originally connected to channels 1-8 can change places and use the 2-band EQ of the 8-track monitor section that appears on channels 17-24.

Furthermore, the 01v can swap or 'flip' these channels individually rather than as a whole group of eight. This is pretty standard fare for analogue consoles too, as the monitor sections are often used to provide more inputs for multi-output MIDI devices and effects.

What isn't standard fare on analogue consoles, but is on the '0' series of consoles, is the graphic display of the EQ curve you create, and the 40 user EQ library memories plus 40 factory presets. Moreover, the 01v actually goes one better than the 03D as it has dedicated EQ frequency and gain knobs plus a real pan pot, too.

These obviously require you to select a channel first, with the white switches above each channel fader. One omission though, is that there's no 'Q' control knob, even though the parameter exists. Generally, the parameter wheel takes on these duties when used in this mode. It is, of course, possible to alter the EQ on-screen from the 320 x 80 dot LCD readout using the cursor keys and parameter wheel.

The 01v boasts 120 bands of EQ, comprising 26 4-band parametric EQs on channels 1-16, the two stereo effects returns, the stereo output, and the four aux sends. Then add to that the 2-band EQ reserved for the YGDAL interface card on channels 17-24 to complete the total. To accommodate the headroom that digital equalisers require due to the potentially enormous variations in dynamic range, the actual digital processing of the EQ section is 44-bit, with the rest of the console operating 32-bit internal processing.

There's also a comprehensive array of dynamics processors, 22 of them in fact. Again, channels 1-16 get the pick of the bunch with the four aux sends and main stereo bus accessing the remainder. The dynamics effects are the same

as those found on the 03D, providing gates, ducking, compressors, expanders, companders, and keying algorithms. Again, flipping channels 17-24 is the way to access these processors for YGDAL interface card sources. This is also true of the individual delay lines that are available to channels 1-16. If you slave the console externally to 48kHz then the values of the delay times decrease, but at 44.1kHz they are 250ms for input and 300ms for output delays.

The output delays can be applied to the stereo output and the four 'Omni' outs that appear on the back panel. The omni outs are analogue outputs that can be configured to send signals from a variety of sources, namely: aux sends, the 4-bus routing, individual channel direct outs, and the stereo output. This facility comes into its own for compensating delays required in some live mixing environments.

Effects

Besides being basic delay algorithms, there are options for feedback and panning of delay channels so that the two onboard internal effects processors can take on more creative tasks than just a slapback echo. As for the effects themselves, we once again find that Yamaha do actually listen, as the inclusion of the Freeze parameter suggested for the ProMix 01 back in the 1994 ProMix preview is there. Freeze first made an appearance on the Yamaha SPX90 effects unit and is a basic sampling facility. However, the 03D was first to show it off as a console feature.

As the 01v effects are basically the same as on the 03D, expect a sampling time of just under three seconds plus basic editing, looping, and pitching functions. The sample captured by the Freeze function can also be triggered from incoming sound sources, which may also find an esoteric use in live situations. Naturally, using the Freeze effects program takes up a whole effects processor, but in recording applications, being able to loop and digitally transfer an audio section to a digital multitrack is certainly an added bonus; and of course, once it's recorded you can free-up the effects processor once more.

As for the rest of the effects, they're a selection of the usual caboodle of multi-effects algorithms.

Panel beating

The back panel of the 01v is very different to that of



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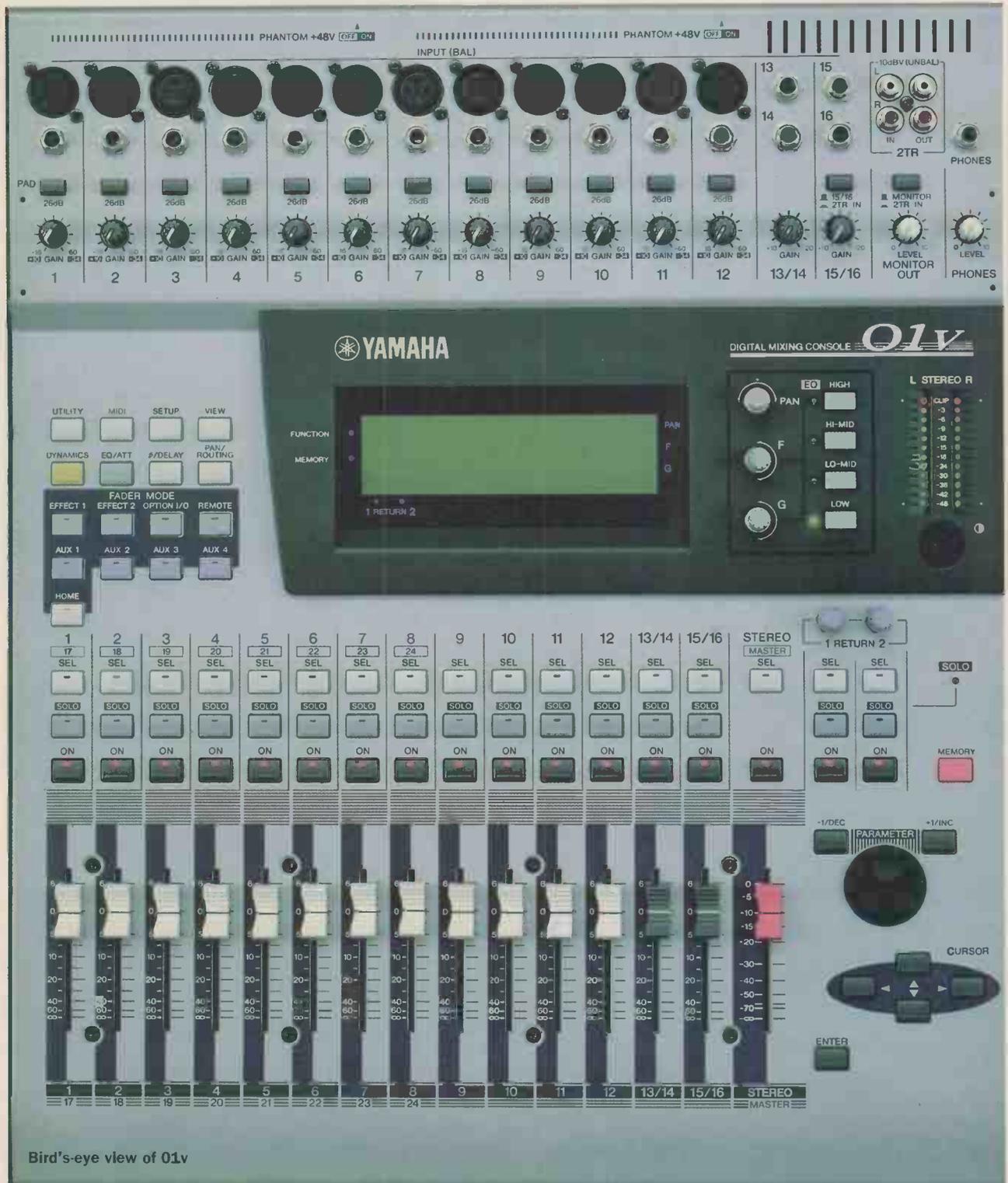
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HOUSE OF CARDS

The Yamaha General Digital Audio Interface (YGDAI) is the name given to the series of interface cards used by the 02R and 03D. However, due to the size of some cards used by the 02R (the analogue interface in particular, which occupies two slots), the 03D cannot use them. For many 03D users the only way to get more analogue inputs and outputs is to buy an ADAT interface card and then use ADAT compatible A/D and D/A converters such as Korg's 880A/D and 880D/A to work around it. Another option, if you're an ADAT multitrack owner, is to digitally interface the ADAT recorder with the YGDAI card and then put the recorder into input mode and use the analogue I/Os as extra analogue inputs.

This scenario also filters down to the 01v, which uses mini-YGDAI cards that are physically shorter than those used by the 02R and 03D. Currently there's no analogue I/O card available for the 01v, but there is a 4-channel balanced analogue XLR-equipped output card intended primarily for live sound applications. Together with the standard omni outputs, this card enables the four busses and aux sends to be available though analogue outputs.

For those with a studio habit, there are mini-YGDAI cards for ADAT, TDIF and AES/EBU digital interface protocols. The price should be no more than the £299 asking price for the digital interface cards used on the 02R and 03D. Take note, though: the analogue cards are more expensive.

OPTION I/O

OUT Tascam Digital Audio Interface (TDIF-1)



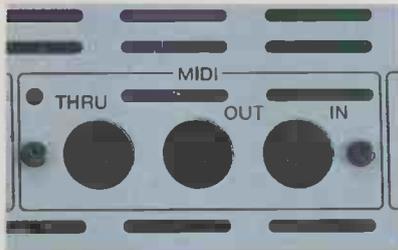
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Choose your interface card:
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the ProMix 01 as almost all the analogue interfacing has shifted to the top panel of the 01v console. This makes room at the back for the YGDAI interface card slot MIDI In, Out, Thru interfacing, XLR stereo outputs, coaxial digital I/O, four Omni outputs and the 1/4" jack Monitor outputs. There's also the To Host RS-422 mini DIN8 socket that can link the 01v to a Mac or PC for MIDI control (see separate box section for more details).

Currently, there's no editing or bulk storage packages available for the 01v such as the Mac/PC Bulk Manager (03D) and Project Manager (02R). This is probably because those two models can store all the dynamic fader movements internally and do not need to output data to a MIDI sequencer for mix automation. Like the ProMix 01, the 01v does rely on a sequencer for dynamic automated mixing. However, scene or 'snapshot' automation



For mix automation, you'll need these...

is stored internally. This facility simply remembers the state of the mixer parameters at any one time. The 99 scene memories can be recalled manually or via MIDI program change messages. Don't worry if you run out of scenes though, because the 01v can perform a normal MIDI bulk dump to any decent sequencer or MIDI data file.

Conclusion

It seems that Yamaha don't actually take anything away when they bring out a new product, which is highlighted in the case of the 01v compared to the ProMix 01. New features such as rotary encoder knobs for panning and EQ are a welcome break from the prod and twirl tedium that accompanies many of today's budget digital consoles.

The 01v retains the ProMix 01's local off 'remote' feature, enabling the console surface to be used as an external controller for MIDI devices. Yamaha are keen to suggest its use for their forthcoming DSP Factory PCI card, which contains five out of the seven DSP chips found in the 02R. This card takes the processing burden out of the computer itself and enables the card to behave as a virtual '0' series console.

On paper, both the 01v and the DSP Factory do sound like a powerful combination, yet the console alone has a great deal to offer in terms of compatibility with



Stereo digital i/o (left) and To Host (right)

existing third party systems. However, you must remember that without an additional mini-YGDAI card, the 01v is still only a 16-channel console. Furthermore, with Yamaha's skill in miniaturisation, it is surprising that both 03D and potential 01v users still have to wait for an 8-channel analogue I/O card, even though there are elaborate ways around this shortcoming (see box section).

Overall, the 01v appears to have very few shortcomings, as it has borrowed heavily from the tried and tested technology present on larger, more expensive consoles from the same family. It also shares the same function key colour coding, which certainly makes navigating the '0' series a good deal easier than some of the chic portable digital audio multitrack/mixer combinations that have turned head scratching and button pressing into a fashion statement.

If coloured buttons aren't hip then who cares? You mix with your ears not your eyes, and serious musicians know that. That's why they'll be on the lookout for the 01v. **TM**

More from: Yamaha-Kemble, Sherbourne Drive, Tilbrook, Milton Keynes, Buckinghamshire MK7 8BL Tel: 01908 366700 Fax: 01908 368872 Web: www.yamaha.co.uk

And here's your host...

When connected to a computer, the 03D is capable of using its To Host socket to allow the MIDI In/Out ports to function as a MIDI interface, and the 01v is capable of the same, which will save you about fifty quid for a basic one in, one out MIDI interface.

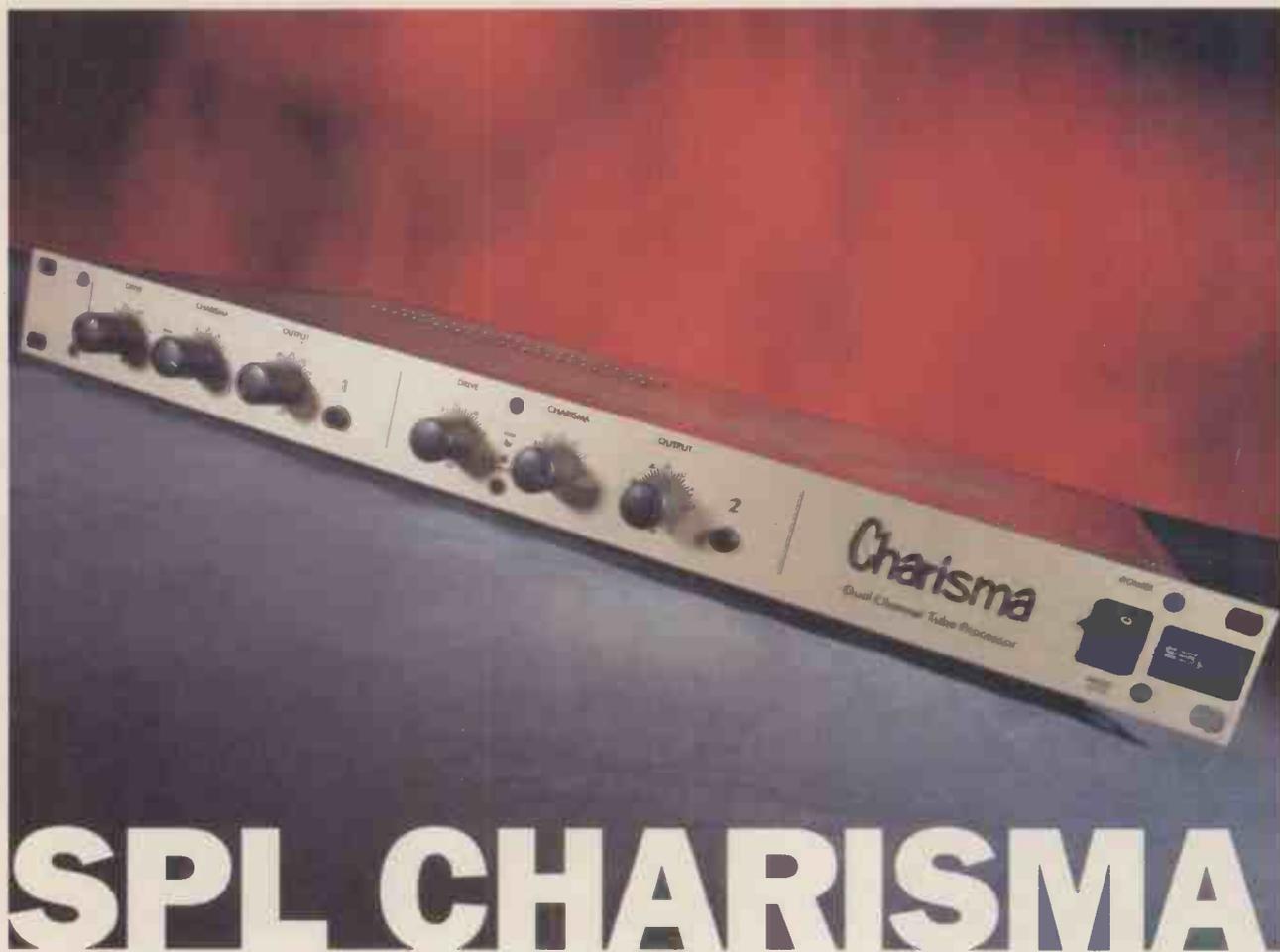
The 01v's To Host connection also does rather more than the one featured on the 03D. The 01v has a 'link' function that allows you to join up two 01vs with a lead connecting both To Host ports. The two consoles then work in sync with both LCD screens displaying the same parameters, with functions such as Solo affecting both consoles. The two mixers effectively behave as one, enabling 48 channel mixing (32 analogue and 16 digital, depending on the YGDAI choice).

The MIDI interfacing is used to good effect for dynamic automation on a sequencer. As for the combined mix output, this is dealt with by using the coaxial digital output of one 01v console

and sending it into the coaxial digital input of the other where it can appear on the stereo buss without the need for a channel of its own, as described earlier in the Overview section.

The more discerning digital disciples out there may well be less than impressed with this arrangement. After all, the digital audio link between these two 24-bit capable consoles will no doubt be 16-bit or 20-bit at best using an S/PDIF coaxial connection, right?

Well yes, that would be true if the connection were S/PDIF, which has a 20-bit limit. In actual fact, though, Yamaha don't refer to these particular stereo digital I/Os as S/PDIF at all, because they are 24-bit capable and no doubt AES/EBU tolerant (should you connect up an unbalanced AES/EBU signal to these coaxial connectors). Hence, once two consoles are linked up with the 01v link system, the operation should be totally transparent.



SPL CHARISMA

Dual Channel Tube Processor £586

Got a taste for the flava of analogue saturation? Trevor Curwen gets his teeth into the Charisma

SPL's Charisma was originally launched in an 8-channel version to add a bit of that old valve magic to 8-track digital systems like the ADAT and DA88, and at £1,174 it was perhaps a little pricey. But now a new 2-channel version is available, which will be within the financial reach of many more people.

Creating a similar effect to analogue tape saturation, typical uses for the Charisma would be processing individual tracks in a mix, or as part of the recording chain where individual sounds could be given a tweak before hitting the tape, hard disk or whatever.

Overview

SPL's literature is a law unto itself, amusing if not a little frustrating at times. Apparently, according to SPL, this little unit improves power, punch, dynamics, subjective loudness, warmth, transparency and clarity. This doesn't leave too many descriptive words for the poor reviewer to use... unless it turns out to be completely crap!

The Charisma looks classy with its anodised gold front panel and black knobs, and is solidly built with a ventilation grille on the top panel through which the two valves can be seen glowing. Each channel has a bypass switch (but no LED indicator to show if it is in or out) and three knobs: Drive, Charisma, and Output. In addition, two LEDs marked Max and Process show when the unit is doing its business.

The Drive control sets the drive level to the valves, controlling the onset of saturation. The higher the setting, the more valve harmonics are generated, thus the limiting effect of the valves increases to give a higher level of distortion. The orange 'process' LED lights up when processing is starting to take place, with the red 'max' LED coming on to indicate maximum valve saturation.

A Charisma control set to maximum would be a very useful thing for some of us! (Q: What does a sound engineer use for contraception? A: His personality). On this unit, the Charisma control varies the valve saturation sound from soft to hard. This is akin to a compression control varying from gentle soft knee compression in the soft range to limiting in the hard range.

SPEC SHEET

Controls:	Drive, Charisma, Output
Inputs:	Balanced XLR, unbalanced 1/4inch jacks
Outputs:	Balanced XLR, unbalanced 1/4inch jacks
Frequency response:	30Hz-40kHz
THD+N:	0.41% @ 1kHz, K2 max 35%
S/N:	- 89 dbu
Input impedance:	- 220 KΩ
Output impedance:	- 600 Ω
Max input level:	+24 dBu

Output gain is adjusted by the output control, which can compensate for any level increase due to the setting of the drive control.

In use

Testing the Charisma strapped across a whole stereo mix, some of the flavour of analogue tape saturation was recreated. The effect was subtle, and bearing in mind that this is a dual channel unit with no stereo link switch, it would probably not be



ideal in a stereo mixdown situation, although with care taken to ensure consistent performance from both channels it could be used in this manner.

Whacking up the drive control increased the level of valve saturation, and hence distortion, yielding a very distorted track indeed – not very useful for mastering perhaps, but certainly useful for crunching up samples. High drive settings also gave distorted solo vocal sounds – not everyone's cup of tea, but a sound that has become very popular over the past few years, and one which would be a lot quicker and easier to achieve with this unit.

Individual tracks in a mix were made more prominent by the Charisma, giving a pretty good in-ye-face sound. And one thing that was really pleasing was the way that with a full-on drive setting, the unit made bog-standard drum machine sounds come alive – not audibly distorted but just sounding better.

Verdict

Well, as it turns out, the SPL Charisma is a very attractive processor – not even remotely 'crap'. It's capable of a bit of sub-

tle valve tone-shaping, and it's also capable of nasty things up somewhat. Not an essential item to have in the studio but an extremely useful one to call on from time to time. It definitely deserves a listen. **TM**

More from: Stirling Audio, Stirling House, Kimberley Road, London NW6 7SF Tel: 0171 624 6000 Fax: 0171 372 6370

SPL CHARISMA



WHAT WE LIKE

- Build quality
- Ability to crunch up sounds
- Nice name

WHAT WE DON'T LIKE

- No stereo link mode
- Manual written by Stanley Unwin

OVERALL

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PEAVEY UNITY 2002-12 RQ

12-Channel Stereo Mixer £390

Compact mixers that can be used in the studio as well as on stage have proved popular of late. Simon Young checks out Peavey's take on the formula

The past five years have seen a huge expansion in the market for small mixers aimed at the project studio user, or the gigging semi-pro musician. Each offering from the likes of Mackie, Spirit, and the rest seems to offer yet more facilities in ever-shrinking boxes. So now, for somewhere in the region of 350 notes, you can expect anything up to 16 inputs (more on mix-down with auxiliary returns), a couple of effects sends, 2- or 3-band EQ, mutes and solo buttons, rudimentary bussing capabilities; in fact pretty much everything you would expect from a mixer twice the size and price, but just in smaller quantities.

Of course, a cheap compact mixer with

all the bells and whistles is likely to cut a few corners in the quality department. Peavey have opted for a 'less-is-more' approach, by putting together a high quality, no-frills 12-input stereo mixer, housed in a case that other manufacturers would squeeze at least 20 channels and four or even eight busses into. Despite the fact that the 'RQ' of the Unity 2002-12 RQ's name stands for 'Reference Quality', the lack of busses indicate that this is not a unit for a sophisticated project studio, but might sit well next to a desktop system, or come in handy as a sub mixer for your computer's multiple outs. Even so, its generous layout, coupled with comprehensive monitoring capabilities, clearly show that Peavey have pitched this mixer mainly at the live user. This is familiar territory to

Peavey, who have long established themselves as market leaders in the field of sound-reinforcement on the pub and club circuit. Many a covers band on said circuit are probably not interested in the more esoteric facilities that a more complicated mixer offers, even if they could work them.

Well-spaced

At almost two feet wide and weighing in at over 7kg (thanks largely to a built-in power supply), the Unity is considerably more substantial and robust than some of its more diminutive competitors. This obviously means that you won't be able to rack-mount the unit, but the sturdy, black polymer resin sides provide plenty of protection, and with the 'Unity' logo embossed here, they look pretty sexy too. The miniature arm-rest at the front of the desk is sensibly scalloped underneath, thus doubling as a handy carrying handle. That said, you'd be well advised to flight-case the unit if it's going to travel with you; its original box will last about two minutes on the road.

Space isn't compromised on the channel layout of the desk; all 12 input channels have their own identical mono strips (no space-saving stereo channels here), and take up roughly two-thirds of the control panel. The remaining third is taken up by the master and monitor sections, more of which later. There's a generous 3cm or so between each fader, and the colour-coded pots are a mere 8mm in diameter, so there's plenty of room to let the clumsiest of fingers fine-tweak without fear of accidentally moving other pots. The pots didn't offer uniform resistance to being turned; only one or two had that expensive 'turning-in-treacle' feel, most offered adequate resistance with a few having a slight 'crunchy' feel at the extremities, while one or two felt slightly wobbly.

Connecting up

All the ins and outs are placed along the top rather than being hidden at the rear of the desk. While this may not be aesthetically pleasing, it's certainly practical in a live situation. Unlike some similarly-priced consoles, every input channel has a balanced XLR mic input. Phantom power is supplied, but

it's applied globally rather than individually on each channel, via the phantom power switch. This generally shouldn't be a problem, since most dynamic mics can handle phantom power, even if they don't require it. The XLR sockets are plastic Neutriks, without any kind of latch; on older Peavey mixers, the centres were prone to being pulled off the circuit board, if cheap, ill-fitting cables were used. Peavey maintain that Neutrik were aware of the problem, and have improved the design, so that this problem hasn't recurred on the Unity series, but it's always sensible to use the highest quality cables you can. Line inputs are catered for with 1/4" balanced TRS jacks (tip +, ring -, sleeve ground), directly below the XLRs.

The remaining connections sit in a cluster immediately to the right of the channel inputs, where you'll find 1/4" unbalanced jacks for the main outputs, two effects and two monitor sends, a pair of left and right returns for the effects, and a headphone socket. Placing the headphone socket up here isn't the most sensible idea; the headphone cable would be far less obtrusive if the socket was placed at the front right of the desk, directly below the headphone output volume pot. Similarly, although the inclusion of tape ins and outs on RCA phono sockets is a welcome addition, these are rather oddly placed half way up the right-hand side of the desk, rather than with all the other ins and outs, again making for rather messy patching.

Cruising the strip

Each channel strip is identical, with a simple configuration starting with the trim pot at the top, providing 56dB of input gain for mic level inputs. Next down is the three-band EQ, offering a generous +/- 15dB of cut or boost in each band. The high and low EQs are shelving types, set to a standard 12kHz and 80Hz respectively, while the mid bandpass filter is fixed at 750Hz. No Q value is quoted, but the fairly severe cut or boost suggests quite a wide bell-curve, tending towards a not entirely pleasing boxy sound. The high EQ is less harsh, and not as brittle-sounding as some, while the low is warm without being

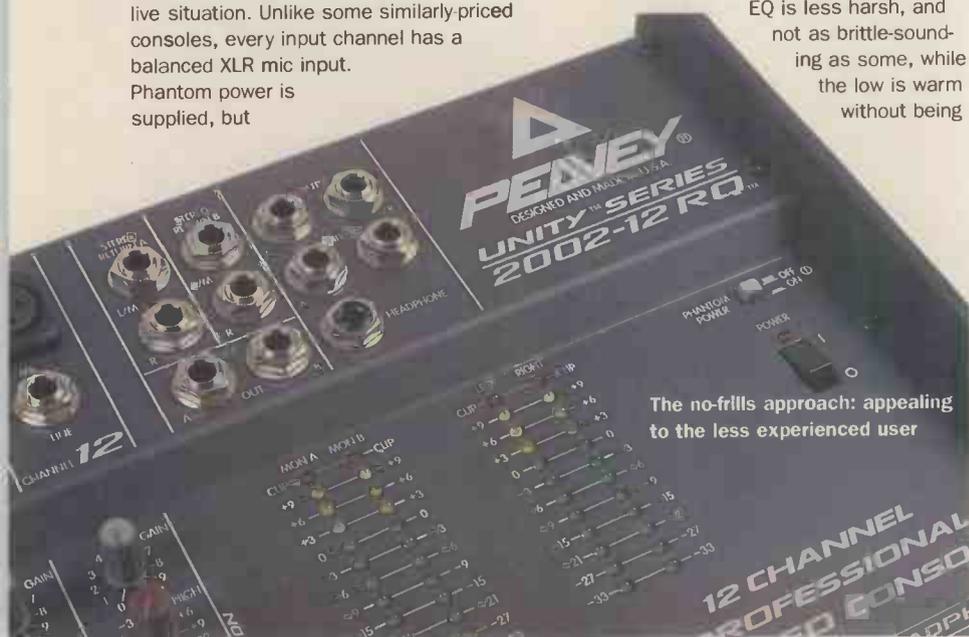


The Unity's master section

too muddy.

Although the Unity is better configured than some, it's a little disappointing that a low anti-rumble filter hasn't been included. Many mixers have a simple high pass filter switch set to around 80Hz, that keeps unwanted low frequency feedback and microphone pops at bay. Similarly, a swept mid would provide a far more accurate EQ, but this would no doubt considerably add to the cost of the unit. There's no EQ defeat button, for quick A-B testing of the EQ'd and dry sound, but the pots are centre detented at 0dB, for accurate zeroing. There are no channel inserts either, so if you want to patch in a processor, you would have to place it across the main outputs, or connect in-line with the sources.

Next in line are the four auxiliary sends. The first two are post-EQ but pre-fade, and so are ideal for setting up two independent monitor mixes. Sensibly, the pots are labelled Mon A and Mon B, while the two remaining auxiliaries are labelled EFX A and EFX B, indicating their function as post-fade effect sends, for reverb, delay and so on. The last pot on the strip is the pan pot, which rather irritatingly doesn't have a centre detent. The faders are short-throw 60mm affairs, with a smooth, if a little too easy glide. These also have no notch at 0dB; this may have something to do with the manufacturer's claim of an extra 10dB of headroom above channels set to unity gain. It does this by attenuating each channel's level by 10dB at the stereo bus, then boosting the signal by 10dB after the channels have been summed, thereby avoiding the potential clipping that would occur if the channels were summed without the initial attenuation. It seems to work; you can run the unit very hot before distortion occurs, even if



The no-frills approach: appealing to the less experienced user



This mixer will win most friends on the live circuit

the process seems more akin to shifting the goal posts. It's really more useful as an idiot-proof feature; in a live situation, it's easy for inexperienced engineers to push individual levels up, rather than pull the rest down, potentially risking overload.

Level setting would be helped if a pre-fade solo button was included; unfortunately it's not, so instead you'll have to rely on the channel overload LEDs at the top of the channel fader. While on the subject of missing buttons, there's also no channel mute button, useful as a noise eliminator at mixdown, but not so crucial in the more forgiving live environment, even if potential mute-happy-mix-masters will be a little disappointed.

Monitors and masters

To the right of the channel strips sit a further two mini-strips, the left strip controlling the monitor levels and effect send/returns for Mon A and EFX A, while the right strip controls those for Mon B and EFX B. The two faders control master send levels for the monitor sends, with a handy 12-segment LED meter for the monitor levels at the top of the strips. The effects sends also have a master send level control, being the first pots below the meters. Master sends are one of the first things to go in budget consoles, so their presence for both monitor and effect sends is welcome and extremely useful for live use. Similarly, it's rare in budget units to find the ability to feed the effect returns independently into either monitor send, so that vocalists can hear performance-improving reverb coming through their monitors, for example. The 2002 doesn't disappoint and the appropriate two pots are found beneath the master effects sends. The remaining two pots in the mini strips control the effects return level and pan position at the main outputs.

The last section of the mixer houses the master output faders and the controls for

tape monitoring. Thus, besides the pots for tape input and output levels, a further two pots provide independent sends of the tape input to both monitor outputs, ideal for the performers using backing tapes, or for incidental music between sets. The tape output is pre-fader, so you can set optimum recording levels for your tape deck or DAT independently of the main outputs. The only other feature not already mentioned is the master level LED meters, which like those for the monitor sends, have 12 segments, comprised of eight green LEDs for sub 0dB levels, and three yellow LEDs above 0dB (rising in 3dB intervals between -9dB and +9dB), before a final red LED indicating clipping.

Verdict

In use, this mixer lives up to its claim of providing a clean, noise-free signal path, with ample headroom. Crosstalk between adjacent channels is minimal, and is really only audible with the headphones and channel gains up full. Consequently, you could use this mixer in a small home set-up to master straight to DAT, with perfectly acceptable results. Thanks to the absence of busses, you'd be advised to look elsewhere if you're planning anything more ambitious; theoretically, you could use the monitor sends and main outs to feed four independent inputs of a multi-track, but there are more suitably-equipped units in this price bracket.

It's on the live circuit where this unit will win most friends. It's simple no-frills approach will appeal to the less experienced user, while the comprehensive monitoring section gives it ample flexibility for on-stage monitoring in small venues. For those large numbers of people who both play live and have modest home set-ups, this could be a good dual-purpose mixer, but do bear in mind its studio limitations.

Despite a few minor niggles, such as the placement of the headphone and tape

sockets, on the whole it's ergonomically pleasing, with an uncluttered well-spaced and labelled layout. Its only serious omission is a PFL solo switch, and perhaps a more comprehensive EQ, but Peavey have opted for robust simplicity, rather than a less sturdy unit with all the bells and whistles. Given the market it's aimed at, that's probably no bad thing. **TM**

More from: Peavey Electronics Ltd, Great Folds Road, Oakley Hay, Corby, Northants NN18 9ET Tel: 01536 461234 Fax: 01536 747222 Email: peavey_eu@aol.com

SPEC SHEET

Inputs:	12 (balanced XLRs or 1/4" jack)
Mic impedance:	2.2kΩ
Line impedance:	10kΩ
EQ:	High shelving (±15dB @ 12kHz), Mid bandpass (±15dB @ 750Hz), Low shelving (±15dB @ 80Hz)
Auxs:	4 (2 pre-fade, 2 post-fade)
Faders:	60mm
Frequency response:	20Hz-20kHz +0dB/-1dB (Mic In to main out)
THD:	<0.02%
S/N ratio:	94dB (all faders down), 81dB (all controls nominal, Mic gain min.)
Crosstalk:	>60dB
Weight:	7.31kg
Dimensions:	591 x 81 x 406 mm.

PEAVEY UNITY



WHAT WE LIKE

- Simple, uncluttered layout
- Low noise
- Idiot-proof expanded headroom

WHAT WE DON'T LIKE

- No PFL solo switch
- Placement of tape / headphone sockets
- No channel inserts

OVERALL

The Peavey Unity 2002-12 RQ mixer is fine for submixes, modest computer setups, and live use. More sophisticated studio use is probably beyond it, but that's not what it's intended for anyway

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AKAI DPS12

12-Track Hard Disk Recorder £1,299

Four tracks good, eight tracks better and 12 tracks... well, you're half way to 24, aren't you? Bob Dormon checks out Akai's new portable hard disk recorder

So hands up who thinks 12 is a lucky number? We've 12 months, religiously-inclined folk will give you all sorts of significances to this magic number, and there are 12 signs in the zodiac. No doubt a few Akai enthusiasts will remind us that in the beginning there was A-DAM, Akai's first 12-track digital recorder, and of course, the MG1212 cartridge-based integral analogue 12-track recorder/mixer.

Whether it was a lucky number back then is unclear, as the MG1212's price and non-standard tape format was a hurdle for many back in the early '80s. Compact multitrack tape machines were all too often disregarded as being below professional expectations and, despite some fine and fancy machines appearing, the general consensus was if it wasn't a reel-to-reel recorder with a separate mixer then it wasn't a serious machine.

To quote a tune from that era, 'that was

then, but this is now' and here to remind us that perhaps they had the right idea in the first place is Akai's DPS12 – the Digital Personal Studio, a 12-track hard disk recorder and digital mixer that uses lomega Jaz cartridges as its storage media, but can also record via SCSI and back-up to DAT.

Overview

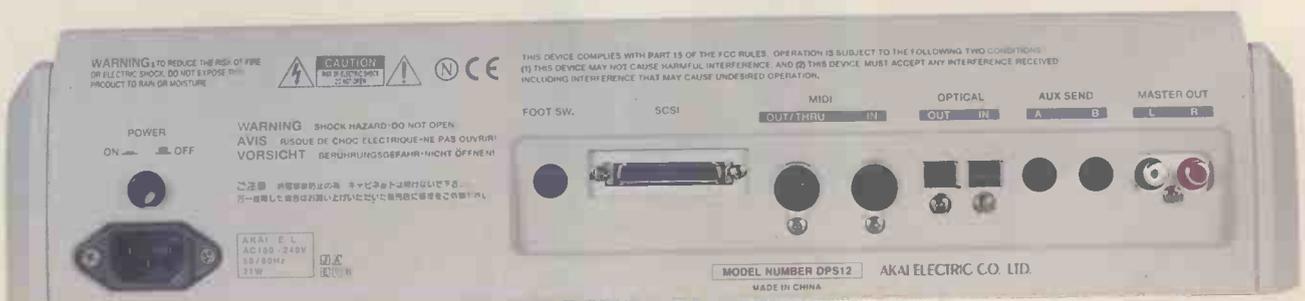
At a glance, the DPS12 appears to lack the razzmatazz of multiple knobs and switches that usually adorn mixers and portable multitracks. Admittedly, this is fast becoming *de rigeur* on all equipment of this type, as functions are shifted into the virtual world of 'LCD-space' where parameters are accessed from a menu of prod and click pages. Still holding a candle for those who prefer knob-twirling are MiniDisc-based recorders and the Fostex portable multitracks because, despite being digital recorders, they use conventional analogue mixers.

The Akai DPS12 has a digital mixer capable of a 20-channel mixdown plus MIDI-controlled automation with an additional sequencer. Consequently, the vast majority of functions have been condensed into a graphic representation of the bits that are missing in three dimensions! Time will tell if the backlash that saw synth manufacturers putting the knobs and sliders back on their new products will hit the portable digital multitrack as well.

It's not until you turn the DPS12 on and poke around the numerous menus that you really get to appreciate what it can do. For example, perusing the back panel reveals the usual cluster of audio interconnections and for some, at least one glaring omission. The master output appears on a pair of phono sockets to provide analogue interfacing, there's two 1/4" jack sockets for aux send A and B, optical in and out for stereo digital interfacing plus MIDI In and Out/Thru (assignable). A 50-pin high density SCSI connection is provided for external hard drives and a 1/4" jack footswitch socket, plus IEC mains and power switch. So what's missing? Well, how about a separate output for monitoring? The schematics suggest this isn't necessary as no doubt you'll want to connect the optical digital out to your digital mastering machine leaving the analogue master outs to provide the monitoring. That's fine in theory, but does your DAT have an optical interface? And if you started a project at 44.1kHz will your DAT accept this sampling frequency, as many old models don't?

Let's we forget those without DAT, DCC or MD machines who, for the time being, rely on trusty cassette decks for demo distribution – mixing down to cassette could well prove a problem as you'll need to monitor through the tape deck or use the headphone output to hear anything. And, as there's no separate monitor output, there's no provision for a separate monitor volume control. This means the master fader on the DPS12 governs the overall volume of what you hear and what is sent to tape. So when you're running off tape copies, whether digital or analogue, and the phone rings, don't reach for the master fader or you'll be fading your mix rather than simply turning down the monitoring level. Reach for your amp volume control and you're safe.

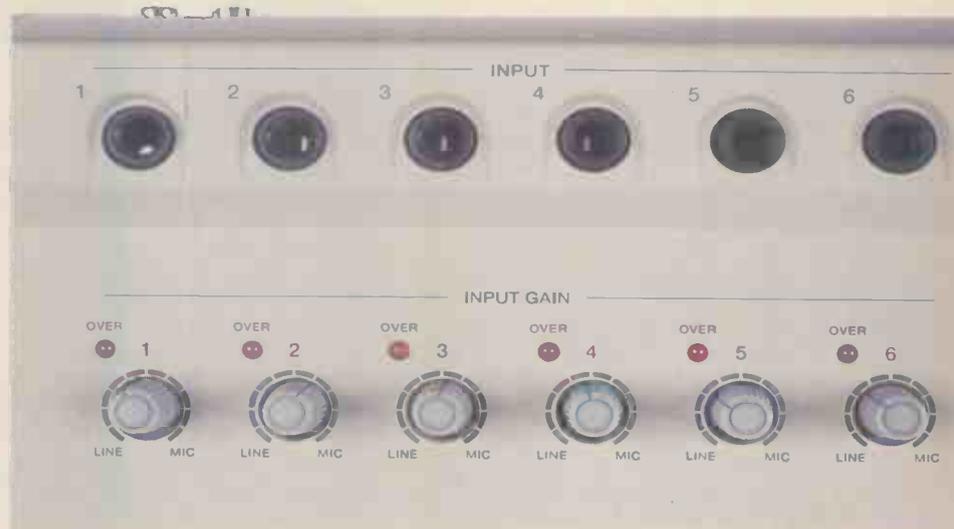
SCSI, MIDI, optical i/o, master outs...the DPS12 back panel



Facia music

All this hysteria from a glance at the back panel, eh? Well perhaps we should nose around the front of it a bit and calm down. Along the top left of the DPS12 are the only analogue inputs available. These six

Analogue inputs and trim pots



inputs are balanced TRS 1/4" jacks; there's no XLR connectors and there's no phantom power either. Below each input is the corresponding trim pot providing an input level range of -46dBu to +4dBu. Over to the right is the 248 x 60 dot backlit graphic LCD readout, which has six dedicated function keys beneath it enabling quick and easy access to menu-driven parameters. Navigating through the menus and selecting functions is aided by the jog dial and shuttle wheel which is a familiar sight to Akai's S2000 sampler users. Let's just hope it stands the test of time as this data entry method can become quite a challenge as the jog dial tends to skip through figures on ageing S2000s. This arrangement (as its name suggests) also has a duty to perform when cueing up and editing audio, but more on that later.

The cursor keys below the jog/shuttle wheel also play a part in parameter selection. Moving across to the left are a couple of buttons: Solo and Number/Name/Enter. Solo does just that when you choose a track with the blue Record Select keys. Number/Name/Enter has a dual function as just the plain old confirm/enter key and

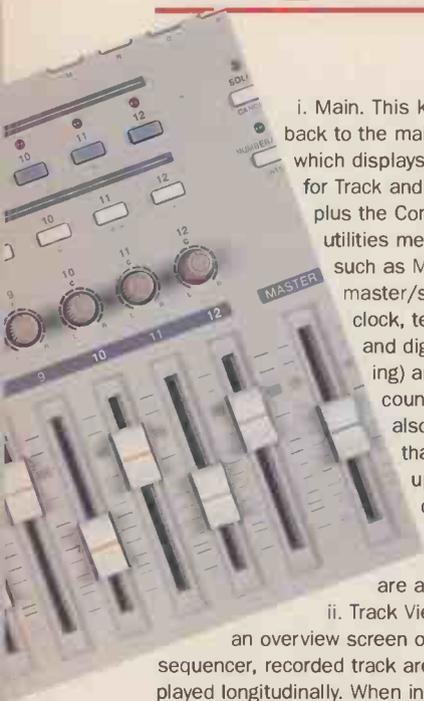
to toggle the function of virtually all the available buttons on the DPS12 to become alphanumeric entry keys. Below each key is a letter or number written in blue. This again is familiar territory to Akai sampler users and true to form the figures are scat-

tered about a bit, but with regular use you soon get familiar with where the relevant characters are, and it certainly is preferable to endless dial-twirling when naming tracks and locate points.

In use

The 12 panpots and faders plus the master fader can all transmit MIDI data, but there appears to be a slight lag in volume control if the fader is moved sharply. The adjacent transport section that sits on top of the Jaz cartridge bay performs all the usual functions, but there is no RTZ (return to zero) key which is a disappointment. Instead there is the Go To button that you need to press followed by a locator number or the 0-RTN and Go To End functions that appear on the screen. This means that you need to keep prodding the Go To button followed by a function key for this simple task. Perhaps Akai could implement the Go To key so that if you held it down for a second that it then would return to zero or a predefined locate point for convenience.

Above the transport section are 12 function keys that deal with a variety of tasks which are as follows:



- i. Main. This key brings you back to the main screen which displays the metering for Track and Input modes plus the Control Panel (a utilities menu for items such as MTC master/slave, MIDI clock, tempo maps and digital interfacing) and the time counter. There's also a small box that steadily fills up as more disk activity takes place when tracks are added.
 - ii. Track View. Much like an overview screen on a sequencer, recorded track areas are displayed longitudinally. When in/out points are selected for editing, the selection appears darkened.
 - iii. Assign. Here the routing of effects (if EB2M effects board option is present) and inputs takes place. When all 12 tracks are recorded, the six inputs plus stereo digital input can be assigned to allow a 20 channel mixdown.
 - iv. Disk. Functions for formatting, selecting drives and defragmenting (Align in Akai-speak) appear here.
 - v. Project. Separate songs are referred to as projects. You can select backup and erase them here. Annoyingly you have to return to Main before you can eject a disk and then go back to Project to choose the one you want to use.
 - vi. Undo. There are up to 256 levels of Undo. You can change the amount of levels from the Control Panel in the Main section.
 - vii. Mixer. This displays all the interesting stuff such as EQ, Pan settings, Levels and Aux/Effect send levels etc. As the extra input selection mentioned above in Assign does not have real faders, you make adjustments to virtual faders and so on here.
 - viii. Edit. See separate box for a full description – the usual cut, copy and paste facilities are available as on all hard disk recorders these days.
 - ix. In, Out, To and From. These four buttons aid editing by setting up edit points (In, Out) and playing/auditioning a few seconds up To or From the chosen edit point.
- The *Quick Start* guide to the DPS12 suggests that within an hour you could easily work out 80% of the functions without the need for the manual. This is indeed true, up to a point. The fact is that nearly an hour was spent investigating the internal routing assignments of the DPS12 in order to get the internal effects to work. Giving in and turning to the manual, page 119 revealed that even though the effects parameters appear on-screen it doesn't necessarily mean that you have the EB2M board

installed! There's nothing on start-up that indicates its absence and as Akai usually send review stuff out 'fully loaded' the presumption was made that it was fitted, but alas no. So dear reader, enjoy the pretty effects parameter screens when musing over this Akai in your local hi-tech music shop, but don't be duped into thinking that the chap or chapess in the shop is flogging you a DPS12 with a free effects board without realising it. And to those wonderful people at Akai who have brought us some marvellous products in the past, please let your wondertoy tell the world what's what rather than leaving it all up to page 119!

Off the record

Getting familiar with the Assign function is actually very important as you have 12 tracks but only six analogue and a stereo digital input. The default is sensible and you can begin recording straight away provided you have a formatted Jaz disk or external SCSI drive ready. Although you can only effectively record eight tracks with this arrangement, you can put all 12 tracks into record – no doubt the assignment system could make it feasible to record back-up tracks simultaneously.

When recording onto the Jaz disk it was immediately apparent that acoustic players and vocalists (unless particularly loud) are going to get a raw deal out of the DPS12 and presumably other rival recorders fitted with Jaz drives (such as the Roland VS1680). The noise the drive makes when reading and writing to disk is quite distracting and those visions of single-handed multi-harmony vocals and stereo acoustic strumming thanks to the luxury of 12

EDITING

Akai's DPS12 certainly wins prizes for making its editing features clearer, as each of its editing modes shows a basic graphic before and after view of each of the following procedures: Copy/Paste, Copy Insert, Cut/Paste, Cut Insert, Insert Silence, Cut/Discard and Cut Move. Press Jog Play and the selected track waveform appears. The outer Shuttle wheel performs as you would expect, allowing speed variations in either direction to cue the music. The Jog dial should allow you to hone in on things in more detail, but it failed to work properly in reverse, as the slightest movement would send it spinning off into forward play mode.

Defragmenting the disk, and even projects with fewer tracks, made no difference. Trying to spin the Jog dial in reverse was like trying to walk up an escalator the wrong way, you either got nowhere or got carried away by it.

To make matters worse, even if you actually found the edit point you wanted, fine-tuning with the Jog dial in any direction typically sent the machine into play mode again, losing your edit point in the process. Perhaps Akai can clarify this operation or let us know if we got a duff DPS12, as previous models have always performed so well in this respect.

tracks vanished as soon as this Jaz drive started creaking away. And as you add more tracks, it gets louder. Listening to the full-blown demo disk at a comfortable volume was interrupted by what sounded like a pre-pubescent bullfrog croaking away at regular intervals. Basically, when recording acoustically you'll need to keep your distance from the machine, plus have a second pair of hands. Things are made easier

Virtual Tracks, Locators and Scenes

The DPS12 mimics the Roland VS-880 with the use of virtual tracks, which allow you to record multiple takes and select these takes for assignment to a physical track. There are 250 virtual tracks available which can be named and when recalled they behave as a normal track enabling editing and copying of sections. Admittedly, Akai have used this method on their DR series providing a handful of takes,

with the recent DR4vr adopting the same virtual tracks approach on the DPS12.

Even though there are 12 'quick' locate points that when stored appear on the white channel select keys, there are a further 100 'stack' locate points. These need to be named as they are accessed from the main screen. Useful markers for verses, choruses, and so on, can be typed in using the alphanumerically marked keys that adorn the DPS12.

If MIDI automation isn't your scene, then try a change of scene. Being a digital mixer, the DPS12 has the ability to store snapshots or 'scenes' of its parameter settings for level, pan and EQ. When recalling a scene if the positions of your settings don't match the physical positions of your faders and the like, a black dot appears on screen above the graphic relevant faders to warn you of this. Apparently, the scenes cannot be changed using MIDI program changes which is a shame, however, they can be named.

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.

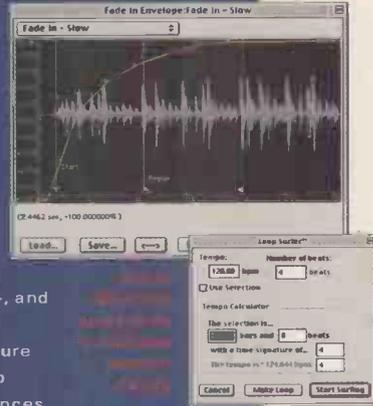
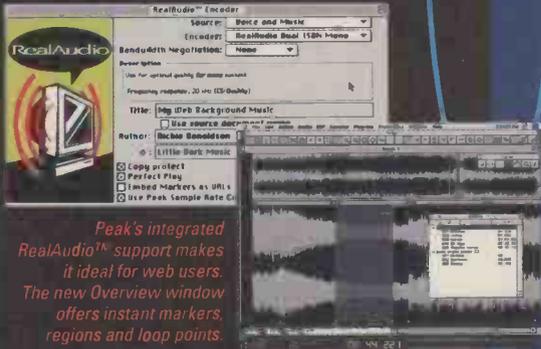
An improved user interface in Peak 2.0 includes a new customisable tool bar and floating palette that gives instant access to the editing tools.



peak

Peak 2.0 Highlights

- Playlist with CD burning
- Record, Edit & Process in 8, 16, 24 & 32 bit
- DAE support, TDM, Audiosuite plug-ins
- Real Time Adobe Premiere Plug-ins
- Ultra fast audio editing
- Unlimited undo and redo
- Flexible batch File Processor
- Peak integrates with Digidesign, Macromedia, MOTU, Steinberg, Emagic, Opcode and more.
- Support for almost all major samplers



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SPEC SHEET

No. of tracks:	12 on playback, 8 simultaneous record, 250 virtual tracks
Sampling frequency:	48kHz, 44.1kHz, 32kHz (16-bit)
A/D converters:	18-bit, 64x oversampling
D/A converters:	20-bit, 8x oversampling
Frequency response (48kHz):	10Hz to 22kHz (+/- 2dB)
Total harmonic distortion:	0.05% or less at 1kHz
Channel crosstalk ratio:	75dB or better at 10kHz
Analog audio inputs:	1/4" stereo phone jack, balanced x 6
Analog audio outputs:	master out (L/R): RCA pin, unbalanced x2
Aux out (A/B):	1/4" phone jack, unbalanced x 2
Digital audio input:	assignable (2 ch) optical(S/PDIF) x 1
Digital audio output:	master out, optical (S/PDIF) x1
Headphone output:	1/4" diameter stereo phone jack x1
Vari-pitch:	30kHz - 50kHz
Locate points:	Direct: 12, Stack (nameable): 100
Display:	248 x 60 dot graphic LCD with back light
Other connections:	MIDI In, MIDI Out/Thru, 1.4" footswitch input, SCSI (for external hard disk)
Dimensions:	445 (W) x 98 (H) x 334 (D) mm
Weight:	4.8kg (with internal Jaz drive and EB2M)
Options:	EB2M Internal Multi-effect Processor Board

by the footswitch control being assignable to a variety of functions, but it's no substitute for a decent remote autolocator. However, the noise aspect is less of an issue when mixing and as external SCSI drives can be used instead, this may well prove to be a quieter option allowing you to copy work onto the Jaz for both mixing and archiving purposes.

The EQ was a little disappointing as, like the Roland VS-880, you get the choice of 2-band hi/lo shelving EQ for all tracks or 3-band including a parametric mid-section for up to six tracks. When you look at all the other great things that are included, it makes you wonder why these manufacturers can't go the extra mile and give you what you really need when recording and mixing, which is a flexible EQ. To make



DPS has the capability for 20-channel mixdown

matters worse, the DPS12 doesn't have dedicated mute switches, they are software driven and you have to use the jog/shuttle wheel to turn tracks off and on. So much for spontaneity.



Verdict

The DPS12 shares some of the great features from Akai's rack-mounted DR series of hard disk recorders. These models cost a bit more, but they certainly have the edge. The software of the DPS12 is currently at version 1.0 which never inspires confidence, and the fact that the Align function will 'clean' rather than 'clean' up data on disk suggests there are a few details that need attending to, the jog/shuttle feature in particular (see box section). Plus the fact that if you're slaving the DPS12 digitally to a DAT's clock and the following track on tape is at a different sample rate (a typical scenario on old DAT tapes) then the DPS12 crashes and has to be turned off, only to lose the

most recently recorded data. In its favour the digital input will do a sample rate conversion provided the DPS12 is the master, yet some clicks were noticeable (but that could have been that Jaz drive clunking away again!).

Some will no doubt want a separate monitor out and others may prefer an internal hard disk option. Nevertheless, the DPS12 has a lot of potential, but it appears that like many machines of this kind, the focus is on the software editing, automation and locate functions at the expense of the musical heart of the mixer, namely flexible EQ and spontaneous muting. **TM**

More from: Akai UK, Haslemere Heathrow Estate, Parkway, Hounslow, Middlesex TW4 6NQ Tel: 0181 897 6388 Fax: 0181 759 8268 Web: www.akai.com/akaipro

AKAI DPS12



WHAT WE LIKE

- Compact 12-track digital recording with 250 virtual tracks
- Excellent routing features
- Sample rate convertor on digital input
- Comprehensive naming features

WHAT WE DON'T LIKE

- No dedicated mute buttons
- No separate monitor output
- Noisy Jaz drive
- Misleading effects implementation

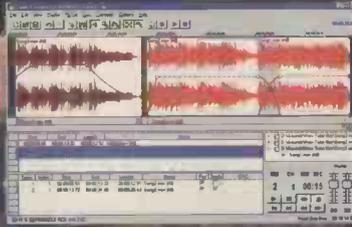
OVERALL

Great potential but needs to mature a bit and implement easier access to basic functions

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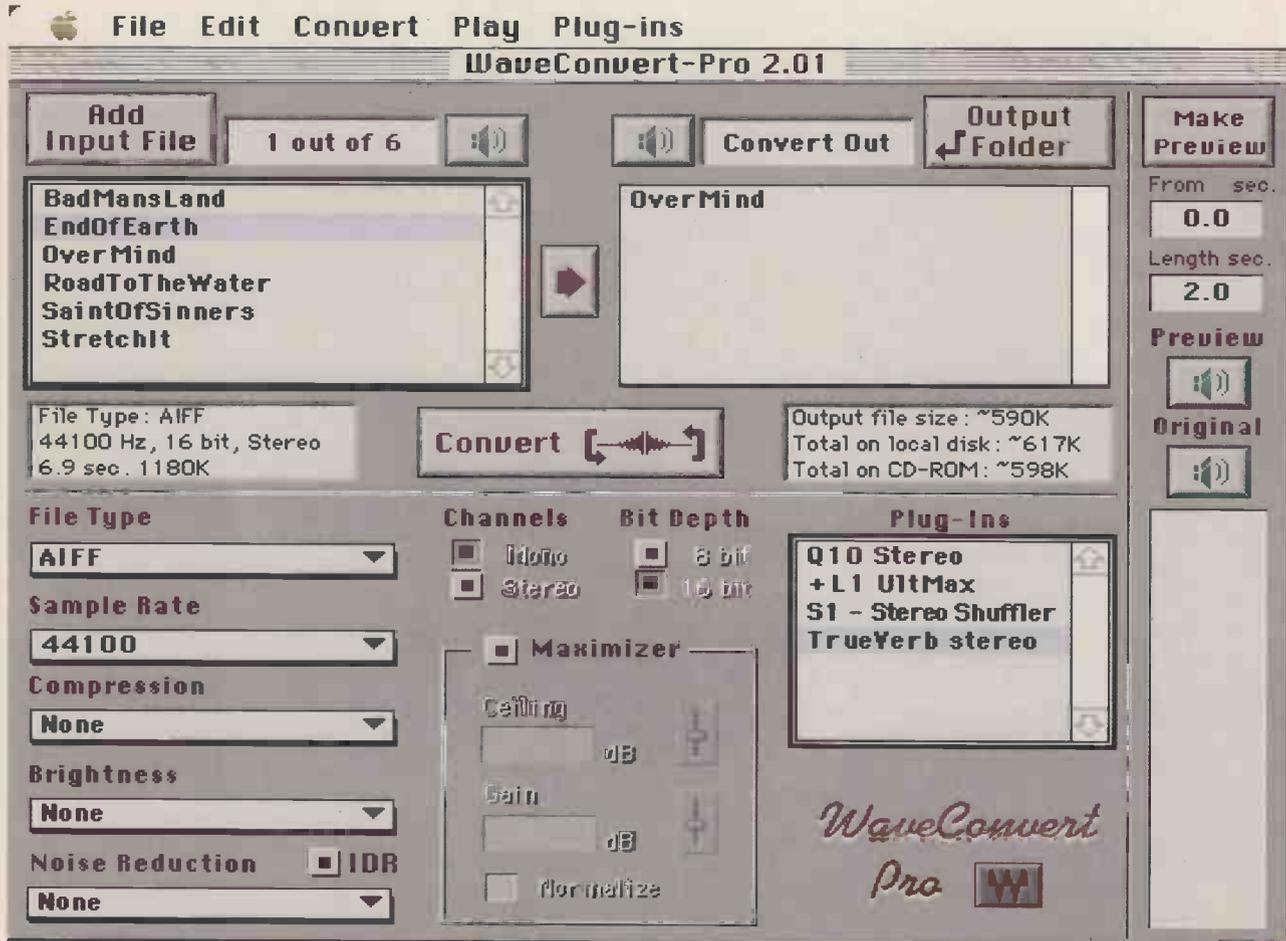
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WaveConvert Pro combines file conversion, sonic maximising and batch processing in one, powerful, easy-to-use package

WAVECONVERT PRO

File Conversion Program £249

With file format conversion becoming a major issue in digital audio these days, Waves might just have a hit on their hands. Ian Waugh tests WaveConvert Pro

WaveConvert Pro converts digital audio files between file formats and word depths, converting 16-bits to 8-bits, for example. It's also a batch processor, allowing you to convert lots of files in one go, and even apply Waves' plug-in effects to the process. It will interest a variety of users. If you use sample files, for example, you may need to convert some PC Wave files to a Mac format. You may also want to convert between file formats on the Mac, say from AIFF to SDII, and the program can also handle QuickTime files. If you're involved in the production of multimedia files, you may well have to convert the final files to 8-bit, maybe to mono or to AIFF or Wave format. During the conversion, especially if you're downsampling (lowering bit depth or sample rate), you'll want to maximise the quality of the files; WaveConvert Pro can help do this too.

In addition, it supports several compres-

sion codecs, and has special filters for processing files to be used with RealAudio or ShockWave, if the final material is intended for broadcasting on the Web.

Ins and outs

The first step is to add a file or two to the Input box. The file selector lets you select any or all of the file types it supports and you can open individual files or all of them. The ability to select several specific files to load rather than having to open the dialogue box each time would be useful, though you can drag files to the window to select them. The files appear in the Input box, and when a file is highlighted its attributes appear in a box below it. It tells you the type of file, whether it's mono or stereo, the sampling rate, and bit depth.

The lower part of the window is where you set the conversion attributes. You can select the file type, the sample rate, and compression settings. The sample rate can range up to 48kHz and you can enter non-standard rates if necessary.

WAVECONVERT PRO FEATURES

- Multi-file batch processing
- File format conversion including multi-track
- QuickTime movies
- Sample rates from 3KHz-48KHz
- Word length conversion: 8 and 16-bit input; 8, 16, 24 bit output
- Channel conversion between mono and stereo
- Audio level maximisation and normalisation
- Two types of IDR dithering and noise shaping
- Automatic analogue domain clip prevention
- Anti-rumble and DC removal
- Preservation of regions, loops and markers
- Load and save setups and edit conversion
- Job lists
- Exchange jobs and setup between Mac and PC
- Halt a process and resume later
- Batch cascades of Waves plug-ins
- 32-bit internal processing
- User-transparent limiting
- Compression formats supported include MS-ADPCM, IMA-ADPCM, and NoLoss
- Fully Drag & Drop
- De-esser for speech processing and low sample rate music
- Pre-processing filters for RealAudio and ShockWave

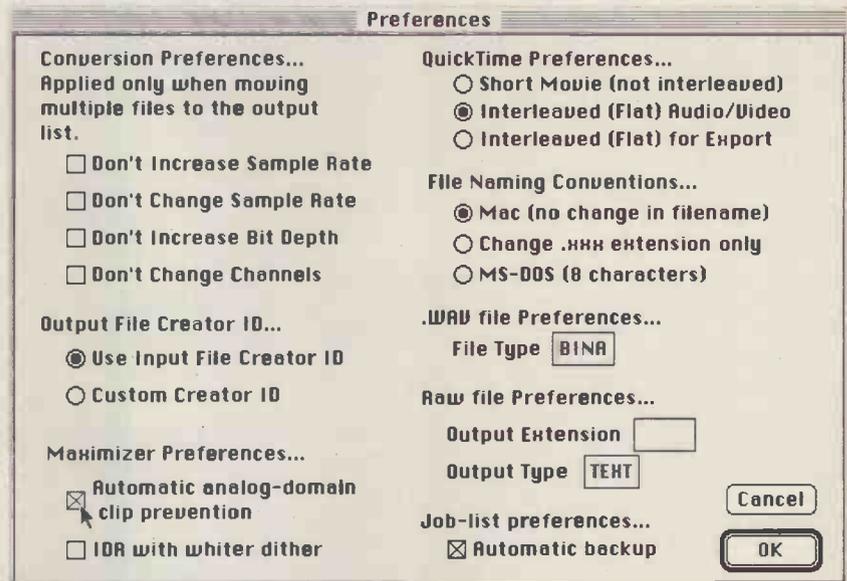
The compression codecs include several ADPCM options, which do contain quantisation noise, but not so audible to the human ear. There's also NoLoss compression codec that can compress 16-bit audio to about half its size, depending on the material. The installation routine actually installs a stand-alone version of TrackPac Lite, a freely-available program limited to one file compression at a time and to a file size of 2Mb.

Now we get to the interesting stuff. The Brightness selector lets you choose one of the filter options designed to compensate for downsampling conversions and data compression. Some emphasise the higher frequencies, as these are lost during downsampling. The De-esser is designed for speech but can also be effective with music reduced to low sampling rates. There's a set of noise reduction filters designed to minimise noise produced by reducing the bit depth. The Rumble filter applies DC removal and can help clean up speech and 8-bit sound files.

Activating IDR (Increased Digital Resolution), Waves' proprietary system for minimising quantisation noise caused by downsampling, applies a noise-shaping technique that adds noise to the signal but moves it to a less-audible frequency band.

There are also several RealAudio and ShockWave filters designed to prevent coloration, distortion and aliasing in the relevant decoders. Well worth trying if you've been struggling to deliver decent quality music over the internet.

You can also specify whether the file will be converted to mono or stereo format



You can customise several of the settings in the Preferences window

and 16-bit or 8-bit. It's a little odd that the system doesn't support 20- or 24-bit files as systems that use these are becoming common-place. A later edition, perhaps.

To the max

Finally, you can apply the Maximizer, which makes three additional controls available. Normalise optimises the dynamic range of the file and applies the ceiling that you specify. It essentially makes the file as loud as possible without distortion. The ceiling is expressed in negative decibels and lets you put a limit on the maximum value. The Gain setting depends on whether or not you use Normalise. It adds volume above and beyond normalisation with a peak limiter, boosting the perceived volume of a file at the expense of a little dynamic range. It does its stuff without clipping and if you use this in multi-file conversions it will maintain the relative levels between files.

There's an Analogue Domain Clip Prevention option in the Preferences menu that makes allowances for "consumer quality" sound cards, allowing you to use the maximiser to around 2dB higher than normal without the risk of clipping by the card on playback.

Plug it in

WaveConvert Pro can also apply processes to the files using any of the Waves plug-ins. In theory, you can apply any number of plug-ins one after the other, but most musos would probably prefer to apply effects individually, although you may want to use it to apply a judicious amount of reverb or EQ, for example. Of course, before applying any processes to a file, you'll want to hear what it sounds like and the program has a comprehensive Preview mode that lets you specify a section of the file for auditioning, and compare the original and processed sounds.

When setting up a collection of files for

processing, each one can have a different set of conversion parameters. When all the setting up has been done, click on the Convert button and have a cuppa till the program has finished.

Verdict

After performing a few conversions, you'll find WaveConvert Pro easy to use. Although it's primarily designed for batch file conversion, you could just as well use it to maximise audio quality on small numbers of files. The price is a little disappointing, but if you're involved in sound file production the program could save time, money and effort, and would be well worth the investment. **M**

More from: SCV London, 6-24 Southgate Road, London, N1 3JJ Tel: 0171 923 1892 Fax: 0171 241 3644

WAVECONVERT PRO

■ **Maximizer**

WHAT WE LIKE

- Superb range of batch processing facilities
- High quality conversions
- Serial number for copy-protection

WHAT WE DON'T LIKE

- No higher-rate bit output such as 20 or 24-bit
- A tad pricey

OVERALL

- If there's a batch conversion job to do, it's difficult to imagine WaveConvert Pro not being able to handle it. The extensive range of features ensure the highest possible quality output whatever you're converting from or to, and the ability to use Waves plug-ins makes the process even more powerful and flexible

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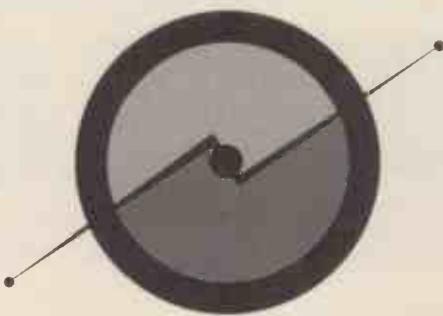
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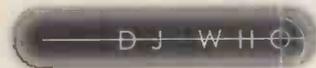
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OTARI CDR-18

CD Recorder £1,287

As CD-Rs are fast becoming *de rigueur* for studios small and large, Chris Kempster tests the latest model from Otari

While several of the larger electronics giants are pushing MiniDisc as the next big thing in digital recording media, musicians and engineers are getting hip to another format that's been with us for a while now, namely CD-R.

Let's face it, no-one's going to be impressed when you take your latest track around to their house on a MiniDisc. For a start, they are unlikely to have anything to play it on; and that's before you even get onto the sound quality of the thing, which despite improvements in compression technology, still doesn't rank up there with DAT or CD. Turn up with a CD of your music though, and it'll be a different story. Everybody has got a CD player. In fact, increasing numbers have a CD player not only in their house, but in their car, too. So no problems playing it then. And sound quality... well, despite the recording world

talking excitedly about 24-bit, 96kHz recording, to the rest of the world 16-bit, 44.1kHz recording is still 'the bomb' – in fact, they even named a standard after it: 'CD-quality'.

Of course, the killer punch is that the CD-R you hold in your hand is virtually identical to the latest Verve release down at Our Price, give or take a touch of gold tint. Friends, associates and 'biz' people can't fail to be impressed by someone who presents their music in such a manner (assuming the music on it is good, too). So now you're convinced that you need a CD recorder, is Otari's CDR-18 the one to get? Let's see...

Overview

If this unit looks a tad similar to the HHB CDR-800 reviewed back in *The Mix* issue 42, that's because it is. In fact, without even uttering the word 're-badged', they are *extremely* similar indeed. However, for those of you who missed that review,



You only get all these I/O options on a pro machine

here's a rundown on what you get for your 1,300-odd quid. Okay, so out of the box you get a chunky 2U racking CD recorder, a wireless remote, and power lead. The remote has the transport controls from the front panel, but also a few extra functions, such as Fader (for fade-ins and fade-outs), and a numeric pad. You can also write track IDs manually from here, check timing information, and initiate recording. In other words, you can burn CDs to your heart's content without ever having to leave your armchair (apart from changing CDs, of course).

Getting ready for a session is easy enough. You need to select the copy status first, by setting two DIP switches on the back panel. The various combinations set the copy bit status to one generation, unlimited or prohibited. A variety of inputs are available to hook up your recording source, with the analogue chores being handled by balanced XLRs and unbalanced phonos, while digital ditties can be recorded via either AES/EBU, optical or S/PDIF.

The next step is to move around to the front panel and select the recording mode, of which there are five: Automatic digital-source synchronized recording (1-track), Automatic digital-source synchronized recording (all-track), Automatic digital-source recording (all-track, DAT only), Manual digital source recording, and Analogue-source recording. Basically there are two things to decide here: whether you want to record from digital or analogue, and whether you want to record one track at a time, or a complete set of tracks with their track numbers preserved. Recording from a digital source in an 'all-track' mode, the CDR-18 will automatically number tracks using either start IDs (as on a DAT machine) or when audio goes above a certain threshold. So this mode is perfect for dumping an edited DAT of tracks onto CD. Alternatively you can record tracks individually, in which case tracks are given a new number each time you hit Record.

Setting the level

Once you've chosen the recording mode, all that remains is to set the input level and balance while in Record Pause, and then Play when you're ready to go. You can check the remaining time on the disc at any time using the Time button, but if you

do use up all the CD-R's capacity (or try recording more than 99 tracks) then you'll get the message 'Rec Full' – at this point you need to check with your record label to see if they'll put out a double-CD concept album...

At any point while recording tracks, you can take the CD-R out of the machine and leave it on the shelf for another day. This is possible because of the 'multi-session' capability of the machine (i.e. you can keep on adding tracks until the disc is full). What you can't do, though, is take that CD-R and play it in a standard CD player. Before you can do that, you need to 'Finalize' the disc. Finalization is the process by which the disc is turned from an Orange Book copy into a Red Book copy – in other words, it's turned from a CD-R into a CD. Once you've got all the audio you want on to the CD-R, hit Finalize and the Otari will take between four and 10 minutes (displayed on-screen) to change your gold disc into a standard CD. Now this is the point you can take your finished tracks to your mate's house.

Extras

There are a few other little tricks to be had from this machine, despite the sparseness of its front panel and the straightforward nature of its operation. One thing to remember is that once a track is recorded, and once an ID is given to a track, you cannot change it. However, though you can't alter the recording itself, you can dictate playback using Skip IDs. These can't be set once the disc is Finalized, so if you do have a duff track that you don't want anyone to hear, make sure you assign it a skip ID before hitting the Finalize button. Mistakes do happen, so having skip IDs will undoubtedly save you money in terms of blank discs.

When recording digitally from your DAT player, you needn't worry whether you recorded at 48kHz or 44.1kHz either, because the CDR-18 will automatically convert the sample rate to 44.1kHz. Something to take for granted, you may say, but it's something we could have done with on the second-ever issue of *The Mix*, where our CD compiler recorded from a DAT at the wrong sample rate, resulting in a 5% pitch drop – ouch! Another useful feature is being able to set the threshold levels for automatic track increments. A range of -infinity to -40dB can be selected, and this means for analogue sources, or digital sources without

track numbers, you can still get a correctly numbered set of tracks without a great deal of hassle.

Verdict

Once you've used a CD recorder for a while, it's hard to imagine life without one. The satisfaction of having your music stored on such a convenient format is only surpassed by the pleasure in seeing the blank media prices tumbling almost daily. What this means is that you'll be using the CD recorder an awful lot, so buy a professional model if you possibly can, as opposed to a cheaper (and less durable) consumer model. The Otari CDR-18 certainly lives up to its 'professional' tag – it's built like a tank, and does everything it's supposed to, without complaint. Yes, it's not cheap, but then how much do you value your recordings? **TM**

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SPEC SHEET

Frequency response:	4Hz to 20kHz
Signal-to-noise ratio:	≥90dB (analogue in), ≥102dB min (digital in)
Dynamic range:	≥90dB (analogue in), ≥95dB min (digital in)
Analogue I/O:	balanced inputs (XLR), unbalanced inputs (RCA), unbalanced outputs (RCA)
Digital I/O:	AES/EBU input (XLR), coaxial input/output (RCA), optical input/output
Disc formats:	CD-R (record), CD (playback)
Dimensions:	19", 2U

OTARI CDR-18



WHAT WE LIKE

- Fool-proof operation
- Solid construction
- CD-R format
- Blank CD-R prices

WHAT WE DON'T LIKE

- Still a bit pricey

OVERALL

A solid, professional, CD-R that'll sit in any studio. A dead ginger for the CDR-800, though ..



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ACOUSTIC ENERGY 200 SERIES

Acoustic Energy are trying to make a name for themselves outside the hi-fi market. Will the 200 Series do the business? Alan Branch takes them to work with him

Reference Monitors £250

Not a month seems to go by without a set of speakers being introduced into the market. So many speakers competing for your hard-earned money! So it's our job to sort out the cones from the cone-less. The ideal speakers should be low in price but well-built, with an unflattering sound. Speakers that deliver a perfect representation of the source material and can deliver enough SPL to suit your particular working style.

Fairly new on the market come a company called Acoustic Energy, with their 200 series. This is one of three ranges – the 100, 200, and Reference series. The 200 series is based around an unconventional metal alloy cone. Indeed, Acoustic Energy's primary objective when they first began

manufacturing loudspeakers was to develop proprietary metal cone technology. Since launching their Reference series AE1 onto the hi-fi market in 1988, Acoustic have had great success with this very different design. Looking at the new 200 series, which are also taken from their hi-fi range, one wonders how well they will cross over into studio use...

Overview

Although originally designed as hi-fi speakers, the AE200s certainly seem capable of producing the high levels needed for nearfield monitors. At the heart of their system they utilise Acoustic's metal cone bass/mid drive unit technology. Unlike conventional plastic or paper ones, the 200s use an anodised alloy cone in the base mid-drive which has extremely high rigidity.

Being made of metal, there is a piston-like action, which provides the ability to accurately track the amplified signal without distortion. In addition the AE200s have high quality, alloy dome tweeters.

Acoustic's tech guy, Steve Philips, told us that the review pair had already been 'run in' at AE HQ. This is just like running in a car! All of the mechanical parts have to be eased into normal operation.

The AE200's unique design also means that the limiting thermal compression effects of temperature rise in the voice coil are eliminated. Explained in plainer terms, the use of metal makes the AE200 cone much more heat resistant than a conventional cone. In one way or another, the cone itself can act like a heat sink, dissipating the heat as the units are driven harder and harder. Acoustic Energy commented that "the higher the power amp,

and the more you drive the units, the more efficient these speakers will become because of the heat generated and dissipated through the cone". So if you've ever fried a speaker or two

(any dB-loving muso will have done so at some point), this comes as a sort of 'anti-fry insurance'. Added to this, the internal wiring uses

Teflon-insulated, twisted-pair, silver-plated (OFC), oxygen-free copper [can't you be a bit more descriptive? - Ed.] AE definitely employ the theory of tonal integrity being paramount where cables are concerned! Features like these obviously stem from Acoustic's background in hi-fi equipment, where hi-fi cables use all kinds of exotic materials. The material quality can affect the signal passing through the cable, so purity of metals is of great importance.

Cabinet construction

The AE200 is a compact two-way loudspeaker and is built as a fully-braced, low-resonance construction using 18mm MDF throughout, with twin flared front firing reflex ports. It has a square box design, which rounds over nicely towards the front badged grille. The cabinet comes across as being very stylish and is obviously manufactured to a high quality - no skimping going on here! We got the black ash version, but they are also manufactured in rosewood, which looks very nice indeed. At a size of just 185 x 300 x 250mm, the speakers are very compact and would be ideally suited if space was a consideration, or as nearfield monitors for a small home studio. The AE200s come with a front grille, which is easily prised off revealing a

much nicer looking front, exposing the speakers and the reflex ports.

The HF driver seems very well built into the unit, and has a cross type framework protection over it. The rear of the cabinet has nice, chunky, gold plated binding posts, offering the chance of being bi-wireable or bi-amped. The holes in the terminal are ample for large speaker wires or banana plugs, which will fit straight into the back. In the conventional wiring, gold plated links are placed between the four posts. The links could also be taken off and bi-wired (i.e. two sets of cables to the four posts, but all going to the same amplifier). Two pairs of cables connect to the amplifier terminals, one cable of each pair should be connected to the HF or treble section and one to the LF or bass section. For bi-amping, a second amplifier can be added to the system - one pair drives the treble section of both speakers and the second drives the mid-bass section, all in the search for great sound quality. These posts, as with the rest of the cabinet, seem very well-constructed and definitely of high quality.

In use

During performance testing of the AE200s, two different amplifiers were used, both of which were close to their handling limit. The speakers actually packed quite a punch when used with a selection of different tracks and while in use in the studio for mixing. Positioning them about a metre apart gave the best stereo-imaging, which was tested out with a variety of tracks, some with 3D sound effects; the AE200s had a very wide sweet spot. Overall, the speakers seemed very smooth. The top end was surprisingly accurate with the alloy tweeters. However, the LF unit response, which should be down to 60Hz, did not give the warmth or low end that other speakers being used in the test gave.

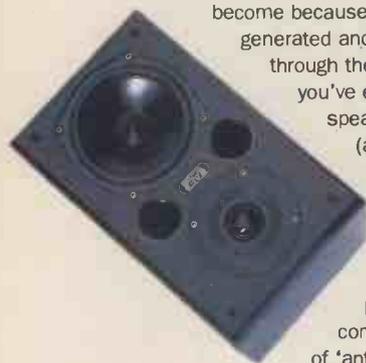
For general-purpose mixing work, the AE200s give a well-balanced sound with good equality across the frequency range. All of the 200 series speakers feature fully magnetic shielded drive units, so close positioning to a computer monitor or TV for programming work should not be a problem. This type of designing is great because it shows that the manufacturers have given consideration to people working with computers, which you'll find in just about every studio now. However, during testing we did find there was still a small degree of discoloration to the screen when the monitors were placed directly next to it - they have to be very close, mind you.

Verdict

For the money, the sound is very smooth and the build quality excellent. Stereo imaging is very clear and a wide dynamic range is quite apparent. The only drawback was the lack of real depth to the bass, which was a limitation of the LF driver.

Once you have listened to these speakers for a while and are used to the sound, the AE200s can appear quite impressive (for compact speakers). A huge amount of air seems to be thrown out from the front ports when pushing hard, which can be an indication of how much bass is being thrown around. The speakers were definitely more towards the edge of crispness rather than dullness, and but not overly bright. While Acoustic Energy offer very high quality loudspeakers, the fact that they are trying to produce a unit for the studio market, when their obvious expertise is in the hi-fi market is a small concern; however, use and time will tell. **TM**

More From: Acoustic Energy Limited, 16 Bridge Road, Cirencester, Gloucestershire GL7 1NJ Tel: 01285 654432 Fax: 01285 654430 Website: www.acoustic-energy.co.uk



SPEC SHEET

	25mm alloy dome tweeter, ferrofluid cooled and damped, magnetically shielded
MF/LF unit:	130mm chassis with alloy cone thermally bonded to 32mm high power voice coil, magnetically shielded
Power handling:	up to 125 watts
Frequency response:	60Hz to 20kHz (±3dB)
Sensitivity:	89dB
Impedance:	typically 80 Ohms
Cabinet:	black ash or rosewood
Connections:	gold-plated binding posts, bi-wireable
Dimensions:	185 x 300 x 250mm
Weight:	6.5kg per speaker

ACOUSTIC ENERGY 200 SERIES



WHAT WE LIKE

- Excellent build quality
- Magnetically shielded

WHAT WE DON'T LIKE

- Lack of bass depth

OVERALL

A well-constructed and good-sounding speaker. At this price the AE200s have a lot to offer, but will have to compete with quite a few well-made alternatives in the same price range

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Main Features

- Intuitive graphic user interface
- Up to 32 tracks of 16-bit audio
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MIDIMAN

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Digital Converters £349 & £109

With high-quality conversion becoming a major studio issue, MIDIMAN are seeking to corner the budget market. Bob Dormon reports

It should come as no surprise that with a name like MIDIMAN, producing MIDI gizmos was the first venture of this company. Their tiny sync boxes that convert FSK or SMPTE into MIDI clock or MTC are a familiar sight in home set-ups, especially as they come at a price that no-one can complain about. Now they're into digital audio and perhaps DigiMan would have been a more appropriate banner to draw in those looking for a bargain.

As naming goes, MIDIMAN are certainly eccentric, as who would of thought that a Flying Cow or Flying Calf would have anything to do with 20-bit digital audio? Perhaps cheese (Laughing Cow) would be more readily associated with such names. But the construction of these two digital doo dahs is anything but cheesy, even if the price is cheap and cheerful.

Overview

There are actually two Flying Calves in the MIDIMAN herd; the Digital to Analogue (D/A) convertor is on review here, and the separate Analogue to Digital (A/D) version (£149) will be available by the time you read this. The Flying Cow incorporates both A/D and D/A converters and is also reviewed here. All these models provide stereo interfacing and have external power supplies. This is actually quite an interesting aspect as all these devices carry a life-time guarantee. Hands up who's had a 'wall wart' PSU die on them? That's just about everybody. Mmmh, here's hoping that the fine print guarantees the PSUs, or will we discover that they live forever too?

The Flying Calf D/A is about the size of an average Walkman. The front panel bears a power switch and LED, plus a data validity LED that glows steadily when a digi-



tal source is being received correctly. This panel also bears the MIDIMAN logo and a picture of a smiling cow that looks like it's releasing greenhouse gases into the atmosphere. (Well, that could be one way of getting this cow airborne!)

The back panel consists of the PSU input, two unbalanced analogue 1/4" jack outputs and a coaxial S/PDIF input, and that's about it. MIDIMAN also produce the CO2, a low-cost optical/coaxial converter to rival the Fostex COP-1; both very handy devices for trouble-free digital interfacing. Lift the lid off the Flying Calf and it reveals a couple of internal jumpers that can be used to change the analogue output level from the standard 2V RMS to 1V RMS (-6dB). Incidentally, the Flying Calf

clock received at either digital input. If the front panel D/A validity light is not glowing then the word clock sync is not working correctly.

As you would expect, the back panel has both S/PDIF coaxial I/O and AES/EBU XLR interfacing. The analogue interfacing is an excellent space-saving compromise, being special XLR/jack adaptor connectors that accommodate both types in one socket. However, the balanced XLR components are all female sockets and will only accept male plugs, which is not in keeping with the conventions for having XLR male sockets for the analogue output signals, therefore sex-changing adaptors or cables may be necessary.

will fly before we see prices coming down in the shops!

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Sparkling top end



Verdict

Lending his ears to the proceedings for a second opinion, novelist and *The Mix* contributor Phil Strongman sat through some tests, and although words such as 'clinical' did get mentioned, the general consensus was that the definition was improved. These converters certainly add some sparkle to the top end, but offer a very clear low mid range. The top could appear a little fierce with A/B testing but this really is a matter of individual taste.

The real point though, is the fact that 20-bit recording is not universal and so few systems can take advantage of the extra bits. The philosophy behind the production is more or less, "We can do it, so you might as well have it." It's a bit like colour TV transmissions in the early '60s when everyone had black and white sets!

Overall, the only major criticism is that the price in pounds sterling is the same as the price advertised in dollars on the website! So what's happening with the strong pound and value imports? Perhaps cows

will accept sampling frequencies of up to 50kHz, which can be handy for vari-speeded tracks.

The Flying Cow is quite a different beastie with a load more connectors, and A/D as well as D/A conversion, plus a variety of interfacing modes. About the size of two VHS tapes lying side-by-side, it is possible to fit two of them into a 1u rack space. The front panel has all the features of the offspring mentioned above, plus stereo metering for the A/D input, plus a level control. Repeated presses on the mode switch selects AES/EBU or S/PDIF protocols and sample rates: 48kHz, 44.1kHz, 32kHz and External. The External function enables the Flying Cow to slave to the

SPEC SHEET

Flying Cow

- D/A converter:** 20-bit, delta-sigma, 128x oversampling
- Dynamic range:** Nearly 100 dB, A-weighted
- A/D converter:** 20-bit stereo, delta-sigma, 128x oversampling
- Dynamic range:** Nearly 100dB, A-weighted
- Sample rates:** 48kHz, 44.1kHz, 32kHz, external lock

Flying Calf

- D/A converter:** 20-bit, delta-sigma, 128x oversampling
- Dynamic range:** 102 dB typical, A-weighted
- Max output:** 2 Volts RMS, unbalanced
- Frequency response:** 20Hz to 22kHz (±0.5dB)

FLYING COW & FLYING CALF



WHAT WE LIKE

- Low cost compared to competitors
- 20-bit quantization
- Good mid-range definition

WHAT WE DON'T LIKE

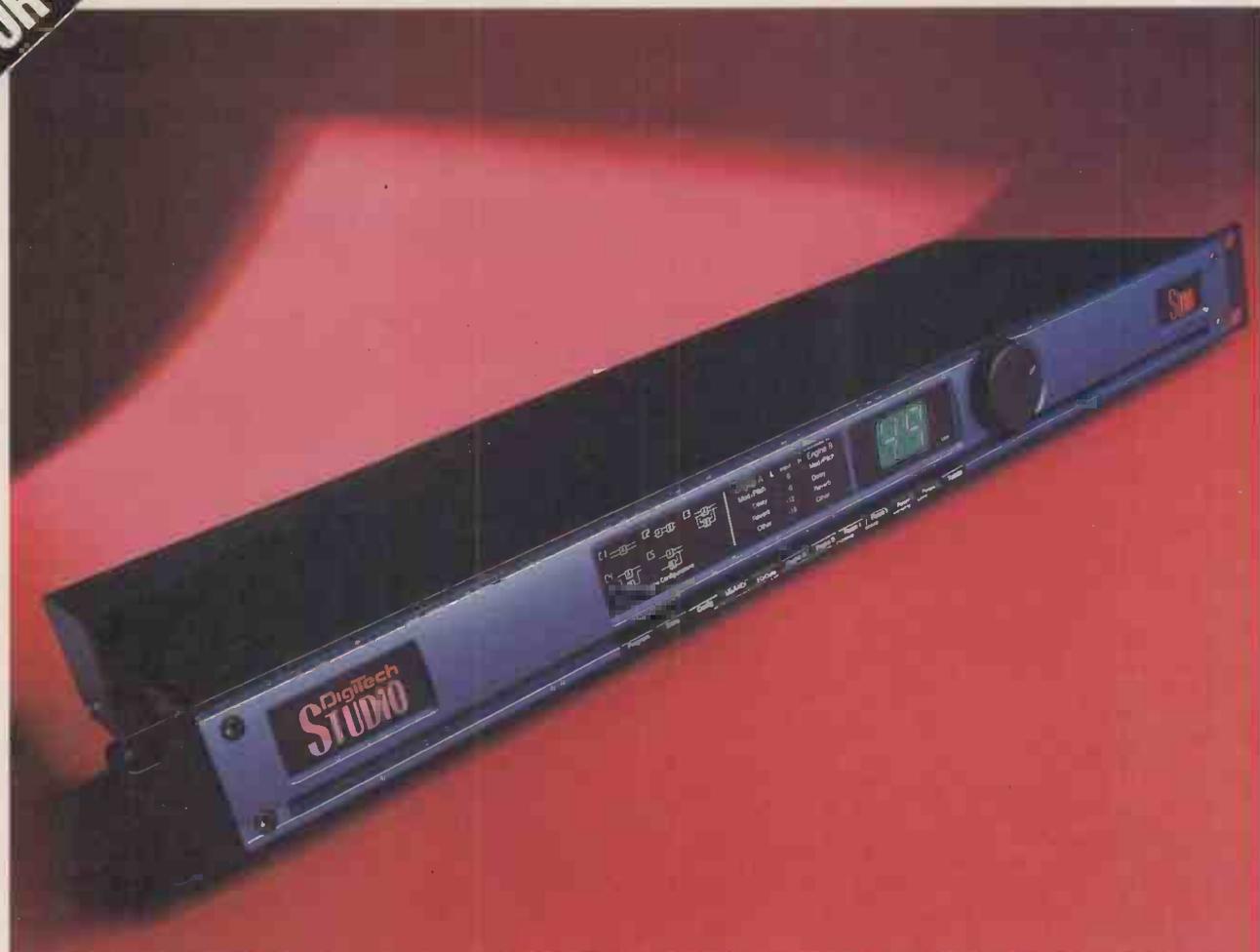
- No word length selection options
- Could be cheaper, as U.S. prices suggest
- Somewhat fierce top-end

OVERALL

Two products that offer a relatively inexpensive way of getting the best out of soundcards and the like, with an element of future-proofing built-in



THE
MIX
EDITOR'S CHOICE



DIGITECH S100

Digitech's newest contender in the budget effects market promises an impressive spec for its low price. Norman Fay plugs it in

Multi-Effects Processor £180

For anyone wanting to buy a reverb unit, these are good times. Right now, manufacturers seem to be falling over themselves to offer better sounds and more features at an ever-decreasing price. The Zoom 1201 processor amazed everybody when it arrived, and what the manufacturers must have thought when they heard it is something we can only guess at.

The S100 looks like a strong contender in that market. For an extra £80, the S100 features MIDI, 100 programmable memories, EQ, a noise gate, and twice as many parameters to play with. None of this really matters if the basic sound isn't up to much though – a good reason to put it through its paces.

Overview

The S100 comes in a shallow 19" rack case, with a very attractive front panel, featuring a plastic moulding in a nice shade of

metallic blue. As far as controls go, there's a two-digit LED display, 12 parameter select buttons, an alpha-dial, a pair of input level meters that double up to show what effect type has been selected, and a little diagram showing the different effect routing options available to the user. The four-step bargraph meters make a nice change from the dual colour LED often employed at this price, and the alpha dial is certainly easier to use than small up/down buttons.

The back panel is less impressive – nothing to do with the various connectors, but because Digitech have for some reason put the input level control there. Adjusting this control with the S100 racked up could be a real pain, especially as some budget mixing desks lack a master effect send control. This aside, the back panel features stereo ins and outs, a MIDI input, a socket for a footswitch, and a socket for the external power supply, which is hardly cause for complaint at this price.



The input level control is located on the back panel

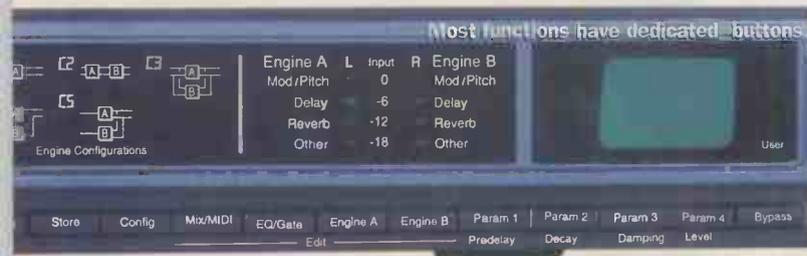
Again, at this price we shouldn't really complain about the basic construction of this unit. The case is made of thin folded sheet metal with slightly rough edges, and the legending on the buttons doesn't line up very well at all. It did seem quite sturdy, however, so you shouldn't have to worry about its longevity.

mono feeds, and their stereo outs are combined. For a home studio owner who is short of effect returns, this would be very handy. The effects themselves range from adequate to very good, with the pitch shifter being the only weak point, and even then, you could spend a lot more and not get much better. The reverbs are very

usable, though they generally have a bright, 'splashy' quality that may not be suited to all jobs. On the whole, the reverbs worked best in denser

without spending too much money - the Yamaha REV500 and the Alesis Wedge spring to mind, but these units still cost twice as much as the S100. Of course, if you buy an S100 and then upgrade at a later date, the flexible routing and good quality delays and modulation effects mean that it will still earn its keep. With this in mind, the S100 is extremely good value and, because of its programmable noise gate and EQ, it will deal easily with noisier sources. **TM**

More from: Arbiter Group, Wilberforce Road, London NW9 6AX Tel: 0181 202 1199 Fax: 0181 202 7076 Email arbiter@compuserve.com Web: www.demon.co.uk/arbiter



Apart from the hassle caused by the location of the input control, the S100 is very easy to use, mainly due to the fact that most of the functions have dedicated buttons. When you press a button, the LED displays an abbreviation for whatever you've selected, and then switches to the current value of that function. Even without the manual, it's not difficult to work out what the abbreviations stand for. When a processor is switched to reverb, for example, 'ro' is clearly room, and 'HA' obviously stands for hall. 'Co' for compressor is easy enough, but 'Cd' for vocoder? Mmm. The manual turned out to be quite clearly written, but rather skimpy on detail. As this unit is likely to be bought by many beginners, who are likely to be unfamiliar with much of the terminology used, Digitech could have done a bit better here.

The MIDI specification of the S100 is basic, with only a MIDI in, but it offers one or two extra features over the standard program changes. By sending program change messages with values over 99, you can bypass the unit, or switch between factory and user memory banks. Ideally, the S100 would receive parameter-change messages, or at the very least, the ability to toggle the Leslie-simulator speed remotely, but you can't have everything.

The S100 is essentially two separate processors, and these 'engines', as Digitech call them, have five configurations. Configuration one combines the processors for richer reverbs and longer delay times, while the other four configure the two processors in various useful ways. We especially liked configuration five, where the processors receive individual

mixes, and sounded much better with the two engines combined. The best showing in the review was from the Cathedral algorithm, which gave a good impression of this type of space.

In use

The S100's modulation effects are very impressive - rich and deep, with a wide stereo spread. The phaser and the rotary speaker were particularly good, which despite not sounding much like any Leslie you'll have ever heard, sounds very good for all that. Combining two modulation effects with different settings produced a full, rich and pleasing sound from any source. The delays are nice and clean, with the mono delay supplying a full second, even using a single engine. The ping pong delay has a broader stereo width than many. The vocoder is very nice, the compressor is usable, but the ring modulator is a bit too polite.

The bonus feature is the noise gate and three-band EQ section that fits between the inputs and the processors. The EQ has a semi-parametric mid, and the noise gate has threshold and release parameters. Best of all, all of the parameters are programmable for each patch. For someone looking to dedicate a processor to one instrument, especially if the instrument is a noisy old digital synthesizer, this feature pushes the S100 to the top of the heap.

Verdict

The S100 is clearly aimed at home studio users, and it would make a good purchase for those on a budget. It is possible to get noticeably better and more realistic reverbs

Studio 100 is aimed squarely at the home user



SPEC SHEET

Inputs:	Stereo 1/4" jacks
Outputs:	Stereo 1/4" jacks
Max input:	+18dBu
Max output:	+18dBu
Frequency response:	20Hz to 20kHz ± 0.5dB
Sampling frequency:	46.875kHz
Memory:	100 preset and 100 user memories
MIDI:	Program change and remote bypass on any channel
Effect types:	Modulation (6 types) pitch shift/detune, mono, stereo and ping pong delay, 9 types of reverb, ring modulator, compressor and vocoder.

DIGITECH S100



WHAT WE LIKE

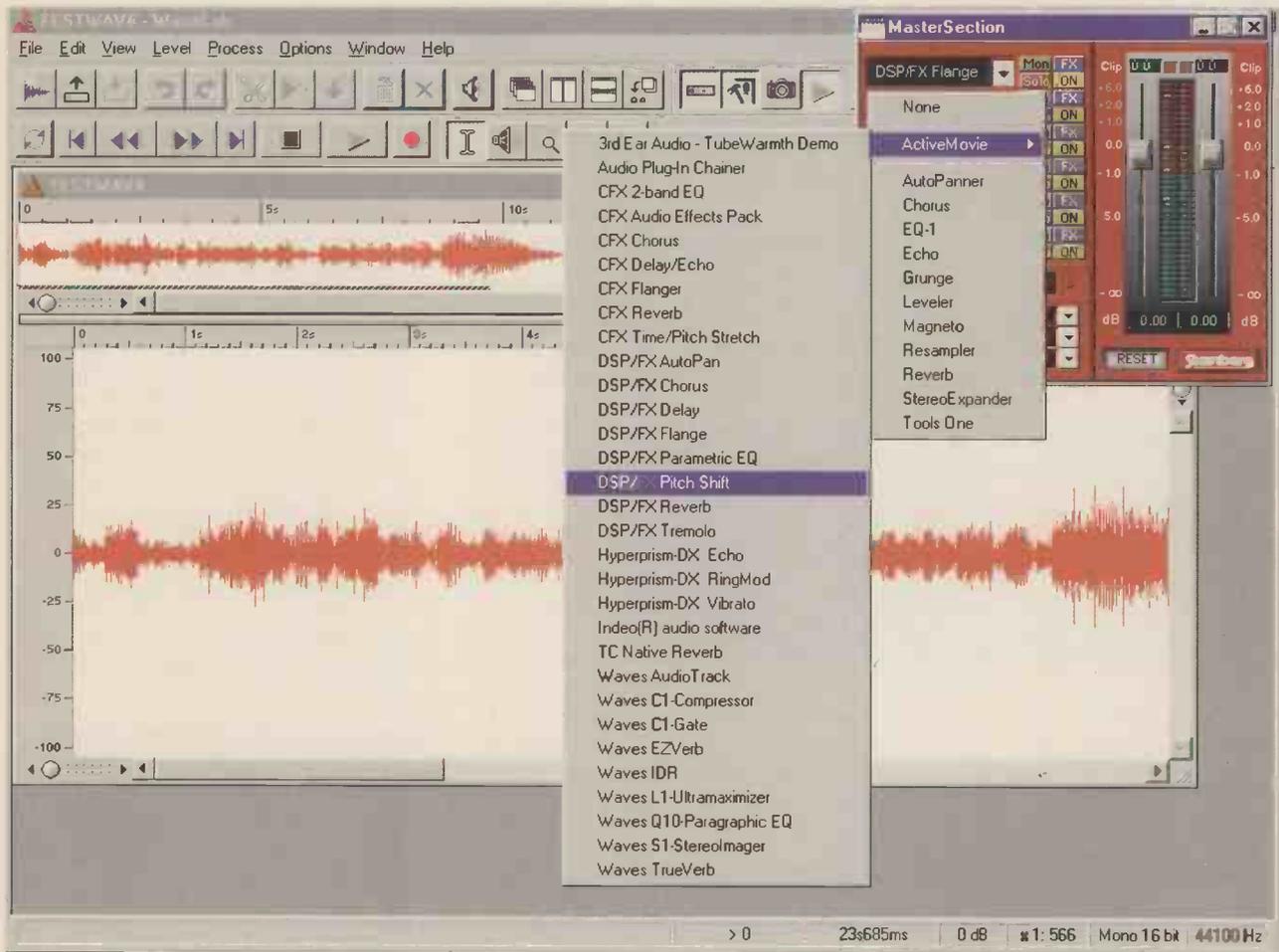
- Good value
- Versatile, with five effects configurations
- Rich sound of pitch effects

WHAT WE DON'T LIKE

- Input level knob on back panel
- Manual, a bit skimpy

OVERALL

- A remarkably well-specified unit for the price, and a must for budget effects seekers



DSP FX is DirectX-compatible and this how the effects are selected in WaveLab

POWER TECHNOLOGY DSP FX

Power Technology have taken hold of computing horsepower by the reins and shaken 32-bit audio processing out of it. Ian Waugh saddles up DSP FX...

PC-Based Effects Processing £395

You may not be overly familiar with the products of Power Technology. They are a US company that has had patchy UK distribution and virtually no profile in the UK at all. They are, however, well known in America, and a couple of years ago they released a set of digital effects for the PC that used a dedicated DSP ISA card. Now the company have released a software version of the effects called, naturally enough, the Virtual Pack, and this will run on a PC without a dedicated card. The interesting thing about DSP FX is that it uses 32-bit internal processing. Now the pros have already been using 24-bit hardware systems for a while, and we're starting to see the arrival of 20-bit and 24-

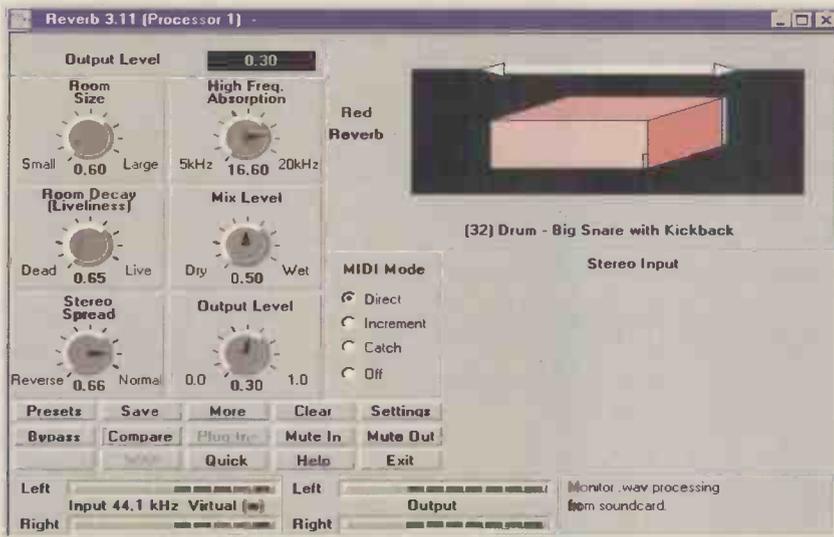
bit digital audio cards and recording systems. Many software effects already use 24-bit internal processing, but very few use 32 bits.

The manual suggests you need a 486 PC or better running Windows 95 or NT and around 10Mb of hard disk space. Practically, you really need a Pentium to do any serious stuff, and if you want to do real-time effects you definitely need a powerful Pentium – as you do for any real-time digital processing.

Installation is easy, and there are options to set up the system for use with DSP cards, although the software was supplied and tested in its 'virtual' state. Unfortunately, the software uses a dongle for copy-protection. This plugs into the printer port and without it, the software

DSP FX VIRTUAL PACK FEATURES

- DirectX and SAW compatible
- Can run as a stand-alone processor
- Effects: Parametric EQ, Auto Panner, Tremolo, Multi-element Chorus, Analogue Tape Flanger,
- Full Stereo Pitch Shifter, Graphic Reverb, Multi-Tap Delay
- Controllable via GS-10 or other MIDI controller system 32-bit internal processing



The Reverb graphic display uses a box to represent the size of the room and colours and lines to represent the other parameters

runs in demo mode.

Dongle manufacturers must survive on the efforts of music software developers alone, as music seems to be virtually the only type of software subjected to this invasive manoeuvre. You can live with maybe one or two dongles but it can't be uncommon for even a semi-serious home studio to end up with a string of dongles a foot

long sticking out the back of the PC. It may be time to rethink the strategy, chaps. This is not a dig at DSP FX in particular, which simply seems to be following the herd.

Plug it in

Once installed, the program can run as a self-contained program or as a DirectX plug-in, which allows the effects to be used

with most of the major digital audio programs such as Cubase VST, Cakewalk Pro Audio, Cool Edit Pro, Sound Forge, WaveLab and so on. There's also a version for SAW and SAW+32.

The program consists of a basic shell plus several plug-ins, which are the individual effects. The plug-ins in this case 'plug in' to the main shell program. You click on a Plug-In button and up pops a list of available effects, each one of which effectively becomes the main window with various sets of controls.

The plug-ins currently include reverb, multi-tap delay, multi-element chorus, analogue tape flanger, full stereo pitch shifter, parametric EQ, an auto panner and tremolo. The plug-in system used by the program allows the developers to add additional effects to the system as a whole. The original card-based program had fewer effects than these and cost over £1,300.

The layout and modus operandi of all the effects are similar. The control knobs are on the left and below them are buttons to select a preset, bypass the effect, select additional edit knobs, select a new plug-in (that is, a different effect although this is greyed out when used as a DirectX plug-in), and perhaps a few other functions which vary depending on the current effect. Some have sliders to the right that control various parameters. At the bottom are input and output indicators and to the top right is a graphic representation of the effect.

Let's take as an example, the reverb effect used with a host program as a DirectX plug-in. The controls include room size, high frequency absorption, liveliness, stereo spread, mix level and output level. Some effects, including reverb, have more controls than can comfortably fit onto the screen and a click on the Edit or More button brings up, in this case, density, early reflections and late reflections. The Compare button lets you compare the original settings with any tweaks you may have made.

All the effects come with tons of presets, so you have an excellent range of settings to start with and you can create and save as many presets of your own as you wish. A useful function is the Quick Pick button, which lets you select any one from five of your favourite presets.

The graphic display gives a visual indication of the effect. The reverb, for example, shows a box that changes in size according to the room size. The colour represents the liveliness, the colour of the top and right sides correspond to the high frequency absorption, and there are two blue bars up the sides that represent the early and late reflections. There's also a pair of arrows above the box that correspond to the stereo spread. Unfortunately, adjusting the parameters on the graphic displays directly isn't possible.

BITS AND PIECES

The number of bits used in a digital-to-analogue conversion or processing function is extremely important. When a sound is converted from analogue to digital format it is sampled so many times per second (44,100 times is the current norm, generally taken to be 'CD quality') and each value is stored as a number.

Now, a 16-bit system can store values ranging from 0 to 65,535 (216 for the mathematically inclined). In other words, each sample has to be 'converted' into a number in that range.

And it's a reasonable range, too. It means that the difference between the quietest sound (with a value of 0) and the loudest sound (with a value of 65,535) is 96dB. Compare this with an 8-bit system with a storage range of 28 or 256, which only has a dynamic range of 48dB. You can immediately see why an 8-bit system sounds so coarse.

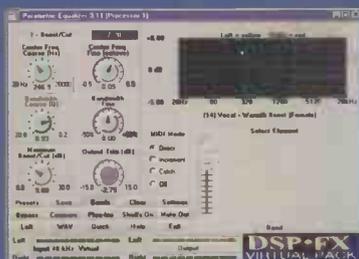
Now, in the real world, our ears can detect differences in dynamic range amounting to

around 140dB. A 20-bit system offers a dynamic range of 120dB and a 24-bit system offers a range of 144dB. Wow! That's real-life quality, isn't it?

Well, in theory it is but in practice, it's very rare that you can take advantage of a system's full dynamic range. You can't overdrive a digital system during recording and you need to give yourself a little headroom by making sure the level doesn't clip at its highest level. It's more than likely, therefore, that a 16-bit recording will end up with an actual dynamic range of 14 bits or less.

Now, enter a 32-bit system with a 192dB dynamic range – larger than life – and not only should it be able to capture a range of sounds beyond what most ears can appreciate, it should also allow enough headroom for you to lose a few bits without making any noticeable difference to the sound at all.

Of course, if you play these sounds through a 16-bit sound card or other 16-bit system, you'll still get 16-bit quality.



THE EFFECTS

Reverb

This is capable of a wide range of room, plate and environment reverbs. The reverbs are smooth and clean and the processing does not require all your CPU power.

Multi-Tap Delay

Up to eight taps, but also capable of a wide range of delay effects from echo to doubling. Crisp, clear echoes with pan settings too.

Multi-element Chorus

Up to four elements produce thickening and detune effects, Leslie speaker effects, spacey sounds and vibrato. Warm when it needs to be and works well with vocals and instruments.

Leslie Speaker Effects

Everything from a gentle flange to reverse stereo feedback with doppler and Leslie speaker effects thrown in for good measure.

Real-time Pitch

A surprisingly powerful effect that produces a quality pitch shift in real-time. Capable of gentle fattening, pitch corrections and outlandishly OTT harmonies.

Graphic EQ

The graphic display helps show where the EQ is working. Lots of useful presets, and you can link the left and right channels or create separate settings for them.

Auto Pan

This can produce a super range of pan effects, from sweeps to pulses and stereo switching.

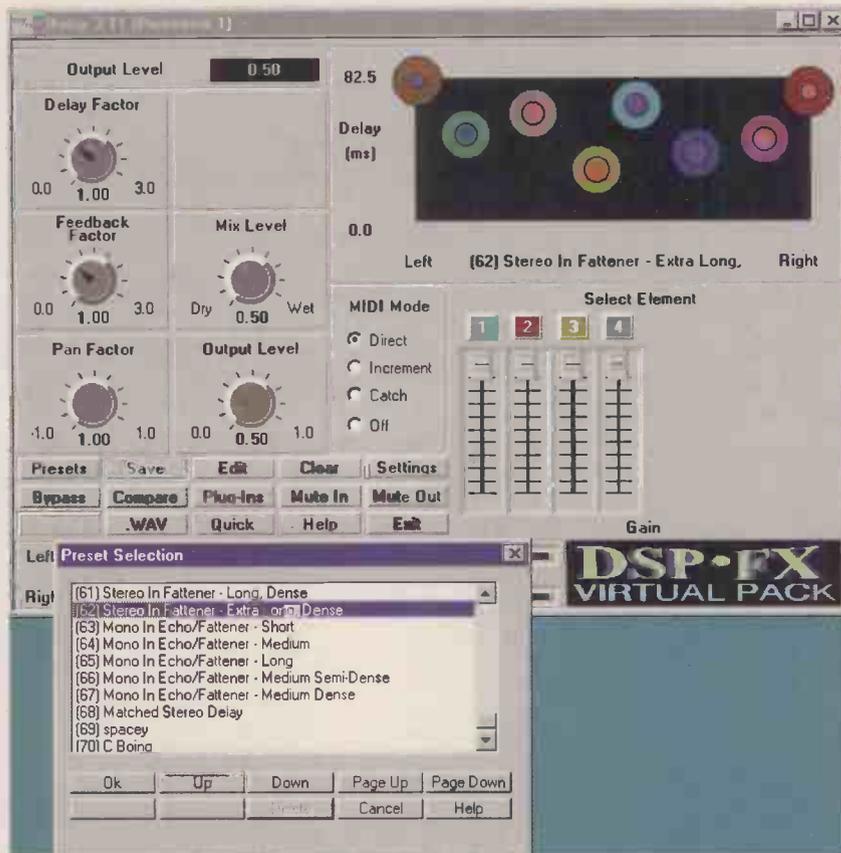
Tremolo

More tremolo effects than you can shake a set of tubular bells at, with pan settings and waveform selection.

Mine host

If the host program supports real-time effects, as Cubase VST does, you can start playback and fiddle with the controls in real-time. Different programs display the effects in slightly different ways, but in most cases you can use several effects simultaneously and in real-time, and you can run as many effects as your CPU will support. When using the program in stand-alone mode, the controls are exactly the same but you have to specify a Wave file on disk, which will play while you twiddle. When you achieve the required result, you can save the output to a file.

An odd omission here is the ability to loop the file. It's a real pain having to restart it each time you want to try a few settings and if the file is short, such as a drum or bass loop, you simply don't get the time to play and tweak before you have to restart it again. Something for the next version, chaps? A neat feature is the ability to edit the effects' parameters in real-time via MIDI. The manual suggests a JS Cooper CS-10, but you could use any device that can generate MIDI Controller



The Multi-Tap Delay uses circles to represent the delays, and there are lots of presets to choose from

messages. The manual lists the messages so you can configure your equipment to control the program.

You can also control DSP FX via a software sequencer running simultaneously on the PC. You could use it to select plug-ins and set parameter changes. You could record changes in the sequencer's editor or even construct a Mixer Map in Cubase for it, or an Environment control in Logic.

Verdict

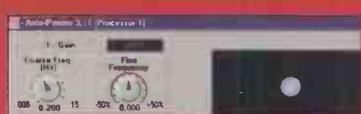
Running DSP FX as a DirectX plug-in seemed to cause some of the host programs to crash. This could well be a result of the conglomeration of garbage on the test PC, but the PC has previously proved to be fairly stable. One of the hazards of working with PCs is that no two are identical. The stand-alone program, however, was rock steady. The interface is decidedly good, but at the risk of appearing to want cake and eat it, it is rather large. On an 800 x 600 display it fills most of the screen and you have to flip between it and your application. It seems to minimise itself a lot (if you reach out to adjust a volume level in the host application, for example) so you have to retrieve it from the Taskbar rather than being able to bring it from a rear position by clicking on it.

These comments apart, the program contains a very impressive set of effects, high quality, programmable, and easy to use. Do bear in mind, however, that to take full advantage of its 32-bit processing you'll need something more than a 16-bit-

card. The pack includes a username and a password that can be used to download updates from Power Technology's website (www.dspfx.com) Since the software won't run fully without the dongle, this additional protection may seem OTT but it's no real hassle. The good thing is, you can try before you buy and they're on our cover CD. Try them - you'll like them. **TM**

More from: **RKMS, 57 Chesterfield Avenue, Gedling, Nottingham, NG4 4GE**
Tel: 0115 9611398 Fax: 0115 9533802

DSP FX VIRTUAL PACK



WHAT WE LIKE

- 32-bit processing
- DirectX, SAW, and stand-alone versions
- Lots of presets

WHAT WE DON'T LIKE

- Stand-alone version has no loop function
- Large operating window will obscure main application on a small monitor
- DirectX seemed a little flaky in some applications

OVERALL

- Watch out for a few loose ends, but otherwise, a superb set of high quality effects with a user-interface the hardware mongers can enjoy

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3013 2 Channel Parametric EQ

The CRIMSON equivalent of the classic EQ2 - 2 channels each with 4 bands of fully parametric EQ. Each band/channel has individual EQ bypass switch, continuously variable high and low cut filters with bypass switch, insert points on each channel and Stereo link.

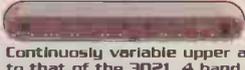
Was £699 + VAT **Village Exclusive £296.99 + VAT**



3021 2 Channel Compressor

Attack and release times switchable between "fast" and "slow", dual mono or stereo linked modes. Dual sensitivity auxiliary input (for guitars, keyboards etc.) and side chain insert points for frequency conscious compression.

Was £599 + VAT **Village Exclusive £211.99 + VAT**



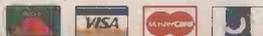
3051 Mono Voice Processor

Continuously variable upper and lower mids, compression section identical to that of the 3021, 4 band EQ section identical to that of the 3011. EQ pre switch allows EQ to be positioned ahead of compression section. Link facility allows two 3051's to be used in stereo mode with side chain insert point for frequency conscious compression.

Was £599 + VAT **Village Exclusive £211.99 + VAT**

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TUBE-TECH MEC1A

Tube-Tech is a name that'll warm the heart of any engineer – Trev Curwen gets hot under the collar over their latest pre-amp/EQ/compressor

Recording Channel £2,814

The sight of Tube-Tech units nestling snugly in a rack is always a welcome one. This Danish company is a provider of valve-based audio equipment, reminiscent of an older generation of classic gear – the Pultecs, Teletronixes, and Fairchilds of this world. But, unlike those older units, which are in short supply and expensive on the second-hand market, Tube-Techs are readily available and come without the reliability and maintenance problems that older equipment can sometimes suffer from.

Previously specialising in stand-alone compressors, EQs, and pre-amps, Tube-Tech have now produced what is a more modern phenomenon: the all-in-one recording channel. It combines a microphone and DI pre-amp, equaliser, and compressor all in one unit. Plug a microphone or instrument into this and you have a high-quality signal chain direct from the sound source

into whatever recorder you might be using, completely bypassing mixing desk electronics and all the patchbay wiring needed to connect outboard EQs and compressors. The intention is to create a short signal path with high-quality components, thus producing a better sound.

Overview

The MEC 1A, like all Tube-Tech units, looks and feels classy. Construction values are impressive; the unit is completely valve-based except for the power supply. All switches are gold-plated, input and output have fully floating transformers, and all DC voltages are stabilised except the anode voltage for the output stage.

There are two inputs to the MEC 1A. Microphones plug into the XLR input on the back panel, while a DI jack socket resides on the front panel. Output is via a back panel XLR socket. Two stepped rotary knobs control the pre-amp gain, so recall of exact settings is entirely possible. Total



It's built like a tank

gain range is from +20dB to +70dB, the coarse range knob having 10dB steps and the fine one, 1dB steps. 48V phantom power and phase reverse switches are provided, as well as a 20dB pad.

The high impedance unbalanced DI input is placed in the circuitry directly after the input transformer, and has a gain range from +10dB to +60 dB: plugging anything into this input disables the microphone input. Elimination of the real low end frequencies is facilitated by a highpass filter operating on both the microphone and DI inputs, and is switchable between Off, 20Hz, and 40Hz.

An In/Out switch provides bypass for the main, 3-band EQ section, complete with its own tube op-amp. The low pass section is a shelving filter, with ±15dB of continuously variable gain. Six frequency options (20, 30, 50, 100, and 160Hz) are available on

The compressor is of the optical type and is switchable in and out of the signal chain, with a full complement of controls, including separate knobs for Ratio, Threshold, Attack, and release. Ratio is variable from 1.5:1, up to 10:1, and the threshold is continuously variable from off to -20dBm. In addition to setting the attack and release controls manually, where attack can be varied from 0.07 to 2.5 seconds, there is also a fixed mode that can be switched in. In this mode the attack time becomes 1ms, and the release time 50ms.

The VU meter at the far right of the front panel is dual function, switchable between output and compression. When switched to output, the meter shows output gain, which can be set by the gain knob to make up for gain loss during compression. When the meter is switched to show compression, its needle deflects to the left, showing the amount of compression in dB.

In use

The Tube-Tech luckily turned up right in the middle of an album project, and so was put to good use straight away. First thoughts were that the front panel looked a little complicated but it is, in fact, logically laid out, and with a little familiarity, very easy to use.

The most obvious use for the MEC 1A would be for recording vocals, and to that end a Neumann valve 47 that had previously been routed through one of the desk's mic inputs was plugged in. The difference was immediately apparent, with an increased clarity and smoother sound. Rolling off some bottom end and adding a little of the high top end shelving gave a lovely sheen to the sound. There is something about optical compressors that is particularly likeable, and adding this one to the signal chain smoothed out the vocal just right. Previously the signal had been going through a Teletronix LAZA and, with a little tweaking of the MEC 1A's controls, a very similar sound was obtained. Sending the output directly to tape and setting the level with the output gain knob yielded excellent results.

Over the space of a few days, other instruments were recorded direct to tape using various microphones. Autoharp and several acoustic guitars including Guild and Takamine 12-strings were recorded using an AKG 414, and the results were always impressive. Whereas the mid-range EQ hadn't been employed for vocals, it was very useful in removing some of the mid-

range from the acoustic guitars. All of the selectable frequencies on this unit are well-chosen, covering a wide range of possibilities. There are occasions when perhaps a little extra EQ could be needed for sound sources that are creating a problem; boosting one mid range frequency while cutting another might be desirable in certain circumstances so it's a mild disappointment that the MEC 1A does not include some sort of send and return to patch in extra EQ before the compressor stage, but to be fair, there are many other ways to work around that kind of problem sound.

Moving on to the front panel DI input, this was used for electric guitars and bass with consistently good results. A Rickenbacker 12 string plugged straight in with loads of compression piled on sounded fantastic. With the 20 dB pad switched in it was possible to strap the MEC 1A across a desk insert point, allowing the EQ and compressor sections to be used on previously recorded tracks at mixdown. Overall we were very pleased with everything that went to tape via the MEC 1A.

Verdict

The Tube-Tech MEC 1A sounds great and covers a whole range of possibilities, giving a clean transparent sound with valve warmth and very natural-sounding EQ and compression when needed. Getting acoustic sounds onto tape/hard disk is arguably the most important part of the recording process, and choosing the right microphone and pre-amp is crucial. The Tube-Tech worked well with all the different microphones and instruments plugged into it, so if you have to choose one recording channel to work with all the time, this should be it. **TM**

**More From: Systems Workshop, The Old Smithy, Church Street, Oswestry, Shropshire SY11 2SP
Tel 01691 658550 Fax 01691 658549**

SPEC SHEET	
Output impedance:	<60Ω
Max output (1% THD+n):	+26dB
Noise (Rg=200Ω):	<82dBu (22Hz to 22kHz, 20dB gain)
Frequency response:	15Hz to 80kHz (-3dB)
CMRR:	<-60dB (@10kHz)
Filters:	Low shelving, Band, High shelving
Compressor:	Optical type
Tubes:	3 x ECC81, 1 x ECC82, 3 x ECC83

the stepped rotary knob. The high pass section is basically the same, with six selectable frequencies of 4, 6, 8, 12, 18 and 26kHz, and ±15 dB of gain.

A greater degree of control is available on the crucial mid band frequencies. Here the band filter can be switched to cut or boost with a gain range from 0 to 20dB. Selectable frequencies are 40Hz, 60Hz, 80Hz, 130Hz, 250Hz, 500Hz, 1kHz, 1.6kHz, 2.5kHz, 4kHz, 7kHz, and 10kHz, and bandwidth is continuously variable from sharp to broad.

The compressor section of the MEC 1A lies at the right hand side of the front panel, which implies a pre amp-EQ-compressor signal chain. However, there is a front panel switch that allows the EQ section to be placed post-compressor in the signal chain, should that be the required way of working.

DIGITECH MEC1A

WHAT WE LIKE

- 1 Warm clear sound
- 2 Everything from microphone to recorder in one box
- 3 Smooth compressor

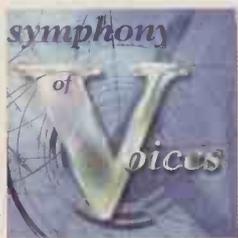
WHAT WE DON'T LIKE

- 1 Nothing!

OVERALL

High quality signal path from microphone to tape in one box.

SAMPLE CDs



Vocal sample CDs are still quite thin on the ground, despite the fact that there's a market crying out for them.

Symphony of Voices boasts choirs, classical soloists, Gregorian chants and layered pop vocals, all supplied as Akai and E-mu compatible CD-ROMs. This was obviously a gargantuan project for Spectrasonics, and their hard work has certainly paid off.

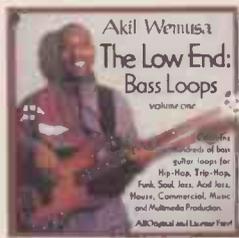
The first three CDs cover what could broadly be labelled as more classically oriented sounds. However, this is not to say that they couldn't find a comfortable home in many styles of commercial pop, (remember Enigma?) and there's loads of variety within the collection.

Every combination of vocal texture is covered here, from full choirs to solo boys' voices and everything in between. The recordings are of the highest quality, yet maintain a 'live' element that makes them so much more convincing than their synthesized rivals. Probably the most accessible CD for pop samplers is the Pop Stacks disc, where, for some parts, multiple overdubs by the same vocalist are used to give a lush, full feel to the recordings. In other examples, namely the Combination Patches section, three singer's multisamples are assigned to different keys, meaning that when you play a chord, each note of the chord is sung by a different singer. Great idea, and one that offers a huge amount of versatility.

The well selected singers have great tones on their own, and when they are judiciously combined, some of the resultant timbres are mind boggling. The sounds on this collection in themselves make it a difficult one to ignore for samplers needing natural sounding vocals for their recordings. Combine that with the intuitive and useful inlay books, including tips and techniques, and the CD-ROM capability, and *Symphony Of Voices* becomes an absolutely essential sampling tool. •Nick Serre

Price: £299

More from: Time + Space, PO BOX 4, Okehampton, Devon, EX20 2YL Tel: 01837 841100



These top session bods always have bizarre names don't they? You sometimes wonder whether they're made up to

ensure that the musicians are remembered; you can imagine some producer saying "get me the dude with the five z's".

Anyway, if the singularity of your name is proportionate to the scope of your talents, bass aficionado Akil Wemusa is no exception to the rule. Fuelled by a love of all things funky, *The Low End* takes you through a broad sweep of meaty fingered, slapped and filtered loops, providing a glut of highest quality sampling material. With 70 tracks typically containing eight to 10 one- and two-bar loops, there's more than enough in terms of quantity, and running between 80 and 110BPM means that most of the more widely used funk tempos are covered before you need to start getting into de-tuning or timestretching.

For intricate lines and technically challenging fingerwork, Akil's definitely up there with the top boys, effortlessly rattling off loop after loop of tempo and key grouped fluent grooves. Trills, string bends, neck-traversing fretboard runs and speed-fingering pose few problems for Akil as he blazes through a wide repertoire of riffs that are tailor made for the jazz-funk, swingbeat and soul producer.

A couple of things are worth noting, though. Firstly, there's very little production or tonal variation across the CD. Akil's standard throbbing funk sound is without fault, but with the exception of the filtered loops, pretty much everything uses either this or a standard, and again very good, slap bass tone setting. Similarly, the style is very uniform. No doubt this was the intention, but occasionally the similarity between loops is a little too close for comfort. However, there is the balancing factor of price. At a shade under 25 quid, this is less than half the price of a typical sample CD, making it pretty damn good value overall. •Derek O'Sullivan

Price £24.95

More from: Sounds OK, 10 Frimley Grove Gardens, Frimley, Camberley, Surrey, GU16 5JX Tel: 01276 682313



Produced over a period of two years, *Deepest India* is something of a labour of love. Sourced from the Punjab region,

and comprising three CDs totalling over 190 minutes of audio, it comes very close to being the definitive article.

The three discs are divided into Vocals, Instruments and Orchestras & Ensembles. The Vocals disc is made up of long passages of unaccompanied singing, ranging from expressive solo pieces through traditional folk and wedding chants and on to semi-spoken, vocal sounds, using both classically trained singers and accomplished traditional experts, and all lengthy; closer to full renditions than sampler chunks.

The Instruments disc is stacked with traditional instrument phrases and hits, covering flutes, violins, sitars, tablas and an extended range strummed, bowed, plucked and blown sound sources, as well as shed-loads of drum and percussion samples, all key and bpm tagged.

And so to Orchestras and Ensembles. This set is meticulously compiled from exclusive performances by the cream of the region's orchestral talents, including Bollywood mainstays like the Delhi and Bombay film orchestras, and vintage folk ensembles. The richness of this exhaustive assembly of samples is almost enough to make the single disc worthy of the cost of the whole collection, with lavish multi-instrumental arrangements side-by-side with evocative religious pieces and vocal ensembles.

As a whole, *Deepest India* succeeds as an all-encompassing catalogue of Indian musical components and combinations, and for anyone working within score and soundtrack fields, it's likely to be a must-have. For more superfluous applications however, the samples are perhaps a little too esoteric, and the length of many of them means some hefty edits will be required if you're a repetitive loops merchant. •Derek O'Sullivan

Price: £79.95

More from: Time + Space, PO BOX 4, Okehampton, Devon, EX20 2YL Tel: 01837 841100

Vintage synths, classic pianos, funk/jazz bass, and vocals galore, all reviewed on this month's sample CDs



Despite the mysterious red CS1X on the front cover, this is a collection of strictly vintage synths and drum

machines: ARPs, Junos and Jupiters, Oberheims, Moogs, Prophets, Melotron, Oscar, Yamaha CS80, Synthi AKS, Drumulator, Drumtracks and the inevitable 303, 606 and 909 triumvirate. The samples themselves tend to be rather 'elemental'; intended more for playing across a keyboard rather than simply triggered and held – so no instant 'atmospheres' or one-note songs. The synth sample market is massive now, but *Synthesizers* distinguishes itself by including samples as pre-formatted sound files. Providing you have a Creative Labs or Turtle Beach compatible PC soundcard, samples and sound data files are ready to be loaded directly into your machine. You'll need a minimum of 2MB of RAM on your card. Sonido thoughtfully provide 'Econo' versions of many of the files using 2MB or less, but 8MB is recommended for best results.

If *Synthesizers* lacks anything in the originality of its material, it more than makes up for it in convenience and the additional software included. You get a bonus collection of instrument samples and drum loops, plus a range of shareware titles including CoolEdit, WavePatch and SpeedPatch – an easy-to-use editor for Wavefront synths. And if you get tired of working with the same sounds as everyone else, you can also try programming a few of your own on VAZ – the Virtual Analogue Synth (sic) emulator which includes a 16-step sequencer and distortion control.

It's always nice to see new releases which chip away at the myth that CD-ROMs inevitably need to be more expensive than audio CDs. And in that respect, *Synthesizers* is quite a bargain. Clearly, the format restricts the potential market to PC owners with a suitable soundcard – but if that includes you, it won't disappoint.

•Nigel Lord

Price: £29.95

More from: Time + Space, PO BOX 4, Okehampton, Devon, EX20 2YL
Tel: 01837 841100



Pianos & Organs includes sound files in SoundFont2 and WavePatch format for Creative Labs and Turtle Beach compati-

ble cards. This covers the greater part of the PC soundcard market – though there's a useful sound file conversion utility for anyone using a different device.

Most sample groups have at least three looped samples per octave, mapped across the natural acoustic range of each instrument and including loud and soft versions. The range covers Steinways, Busendorfers, Yamahas and other pianos you could never afford, plus Hammonds, Wurlitzers, Rhodes, Farfisa, Vox Continental and a handful of other electric keyboards and organs. All in all, a pretty formidable line-up.

Inevitably, it's the pianos which stand out, revealing the sheer quality of the source instruments – not to mention the skill of the recording engineer. But the range of organs and electric pianos also has much to recommend it, both in terms of the choice of instruments and the breadth of the sampling. I could have lived without the church organs, which must surely be pretty limited in their appeal, but their presence doesn't appear to be at the expense of any more obvious inclusions, so it's difficult to level this as a complaint.

What I would take issue with is the very limited printed information to accompany the collection. Readme files are sprinkled liberally around the disc, but having to stop to load up a text file isn't exactly convenient. A decent printed booklet would have been appreciated.

More positively, the CD-ROM comes with a wealth of freebies including additional sound files (orchestral instruments, guitars and saxes, and so on) plus a useful range of shareware titles including Turtle Beach's WavePatch and Cool Edit – a digital audio editing package, should you decide to get creative and modify any of the samples yourself. •Nigel Lord

Price: £29.95

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NEW RELEASES

CRYSTAL BALL
(NPG RECORDS)

Producer: ♀
Engineer: ♀ / Various
Studio: Paisley Park/ Various



What a surprise (not) to realise that The Artist's latest offering is yet another multiple CD affair. Four in this case, covering many a bootleg, live mater-

ial and a whole new album. Any Princeophile worth their salt will have heard the material on the first three CDs, but the pleasant surprise is *The Truth*, an acoustic guitar-driven blues album. *The Truth*, and *Crystal Ball*, in its entirety, once again shows the prolific prowess of an artist who desperately needs to get his music out to the masses, warts and all. The advantage being that The Artist, despite penning duff tracks on occasion, more than makes up for it with gems like 'Sexual Suicide' and 'Don't Play With Me'; emotion-fuelled, and demonstrating his writing and playing abilities brilliantly, they show genius at work. If you're into this eccentric genius, *Crystal Ball* is a must. If you're not, perhaps his earlier albums will entice you into his ways. • *Nick Serre*

Verdict: The maverick we know and love.....8/10

THE LITHIUM PROJECT
THE LITHIUM PROJECT
(CLEAR)

Producer: Jason Farrall/ Kenny Clarke
Engineer: Various
Studio: Various



The Lithium Project is fundamentally an umbrella project, pooling the resources of multiple musicians, and spearheaded by Jason Farrall and Kenny Clarke, a

couple of musical mavericks who have absorbed numerous styles from jazz to drum & bass. The blend works a treat; witness the superb drum & bass meanderings of opener 'Passo Fundo', with its incessantly driving back-track and imaginative orchestration, for example; including weird vocal and FM radio snippets, along with sublime upright bass, it's a masterpiece of invention. Featured artists have obviously been given complete freedom, and, boy, do they know how to use it. Akin in parts to The Egg's forays; the album's bound to work perfectly on stage as well as on a recording. If this is a wonderful representation, or a taste of what the future of electronica will be about, then get into it now while it's fresh and, make no mistake, REAL. • *Nick Serre*

Verdict: Keep that battery charging.....8/10

PITCHSHIFTER
WWW.PITCHSHIFTER.COM
(DGC)

Producer: Machine/ Various
Engineer: Machine/ Various
Studio: PSI London/ Various



Pitchshifter are in the unique position of distilling the best industrial clankings of Nine Inch Nails with the highlights of Prodigy guitar meanderings (per-

haps due to the fact that one time Prodigy strummer, Jim Davies, is featured on numerous tracks) and elements of drum & bass. The startling surprise is that it works perfectly. 'Genius' is, quite simply, the most enthralling episode in dance pop crossover ever. It kicks the pants off The Prodigy, and makes heavy metal diehards look like screaming girls' blouses. Political comment abound, 'Subject To Status' is a cynical tack on political correctness with sinister undertones. 'What's In It For Me', on the other hand, is a tad more vulnerable, yet maintains an attitude seldom found in so-called rock bands. Pitchshifter have no misgivings in combining every production technique necessary to affirm their distinctive tone, and one can only salute that. • *Nick Serre*

Verdict: Violently volatile.....8/10

MILESTONES

PINK FLOYD
DARK SIDE OF THE MOON
(HARVEST/ EMI)

Producer: Pink Floyd
Engineer: Alan Parsons/ Chris Thomas
Studio: Abbey Road



Dark Side... went to No. 1 in the spring of 1973 and it was still in the charts a staggering six years later. Today, total sales have exceeded the 10 million plus mark and there have been so many stories, features and books written about the seam-

less, bass-heavy disc that it's quite easy to forget that, prior to its release, the group had laboured under the critical weight of what many saw as their '60s heyday.

Dark Side... was, in fact, the group's sixth LP without legendary founding member Syd Barrett, a loose concept album that contained such gems as the quietly epic anti-war ballad 'Us And Them', a song with an almost holy aura of acceptance that few of today's bands even attempt. Not that the whole of this Roger Waters-penned album is laid back – strutting rockers like 'Money' still manage to leap at the listener. The latter has an amazing sax solo by Dick Parry, as well as some of David Gilmour's finest guitar work – boldly angular, yet fluid – and an intro which starts with the cash register sound that was one of the first-ever loops. Floyd produced *Dark Side...* over some six months, with Alan Parsons engineering it all to near perfection; on the right system; it still sounds 3D. For Pink Floyd fans, this is just one of the many classics but for the rest of the world it will remain the dazzling spark of genius which Waters and Gilmour ignited – and have since struggled to recapture. Progressive, in the real sense of the word. • *Phil Strongman*

VARIOUS ARTISTS
GLOBAL EXPLORER
(ZIP DOG RECORDS)

Producer: Various
Engineer: Various
Studio: Various



A strangely eclectic blend of world influences and dub is perhaps the most accurate description of *Global Explorer*, combining, as it does, some high

points from Tumi's label, as well a contribution from producer extraordinaire, Bill Laswell, but also giving credit (where due, and it is) to numerous new acts. The calibre of the new signings is particularly impressive; and it's a credit to Zip Dog that they've had the bare-faced nerve to include such a diverse range of artists. So many styles are covered here that it's obvious that Zip Dog have a major upper hand in negotiating deals with established acts incorporated with a knack for discovering new artists that fit seamlessly in to their agenda. There's an abundance of talent on this album; it's a brave step for the label, and the artists involved, that can only prove positive. • *Nick Serre*

Verdict: Blazarely brilliant.....8/10

All the major album releases of the month reviewed and rated, our classic sessions spot *Milestones*, plus who's in the studio doing what with whom in *Recording In Progress*...

MORCHEEBA BIG CALM (CHINA)

Producer: Morcheeba/ Pete Norris
Engineer: Various
Studio: Various



It's always nice to see someone refusing to conform to a stereotype. With her puffed jacket and cropped 'n' bleached hair, Morcheeba vocalist Skye Edwards looks every inch

the funky diva; in actual fact, she's a jazz singer and an incorrigible hippy. It's a good start. Skye's Morcheeba compadres are the Godfrey brothers (Paul: drums, programming and scratching; and Ross: guitars, sitars, classic organs, keyboards "and no factory presets"), along with 'sound surgeon' Pete Norris. Don't underestimate them, just because they've got a hallmark sound. The tracks cover the sublimely ethereal ('The Sea'), the edgily urban ('Friction'), and all points in between. There are elements of hip hop, trip-hop, dub, jazz and even folksy pop. Morcheeba are destined for success, and *Big Calm* never seems less than a cohesive group effort. If you can't stand the wait for the next Massive Attack release, this could be an essential purchase. • *Pat Reid*

Verdict: Calmer chameleons.....7/10

ORBIT NEW DECADE (OOR)

Producer: P. Smalles
Engineer: Not stated
Studio: Not stated



Since leaving Bassomatic, William Orbit has not only indulged in what can be best described as a period of diverse synthesized experimentation, but has

produced several such albums under his own label, N-Gram. His first three offerings, *Strange Cargo 1,2,3* were experimental playgrounds for Orbit's as yet unearthed talent for creating new sounds and unorthodox, yet strangely inspiring, synthesized mixes. Six years and several albums later, Orbit's new offering is as intense and ambitious as ever. The album has a definite upbeat tempo, combining a multitude of wavy synths and drum & bass undertones to create an intriguing style of trance. 'Crucial Sense' has to be a high point of the album, with its noticeable eastern influence and clever use of limited vocals. A frantically charged album full of challenging mixes and inspiring alternatives to mainstream productions. • *Jason Ricks*

Verdict: Prepare for takeoff.....7/10

MANNA 5 THOUSAND MANNA 5 THOUSAND (R&S)

Producer: Manna
Engineer: Various
Studio: Axis Studios, Sheffield



Sheffield-based duo Manna comprises Kevin Bacon (not the Hollywood superstar) and Jonathan Quarmby. They have both been working out of the spotlight for

many moons, producing acts like Audioweb and Cath Coffey (of Stereo MC's), as well as issuing, some three years ago, a debut album that gave them a small but dedicated fan base. This, their belated follow-up, calls in favours from all over the place, so you also get to hear Finley Quaye, Suger Merchant, Gilli G of Legend and various Longpins doing their thang under the boys direction – and the direction, as it happens, is dub city, arrived at via the Gibson guitar factory and various sinuous soundscapes. The funky rap singalong, 'Legend', has radio hit written all over it – or it would if the boys were teens doing clockwork dance routines in fright wigs – and the whole set wraps with the beautifully simple, and simply beautiful, 'Abide With Us'. • *Phil Strongman*

Verdict: Manna that's almost heaven sent.....8/10

SEX PISTOLS WANTED WE HAVE COME FOR YOUR CHILDREN (ESSENTIAL CASTLE)

Producer: Dave Goodman
Engineer: Various
Studio: Various



Dave Goodman was a live sound mixer with a small PA for hire when he stumbled across the Pistols at their third-ever gig in February 1976 and it was Gooders

who helped fashion the bad boys chaotically dynamic live sound – as well as producing various Pistols tracks himself. Goodman also produced the first 'Anarchy In The UK' which EMI refused to issue (and which many fans, still rate as definitive). The Pistols sparked the whole punk and new wave phenomenon, as well as directly influencing whole generations. This dozen-strong set is an appropriately explosive mix of the good, the bad and the ugly. The good being the superb '76 and '77 demo versions of 'Submission', 'Satellit' and 'EMI', the bad being the almost unlistenable live 'No Lip', while the ugly comes from the more forgettable forays. History in the making. • *Phil Strongman*

Verdict: Loudly, it (nearly) makes sense.....7/10

RECORDING IN PROGRESS

Fissure are at The Church recording tracks with producer Graham Dominy

Adam F is at Berwick Street Studios self producing an album compilation for React Records

Lamb are mixing their new album at Nomis with producer Al Stone

Luvian Maximen and Dan are producing a solo project for Amen UK at Berwick Street Studios

Shack have been at Ridge Farm recording album tracks with producer Hugh Jones

Hillman Minx are working on a single at The Church with David A. Stewart producing

Jeremy Healy is self producing an album compilation for

Positiva at Berwick Street Studios

Steve Lironi is in the producers chair for Suggs, who is recording and mixing his new album at The Church



Talvin Singh (above) is self producing a solo album at London's Strongroom Studios

Gene are about to start work on a new album at a studio to be confirmed with producer Hugh Jones

Ultrasound are at Chiswick Reach mixing self-produced tracks

Commander B. is producing a WEA single with Glamma Kid at Berwick Street Studios

Seven are at Battery Studios recording tracks with producer Ade Winman

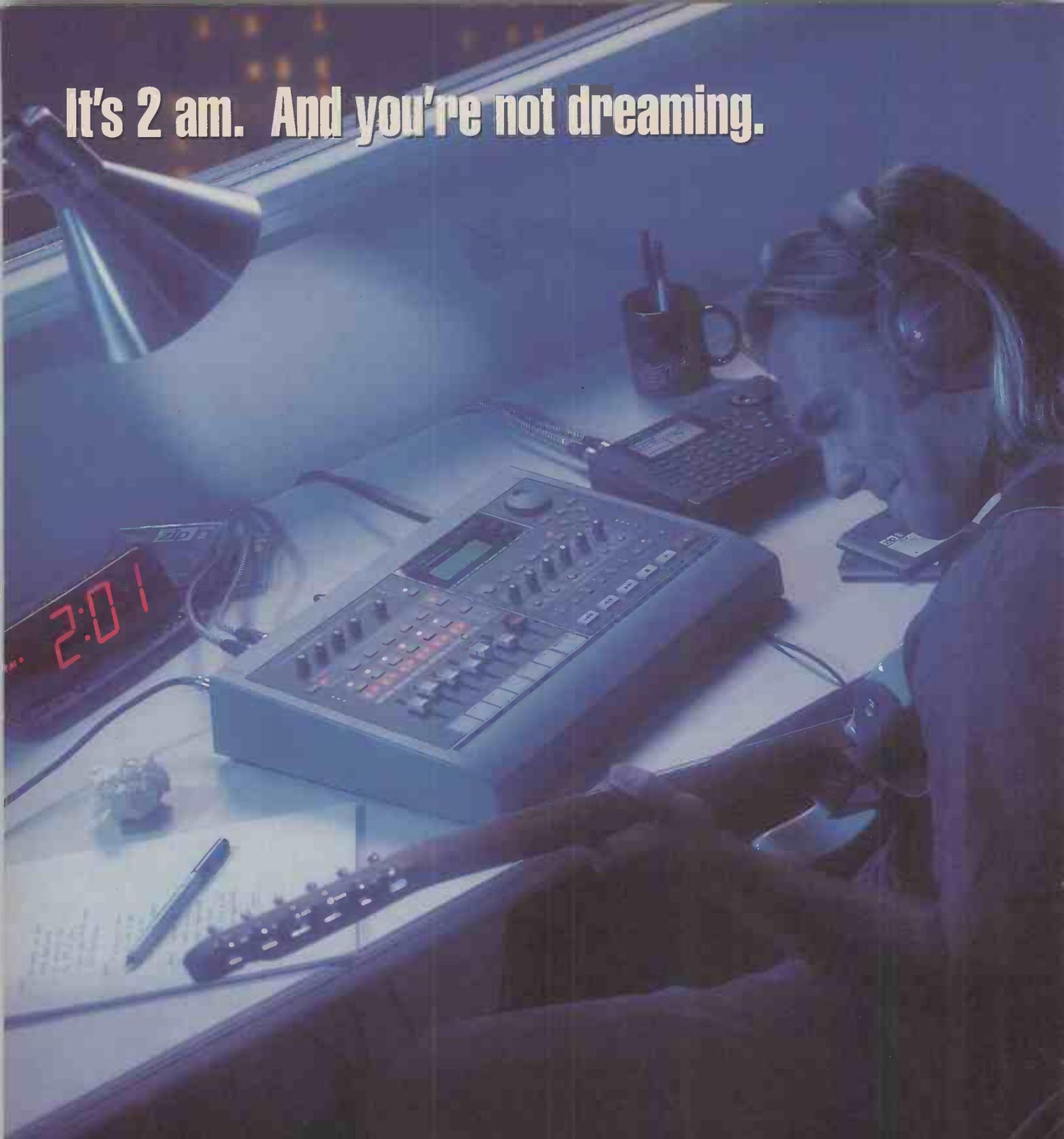
Jim and Wendy are writing and producing Billie's album at Ridge Farm

Lo Fidelity All Stars are at Chiswick Reach studios working on album tracks

Whistler are working on an album at Chiswick Reach for Wiiiija with ex EMP's Ian Dench

Robbie Williams is at Trident Studios with producer Steve Power

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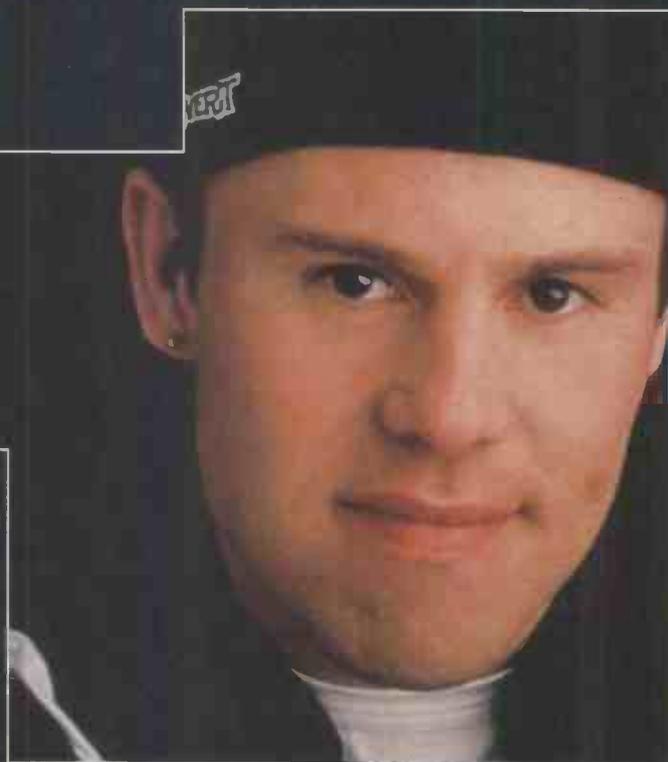
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SOULND SURFER

● Thomas Dolby

World-renowned for his pioneering music videos and pop hits like 'She Blinded Me With Science', Thomas Dolby is now at the helm of Headspace Inc, an innovative Internet sound company. Jonathan Miller goes surfing for sound



Pop pickers pushing the age of 30 may recall synthesizer pioneer Gary Numan's 'Music For Chameleons', a top-20 hit back in 1982. 'Musical chameleon' is a phrase that perhaps best describes Numan's contemporary Thomas Dolby, himself something of a pioneer with his 1982 synthesizer-driven hit, 'She Blinded Me With Science' and accompanying promotional video – one of the most memorable of MTV's early years. A pop star and songwriter, with four albums of innovative, compelling and melodic music to his name – from 1981's *The Golden Age Of Wireless* to 1992's *Astronauts And Heretics* (featuring a unique pairing with guitar virtuoso Eddie Van Halen), Dolby first graced the UK singles chart as writer of 'New Toy' for Lene Lovitch in 1981. Along the way he's also been a session musician (credited with main synthesizers on Foreigner's 1981 multi-million-selling album 4), record producer (Prefab Sprout and Joni Mitchell, to name but a few), and soundtrack composer, with credits as diverse as Ken Russell's *Gothic*, to the animated feature film *Ferngully: The Last Rainforest* with Robin Williams. Yes, Thomas Dolby's done it all.

So where is he now? Whilst he is no longer actively releasing music – his soundtrack to 1994's excellent *Gate To The Mind's Eye* state-of-the-art computer animation video for Miramar is the last album to bear his name – he is far from being musically inactive. In fact, musically interactive is a more fitting description, as we shall see...

Thomas Dolby was born Thomas Robertson. It was as a teenager in London that he acquired the nickname 'Dolby', because of his fondness for music and his obsession with technology like keyboards, synthesizers and cassette players. Despite popular misconception, he never had any affiliation with Dolby Labs or their audio systems!

Thomas Dolby Robertson, as he prefers to be known these days, is now a happily-married family man of 39, a permanent U.S. resident, currently living in the San Francisco Bay area. Here he is President and C.E.O. of a small Silicon Valley start-up company called Headspace, Inc. At the company's headquarters in San Mateo, California, Dolby proved to be a charming and, as one might expect, thought-provoking host.

Whilst we've already established that Dolby now presides over an American company, he has actually been living in the U.S. for quite some time. "In the '83/'84 period I'd spent increasing amounts of time over here because of my success in the US charts and also because I was interested in film work and so on. At the end of 1985 I sat down with my then manager and he said, 'Do you realise you've spent eight and a half months of the last year living in hotels in America? It would really be a lot more sensible if you just lived there for a while; if you don't like it you can come back!' So I took him up on that and came over initially as a kind of experiment. I hadn't intended to stay beyond a year, but during that time I met my wife and have been here ever since.

"We lived initially in LA, for about seven years. That worked okay until we had kids, then suddenly it didn't make a lot of sense. We wanted to move out to a smaller town and quieter environment, and we found that, up here in Northern California, which has the extra advantage of being very close to Silicon Valley, which is where most of Headspace's customers are. So we moved the company up here in 1995 and I live about 20 minutes away on the coast."

This brings us neatly onto just what it is that Dolby has been up to more recently: "When Headspace started out in 1993 we were doing mainly custom music and sound effects for different projects like *Gate To The Mind's Eye*; some virtual reality and computer games and so on. We spread this work out amongst several composers and sound designers. The problem really was that

there was no technology to help us. MIDI sequencers and hard disk recorders didn't really help deliver music to interactive computer games. They're all very interactive at the composing stage, but the eventual output is always linear, so when you're done massaging your work, you record it off onto a DAT or CD and that's it.

"What I really needed was the same kind of non-linearity to exist at runtime. In other words, if I'm doing the soundtrack to a *Doom*-type game then the whole appeal of the game is that it happens on the fly. It's not a slide show that you're just sitting through; it's not passive like a movie. You make your own decisions and it's like immersing yourself in something approaching real life – if you can call it real life to be running around down passages blasting people! The sensation is that you get to make decisions yourself and every time you turn a corner or pull the trigger you're making a decision that's going to directly impact everything else.

"As we know, music can also impact any kind of experience. It can make it more immersive; more atmospheric, but only if it's very closely mapped to the experience itself. When you're doing a movie score, that experience has been laid out by a film-maker, so you sort of match the dynamic, emotional and dramatic contours of the experience with the music that you create – where you bring it in and out; the light and shade of the music; the instrumentation and so on. If you don't know what the experience is going to be, then you can't enhance it in that way. If I was in a position to look over the shoulder of every *Doom* player, and then afterwards come up with a soundtrack for it, then I could do a pretty good job of enhancing it. But I'm not going to be there and I can't make stuff up on the fly.

This, essentially, became Headspace's mission statement – "...to deliver high-quality, interactive audio to the computer world." Quite simply, Headspace, Inc. creates technologies for the delivery of music and sound over the Internet.

Dolby continues, "I became fascinated with this and eventually obsessed with it, so I started bringing in a few programmers that I met – moonlighting from other jobs, and I'd look over their shoulder and make suggestions. What I discovered over time was that to have a work-for-hire business that also had to support an engineering/research business made absolutely no sense at all. So in order to sustain any kind of business in that area we had to dramatically rethink the approach to it all.

"About the time that we moved up to Silicon Valley we made a conscious effort to morph Headspace into a different kind of business. We put a lot of effort and resources into the development and engineering of some software called the Headspace Audio Engine, and we

began to licence that out to different parties. That's primarily where we make our money now and the content that we make – the libraries, custom work and so on – have a couple of reasons for being there: One is that it illustrates why there was a need for the technology. I can sit somebody down in front of a computer and they'll experience it for five minutes and know why that technology needed to be invented, whereas I could spend all day trying to explain it to them on a white board and it just wouldn't make any sense. The other reason is that if in the long-term we're successful in having the technology adopted by the computer industry, then the content will become very valuable as a publishing catalogue. So that became the new business model for Headspace and we've been vamping it up since then."

At the same conference, Headspace released Beatnik, a Web-based software system for the creation and playback of interactive music. The system consists of three parts: the Beatnik Editor; the Beatnik Plug-in; and the Beatnik Web Site.

The Beatnik Editor has been released for the Macintosh and can import music and sound in a variety of industry-standard file formats and customise it for efficient delivery on the internet. File formats that can be imported by the editor include WAV, AIFF, SDII, and standard MIDI files. The Beatnik Editor outputs music in the Headspace Audio Engine's Rich Music Format (RMF), a platform-independent standard for music on the Internet. RMF files allow for MIDI music to be integrated with digital audio samples, whilst maintaining minimum file size and platform independence. The music can then be heard with a consistent fidelity on any Web browser equipped with the Beatnik Plug-in. The editor may



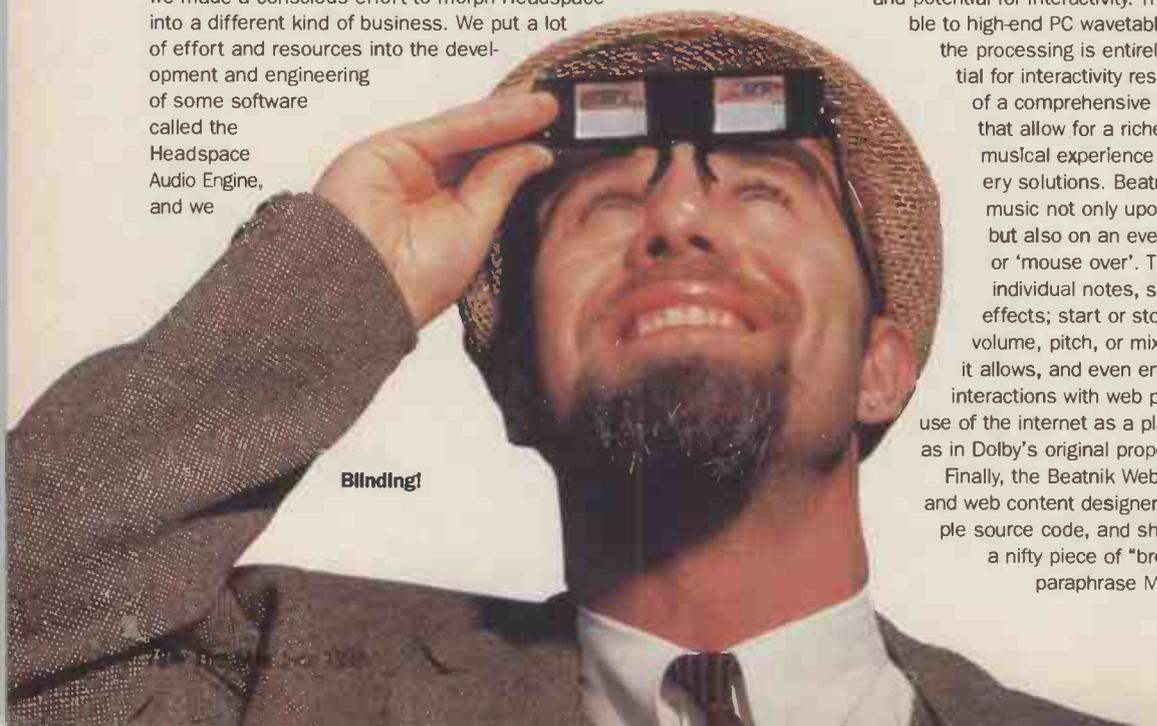
Thomas prepares for a night's surfing

also be used to import samples to create unique instruments, freeing the composer from the limitations of the General MIDI instrument bank. The Beatnik Editor even allows for 'watermarking' of RMF files, enabling a user to embed copyright information (with 40-bit data encryption) without altering the quality or sound of the music. A PC version is being tested and should be available within a couple of months.

The Beatnik Plug-in is a driver that manages the playback of RMF and other audio files within web browsers. It can be downloaded for free from www.headspace.com/beatnik and installed as a plug-in for Netscape 3.0 or Netscape Communicator on Macintosh and

Windows platforms. Its greatest strengths are its high fidelity and potential for interactivity. The sound quality is comparable to high-end PC wavetable sound cards, even though the processing is entirely software-based. The potential for interactivity results from Beatnik's support of a comprehensive set of Java-callable functions that allow for a richer and more personalised musical experience than other multimedia delivery solutions. Beatnik allows a website to play music not only upon the opening of a web page, but also on an event, such as a 'mouse click' or 'mouse over'. These events can also trigger individual notes, sampled voices, or sound effects; start or stop music; and change tempo, volume, pitch, or mix. This is revolutionary in that it allows, and even encourages, direct musical interactions with web pages, instead of the current use of the internet as a playback-only audio system – as in Dolby's original proposition outlined above.

Finally, the Beatnik Web Site is a place for musicians and web content designers to meet, download example source code, and showcase their work – all in all, a nifty piece of "breakthrough technology", to paraphrase Mr. Dolby.



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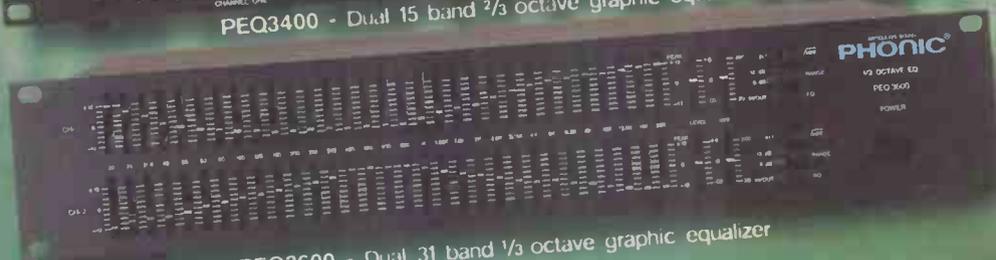


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As for Dolby's own use of this technology, he conceded, "I haven't yet done what I would call really serious work with the technology that we ourselves have created. There will certainly become a point when I'll do that, but the problem is partly a lack of time and the fact that we're still working on ironing out some of the kinks to make it more of a serious tool. It's a very good tool for what I would call semi-serious music, but not yet in terms of doing something that I would put my name to that would really stand up to long-term scrutiny and take its place in succession with the other albums that I've done. I can foresee a time within the next couple of years when that will happen, but I'm not quite ready for that yet."

Dolby is on record as saying his interest in computers evolved, in part, from the fact that he cannot play keyboards very well – a surprising revelation, given his multi-faceted recording career to date: According to the Headspace website, he "...adapted a lighting computer to trigger synths and drum pads around 1979. Then I got a Fairlight, and finally a Mac around 1985. I'm not a very proficient keyboard player, so the computer became my musical instrument."

Not that Dolby is completely oblivious to developments within the field of 'conventional' music technology, although he feels, "...it's been a while since there's been a significant breakthrough in terms of new creative possibilities at the high-end. What we've seen really over the last decade is a sort of trickling down of the high-end technologies into a more accessible marketplace. I think it's very important that virtually anyone can now have a hard disk editor; computer; MIDI sequencer; and sampler. Then there's the whole market of sample CDs and community of sampler users that swap samples.

"You can view it like a pyramid in a lot of ways: There are the early adopters who are in the position getting their hands on the first 'layers' of new technologies, and then there is the actual 'foundation' of the whole market which is

tens of thousands of users who will use these technologies, but only when they become affordable.

"I was always fairly fortunate in that I had a record deal from 1981, so if a new technology came along that gave new creative possibilities, then I'd take a look at it, no matter what the price was. For example, the first digital drum machine that I saw was made by a small German company called PPG. They'd made this enormous 360/380 Wave Computer, and it had another module which basically had about 12 drum samples in it. The 360

"The people who have internet access match up with my sort of fan base"

was a sequencer that outputted positive and negative voltages. You could take a patch from one of the channels and patch it into this little drum module and the voltages would trigger these drum samples. I'd never heard anything quite like that before. It was very inflexible; you couldn't swap the samples, although you could tune them. You could slow, say, a snare way down and get a pretty extraordinary clap sound, or whatever.

Dolby has recently asserted an interest in releasing his own music directly over the internet, effectively bypassing the intervention of major record companies altogether. Given the suggestion that there will probably always be a traditional element of fans that enjoy the actual physicality of collecting records and CDs, Dolby comments, "I'm not sure I'd advocate totally web-based releases in that, as you say, a certain kind of fan wants to actually own a physical copy. We're fairly privileged here in the States in that the penetration of the internet is relatively high, and demographically, the people who have internet service match up quite closely with my sort of fan base, which might not be the case with Julio Inglesias, or somebody. So maybe I could viably release a serious web-based album here, but in the rest of the world that's certainly not true. In Britain, for example, there's only a few hundred thousand people who even have Internet access and it's just so ludicrously expensive to get into there. If I limited myself to the States, however, then I'd be blocking out a huge majority of people who might be interested in my music, so I would always do a CD as well in some form, but it could well be that the primary release was on the 'net, giving some form of interactivity or added value that you couldn't

get on a linear CD. That said, I think the public awareness of the possibilities is on the increase all the time, although I realise this is sometimes quite hard to gauge. I did a keynote address in spring at the Musicom Conference in London, giving a couple of inter-

views in advance to *The Guardian* and so on. I gave them a hint of what I was going to talk about, which was something I've been talking about over here for a while; mapping out the economic reasons for releasing music over the internet vs. manufacturing and distributing records and CDs.

"Elton John, in wanting to give the proceeds from the sale of his Princess Diana memorial song to charities, pointed out himself that if people bought this off the internet, then something like 90% of the money that they actually shelled out would make its way to the charities, whereas if they bought a record or a CD, then only 10 or 15% might be able to go. I think a lot of people stopped and thought about that. It's hard for people to understand the economics of it, but basically every 15 quid you spend on a CD; at least £13.50 of it is just paying for the manufacture and the distribution. All the intermediaries are taking all of that money, and the artist, if they're lucky, might get a quid out of it after all the costs are paid back. In reality, that hardly ever happens – unless you're a world-class, global act, like U2 or something. Most of the time the artist gets an advance to live on at the beginning, then after that everything is sucked up by the intermediaries. We pay for the manufacture of the CDs; we pay to have them shipped out to the shops, and if they're not sold, we pay to have them shipped back and burned! All of that reflects in the price that the public's being asked to pay, and the public's often paying out that price because they heard one song on the radio and they go and buy the album.

"If you look at what could happen if music was distributed by the internet, then the overheads are so much lower that the public could quite easily get an album for only two or three pounds, and the majority of that would make its way to the artist, which is quite fair. The role of the record companies



back with th

would not be gone, but focused on marketing and positioning that music on the 'net and getting the right people to hear it, unlike at present, where they are largely caught up in manufacturing and distribution.

"So I don't know why a lot of record companies don't like this idea when many record company people are in it for the love of music. They're not in it because they want to be retailers, manufacturers, and shipping experts. If that piece of the whole puzzle was gone; surely they could concentrate on finding good music, funding musicians to actually get it recorded, and getting it out to the right kind of audience that are going to appreciate it? That seems to me

"I haven't yet done what I would call really serious work with the technology that we ourselves have created"

like the creative part of what a record company does.

"What they're possibly objecting to is that it brings into question the sort of stranglehold and autonomy that they have at present in the record business. It's kind of an embargo: Although there's half a dozen big record companies working against each other, they can get around a table and decide how the industry is going to be run for their mutual benefit, so it's been very easy for them to block out any outsiders during this retail era. So the internet scares them a lot because they don't have the same kind of authority there, and they have no assurance that they'll be able to stay on top of the market in the same way that they do in the retail trade." Strong words indeed, yet evidently Thomas Dolby knows a thing or two about the complicated mechanism of the music industry.

As Dolby clearly remains a musician at heart, one can't help wondering if this gets in the way of running his own business? "I don't think it conflicts, really. It leaves me very little time to make music, but there will come a point – once we've got the wheels in motion – where I'll take a step back from the running of Headspace and let somebody else run it for me. At the moment, the challenge is to convert the vision that I have of what Headspace should be doing into a day-to-day business. Once that's on track, then there's no sense for me to be running it day-to-day. There's a host of other people who can execute that idea better than I can.

"At that point I will step back and get back to making some serious music. Hopefully, my motives for making music at that point will be purely for the love of it. When you're trying to make a living as a musician, you have all sorts of considerations that are just unavoidable: Before the public get to say they like that song, an A & R man has to like it; a radio programmer has to like it; a record shop owner has to like it; and only if it gets past each one of those hurdles does the public even get to hear it and decide if they like it or not. So to be certain of having a roof over your head, as a musician you've got to be sort of second-guessing what all of these middle men are going to make of your song, and that, unfortunately, becomes part of your approach to composition. Sometimes that's a struggle if you're worried about keeping a record deal, or worried about how you're going to live from year to year.

"So one of the reasons that I'm doing this is that I'd like Headspace to become a sustainable business which would mean that I can make music just purely for the love of it – just book into a few smoky little clubs and do a solo show, without having to worry about what all those other guys think of it. I wouldn't have to worry about making a living doing it, and the technology is going to enable me eventually to get my music directly to the fans – without having to go through all these intermediaries."

And as for Dolby's next musical offering? The work of a true sound surfer; no doubt it will be worth the wait. ■

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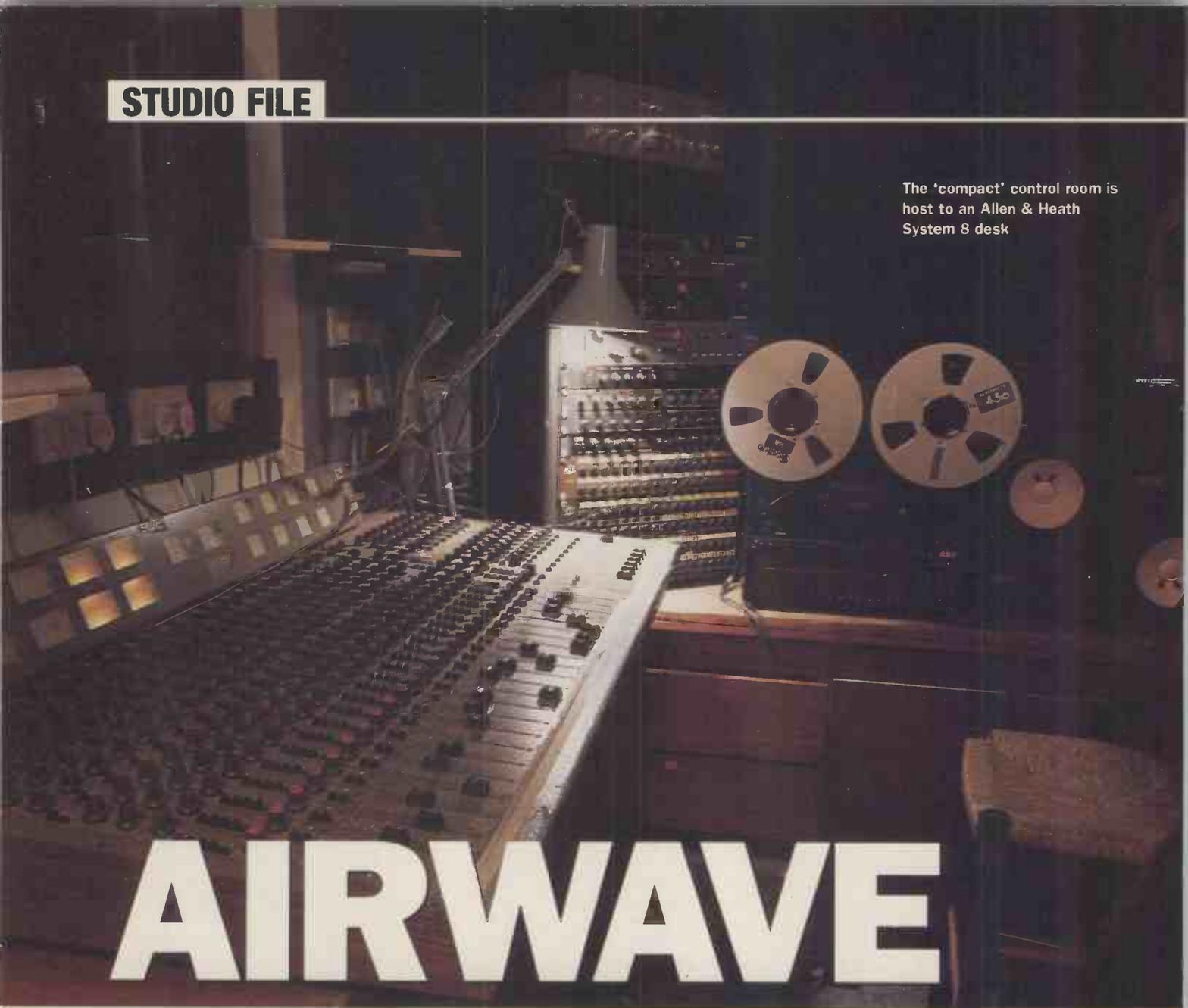
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The 'compact' control room is host to an Allen & Heath System 8 desk



AIRWAVE

Nick Serre visits an affordable studio within a stone's throw of central London, which has acted as a safe haven for numerous bands

RECENT CLIENTS

Mute Records
Creation Records
The Damned
The Clash

“This really is a rock ‘n’ roll studio” proclaims John Cooper, manager of Airwave studio

In North London. Host to numerous record companies as well as artists of the calibre of The Damned and The Clash, the studio is a halfway house between bedroom demos and the mega-bucks pro facilities. Despite its low hourly rate, the studio is a professional facility with a team of staff whose priority is to provide their clientele with first-rate recordings. Record companies Mute and Creation have realised the advantages of the studio, and regularly rely on Airwave as a safe haven for demoing their latest up-and-coming acts.

Airwave has enjoyed a 13-year history, setting up in 1985 as a rehearsal space, which quickly became a 16-track facility. John ascertains, however, that to maintain the ethos of the studio, this is as far as it goes. “Market forces dictate everything” he explains, “but the atmosphere here and the results we achieve are perfect, so we

are resisting becoming a big corporate facility. Our speciality is capturing live bands, so I’m very much of a notion of sticking to what we do well.” Airwave is an accommodating facility, though. Artists working with sequencer-based material are equally welcome at the studio; the usual scenario being that they bring in their own equipment and use it in conjunction with the live equipment that Airwave has in plentiful supply.

In terms of equipment, the Fostex E-16 multitrack takes pride of place alongside the Allen and Heath System 8 desk, a combination that has rarely failed for the crew. “The Fostex is such a workhorse,” enthuses John, “you really can push it to the limits, and it hardly ever causes any trouble. Similarly with the mixing desk; it sounds great and never lets you down. We have a pretty brisk turnaround here, so it’s essential to have equipment you know you can rely on.” By the same token, the Airwave crew distinctly encourage bands to bring in their own equipment to sessions. “It’s important that bands feel as comfortable as possible when they’re in the studio,” maintains house engineer Diane

Lewis, "so instead of using the equipment we have here as a matter of course, we find that people are more comfortable using their own gear. We can easily hook up people's effects units, or amps, or whatever, with minimal fuss, and then people have the sound they are used to, and the results tend to be significantly better."

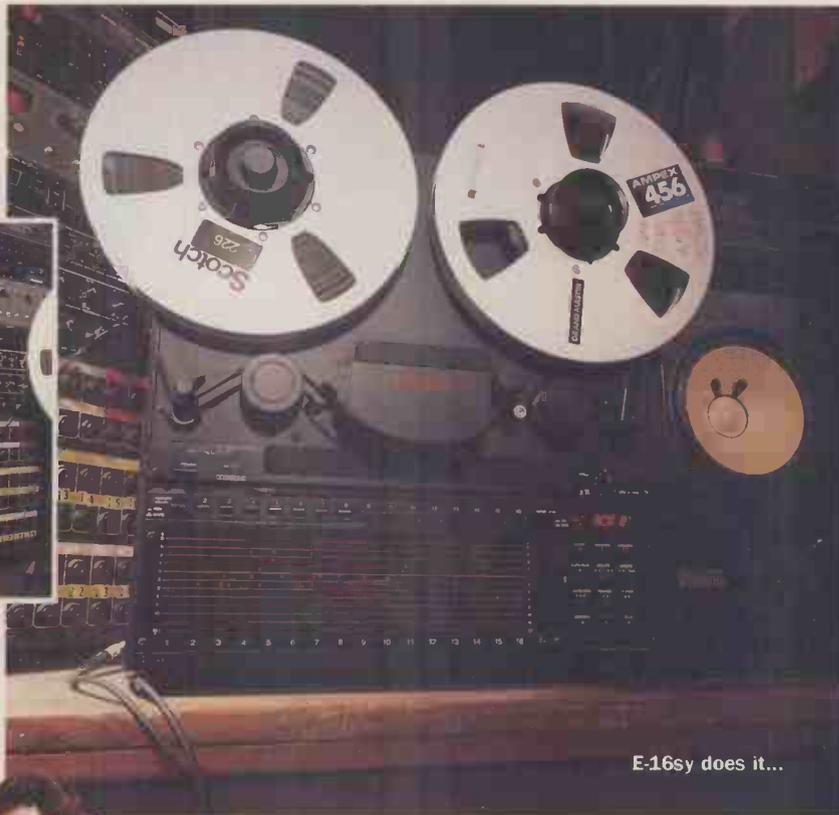
Airwave's live room will easily accommodate a four or five-piece band, and, because it has a very dead sound, a good degree of separation can be obtained, even if there are numerous sound sources playing simultaneously. "A lot of studios have live-sounding rooms" says John, "but there are distinct advantages

to having one dead-sounding room. Namely that you can keep a live feel when there's a full band playing, but maintain control over the levels at mixdown." With this method, quality results can be achieved quickly, because artists feel comfortable playing live, yet a top notch recording is achieved at the end of the session.

"Bands will often come in with demo tapes," continues Diane, "or sometimes we'll start from scratch. The advantage here is that people can still be working on arrangements while recording. It's very much like a canvas, and we really have the space for people to work on ideas,



Rack off!



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Diane Lewis does her 'Mr. Fingers' impression

and, if they want, we can interject ideas too.

"We are very busy, but the bulk of the people we work with find it a very happy and relaxed atmosphere. We are all musicians here, so we

have a real empathy with what people are trying to achieve. It's very much a musical space, and I see my role as one of a listener. You need to listen to what a band wants, and if you can help them get there, then that's a buzz for everyone involved."

Airwave certainly see their job as honing artists' material as opposed to putting their stamp on it, as Diane elaborates:

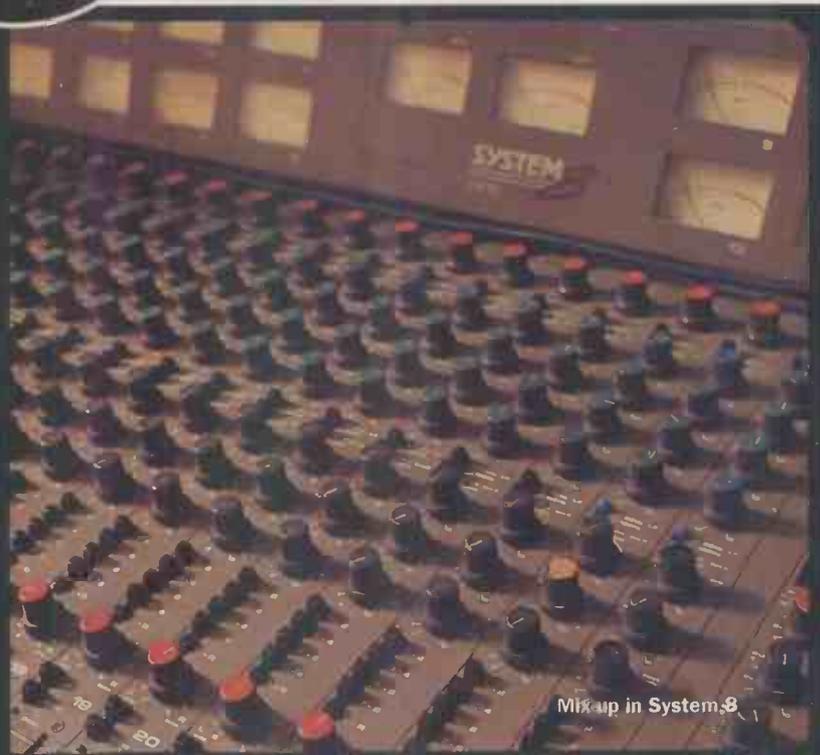
THE KIT (selected)

Main Studio

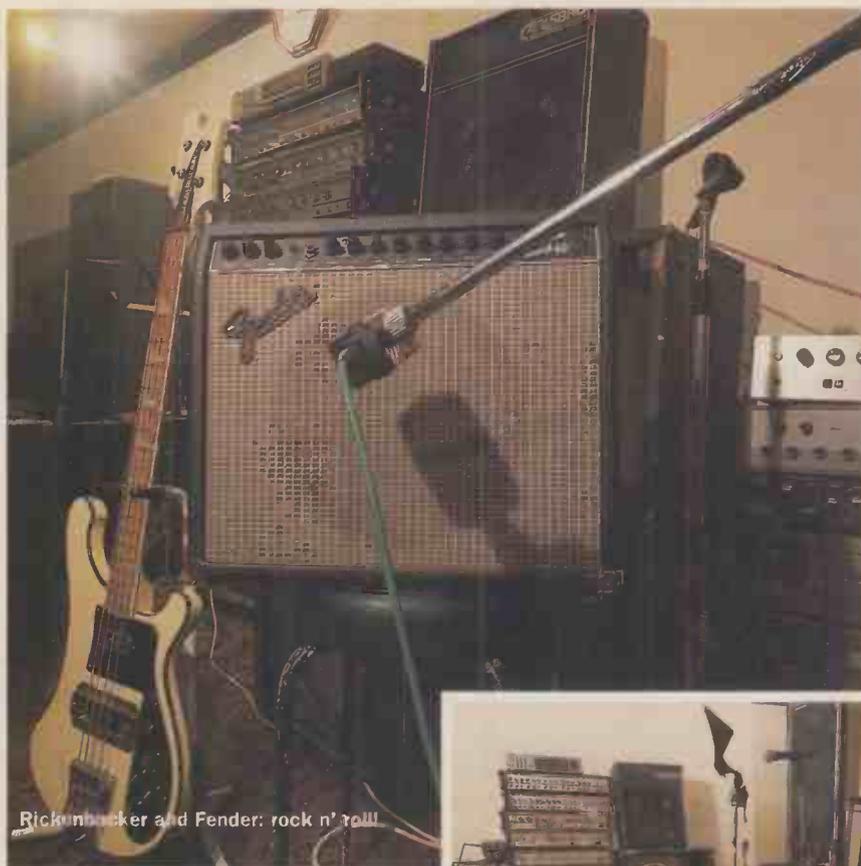
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- Allen and Heath System 8 desk
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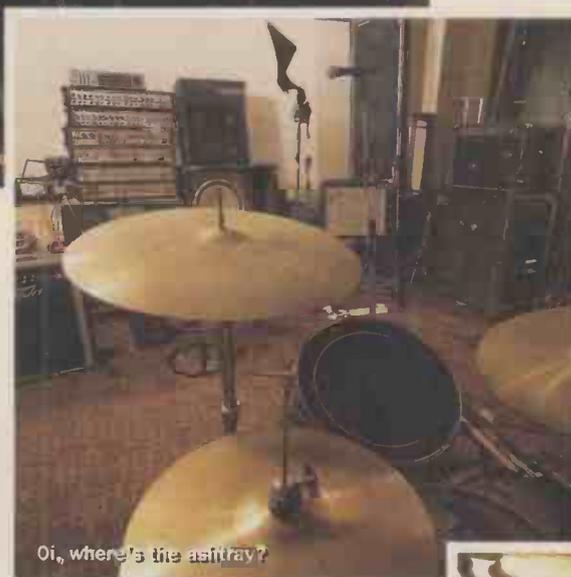
Mix up in System 8



Rickenbacker and Fender: rock n' roll



You saxy thing



Oi, where's the asitray?

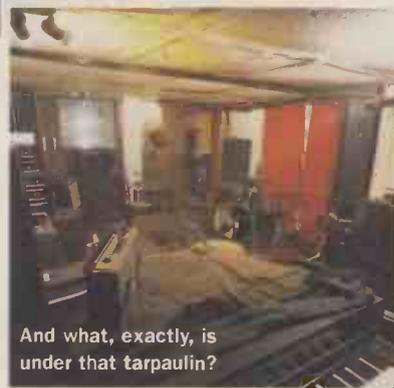
"You have to help people get the result that they want to obtain. That way, they leave with the standard of master that is a proper representation of their aims. And they'll come back. If you try to put your own stamp on it, it loses the identity that it initially had. Music is about expression, and the last thing you should do is negate what the idea was in the first place. It's often a huge relief for a band to be able to say 'We want it to sound like this', and be able to achieve that. A lot of bands we get in have been shunted around by record companies, and haven't really been allowed to get their ideas across, so working here gives them the freedom to do it their own way, with our assistance. It's a chill-out zone here, and people can just concentrate on the music, with no external pressures."

"Because we started as a rehearsal room, there's still the same vibe here. But

we realised it was important to offer recording services after about a year of opening" maintains John. "The stage we've got to now is we have companies like Mute and Creation sending bands here. We're survivors, and even through hard times we've stayed dedicated to what we do best, which is capturing great live sounds. You always have to proceed with market forces, but we've never yet got to the point where we're in a factory sort of situation. As the millennium approaches, we may get dragged, kicking and screaming, into the technological generation. But so far we've been lucky that we have been able to carry on without getting absorbed into that. As long as work is up to par, which it is, then I see no reason to change our way of working."

Commercial considerations are an essential element of any business, though, and John is well aware of the fact. "We've had lots of products out in the marketplace, from The Clash to The Damned, but we still maintain the same atmosphere" he

says. "We've got some great retro gear here, including the Yamaha baby grand piano, which gets used a lot. We've stuck with the same reliable equipment for years, and my motto has been that if it ain't broke, don't fix it. We know what we specialise in here, and we do it well. But it's still no problem to hire specific kit in. It's all to do with budget, but given our rates, and the fact that we're in the centre of London, it's still a good deal, even if additional gear does need to be hired in. We have a



And what, exactly, is under that tarpaulin?

steady flow of custom, and that means we can keep our rates low, which takes a lot of pressure off people working here."

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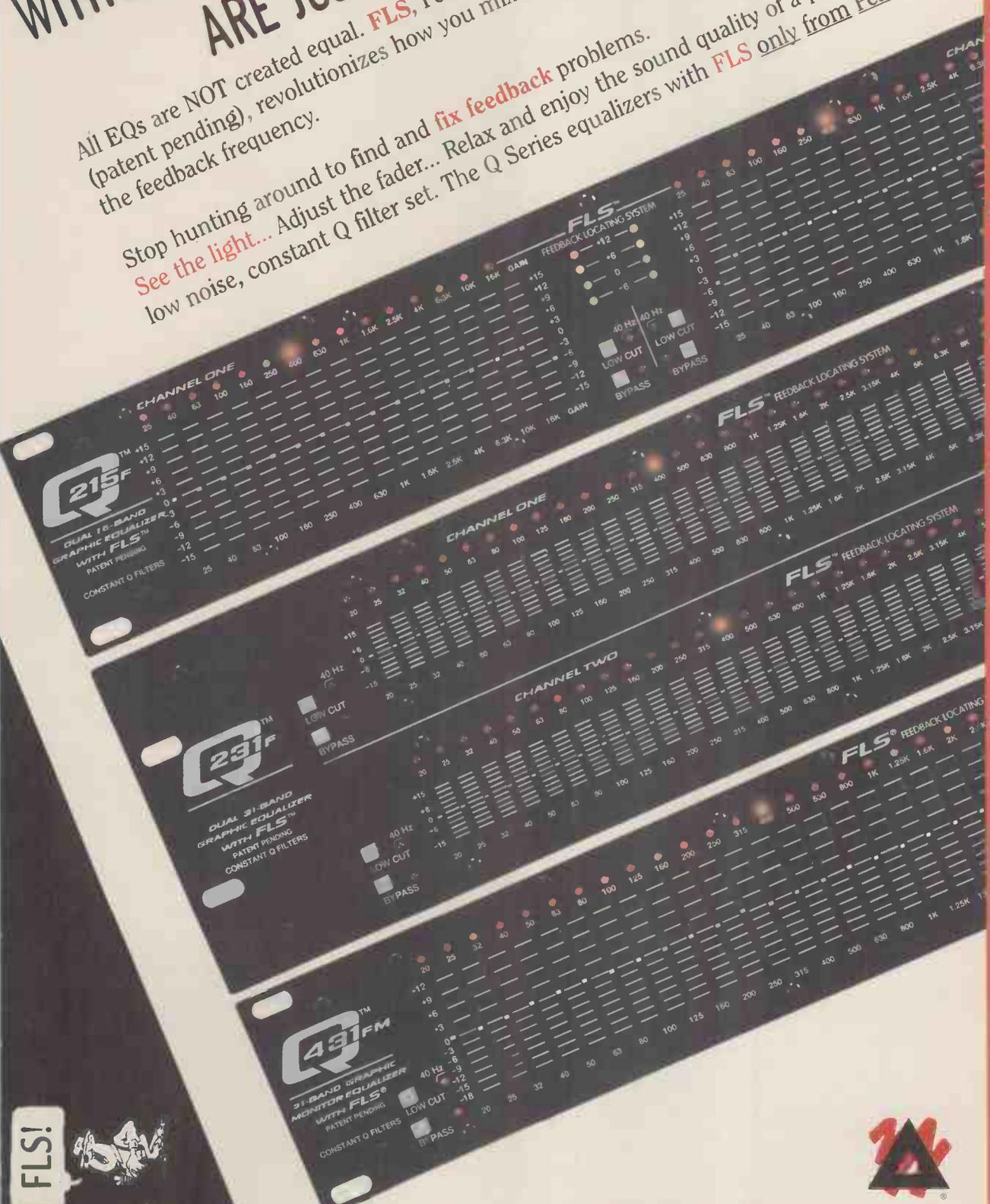
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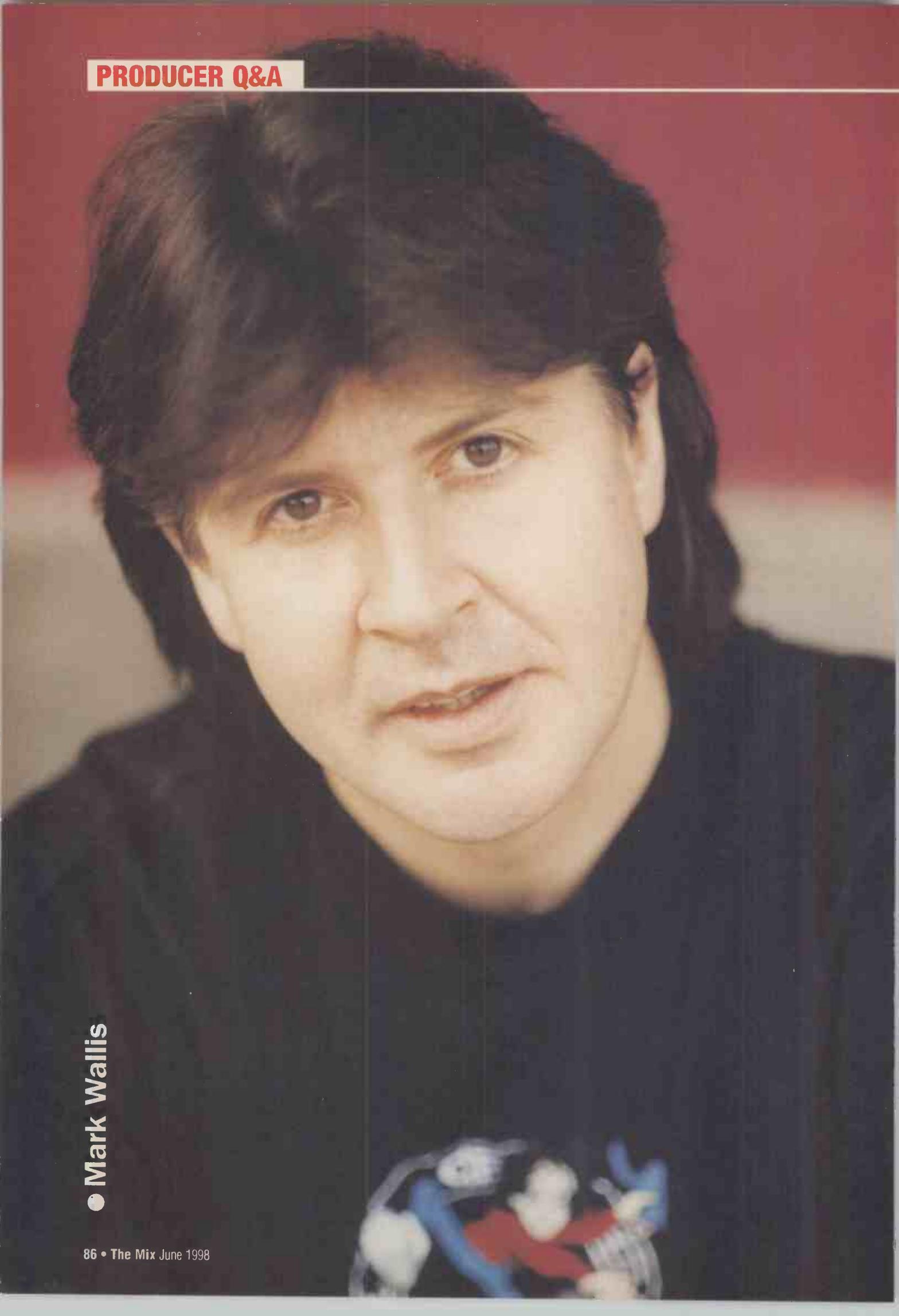
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PRODUCER Q&A

● **Mark Wallis**



MARK WALLIS

It's the last Q&A page for a while, so we're going out with a bang by talking to a producer who has worked with more indie artists than you can shake a stick at. Nick Serre reports...

Mark Wallis started his engineering career in a similar way to many; after stints as a tea boy, he eventually made the 'great leap' into being a tape copier. In the mid-'70s he managed to rustle up some assistant engineering, and eventually landed the post of chief engineer at Marcus Studios, which he also helped to set up. Mark then took the plunge into freelance engineering, which saw him working with an impressive roster of artists including Marvin Gaye. As he became more experienced, he began to get more and more involved in production and has worked with The Smiths, U2, Talking Heads and Roger Daltrey. Ever abreast of trends in the indie world, he has recently worked with Travis, The Wildhearts and The LA's, on their seminal *The LA's Album*. He has an ear for a tune that many a producer is envious of, combined with a skill for hearing chart potential in unsigned bands. Currently he's commuting between Liverpool and London working on demos with yet another new band, Real People – a jangly pop act. We managed to find him in a rare quiet moment.

What are you working on at the moment?

I've been working on Travis' new single, which has been going really well; they're a great band. I'm also working with a band called Real People, from Liverpool, who don't actually have a deal as yet. But it's a project that I really believe in, so I've been spending a lot of time going up to Liverpool, so we can get together about ten

songs to really hit some record companies with. They're a kind of infectious jangly pop act, and I'm really excited about it.

Do you have a set way of working, or is each project unique?

I really like working with new bands, and that kind of means that you can't work to a formula. It's also healthy not to have a set way of working, so I always try to approach things differently. The thing is to try to get the best representation of the sound of a band. For my way of working, I like to fit in, look at what's going on, and see where the project can work better, rather than walking in and saying 'Right! we're gonna do it this way...' I personally think that all my productions sound different, and they don't have a 'Mark Wallis' stamp on them. I really admire Chris Thomas for doing that. Everything he does sounds different, and like a great version of the band at that moment in time. It's never the case of 'Oh! here's another Chris Thomas production.'

Which other producers have you admired, and why?

There's a lot of stuff that Daniel Lanois has done, which isn't quite so mainstream. There's loads of stuff that doesn't have to be platinum-selling to be really moving. The Neville Brothers' album *Yellow Moon* is absolutely awesome like that. I really like producers who work in that way – when they really look at the song, and keep the process simple by picking great songs and great arrangements. I think Jimmy Jam and Terry Lewis are great at that too; the latest Janet Jackson single, 'Together Again', is an awesome dance track, but it's also very simple, and very understated. Another one is Norman Cook. He makes such a range of records, and has a great ear for a tune. Sure, he uses sounds that are fashionable at the time, but he maintains a timeless quality. There are very few producers who can achieve that.

What sort of kit are you using? Any particular favourite bits of kit at the moment?

With every project I work on, I pick the studio all over the place, and I really find it exciting to walk into studios and see what they've got. I'm no fan of 'I must have one of these.' It's great to plug signals through something when you don't know exactly what's gonna happen to it. Having said that, there are a couple of gadgets I do rely on. I love my AR18 monitors. They're really hi-fi, but you can listen to them for ages without fatigue. NS10's are okay, but you tend to want to turn them loud, and

that just gets tiring. Ridge Farm do a couple of amazing boxes; there's the Gas Cooker, a valve D.I., which is incredible, especially when you overdrive it. The other one is The Boiler, which is an over-compressor. You can put anything through that and say, 'Wow! I just want the whole world to sound like that.'

You've worked with a diverse range of artists, from The Smiths and U2 to Iggy Pop and FFF. Was that a conscious decision?

Well, ever since I've worked as a freelance engineer I've always had the luxury of being able to work on what I want to. I've been fortunate enough to be involved in some very successful productions. The way I see my role is to virtually become an additional member of the band. That keeps your own views fresh, as well as getting the best results from the band. It also makes the job far more exciting.

Is there one production that you could say is your proudest?

To be honest, I'm proud of all my productions, but there's one moment that was really very special to me as a producer: it was when I was doing *The LA's Album*. We were doing the last song, 'Looking Glass'. It's an eight-minute spine-chilling epic, and it was one of those rare moments when during the recording of it, it was like, 'Wow! I'm here doing this, and it's absolutely amazing!' It's like hearing your favourite-ever track, and telling yourself that you're involved with it. So that really was such an event. It was one of those wonderful moments, and I can put that on again and again and be moved by it.

Who would you most like to work with?

Liz Hurley [Get off, she's mine! – Ed]. I'd like to make a spankingly good album with her. But seriously, there are a lot of new bands who are great. I love Space, and Fun Lovin' Criminals have got a lot going for them. In a historic sense, I'd love to work with Stevie Wonder. I'd take him right back to what he did on his first three or four albums, when he played everything himself, for real. There was no sequencing, it was all live, and it sounded like a full band. He's the only artist I can think of who is capable of that. *Talking Book* is just devastating.

What's next for you?

A brand new project that I'm afraid I really can't say much about at the moment.

I'd better not pry, then.

Thanks, see ya!

ATARI

News, advice, and software for Atari users, compiled by Danny McAleer

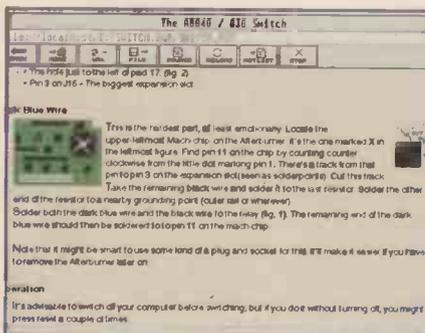
'Oh-faulty' no more

It's quite expensive, and rarer than a Conservative voter in Wales, but the Afterburner O40 accelerator for the Falcon has a terrific amount of third-party user support, most notably from Doug Little of Black Scorpion software, who has updated the low-level driver software. The latest version (5.07) has some substantial improvements over previous ones, and now includes a GEM-based configuration utility, as well as greater compatibility with software via some new additional patches. As well as greater flexibility in configuring Fast RAM (essential for this release of the driver), the update fixes most of the problems encountered when using SCSI CD-ROM drives, and has increased support for other hardware modifications like Nemesis, and Nova graphics cards. The latest version of the driver can be downloaded from: www.geocities.com/SiliconValley/Way/5132/

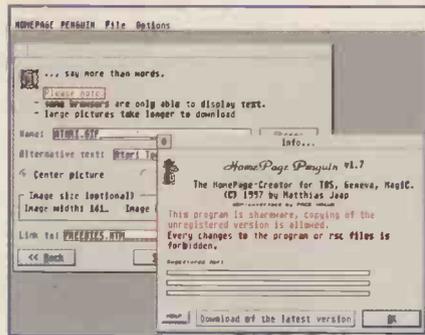
Also, for those brave (or insane) enough to try, there's also a page on the internet (<http://www.stud.ntnu.no/~josk/atari/ab030/switch/>) that details a DIY switcher project which, if successfully installed, will allow you to run the Falcon in O30 mode for increased compatibility with games and other older software. There are also other hardware projects detailed for non-O40 Falcons, including one to modify the audio inputs/outputs for line-level.

A mailing list has been set up for any Atari

A few misplaced wires later and the once-treasured Falcon has the sell-on value of an empty crisp bag



Software and samples are on the CD-ROM cover disc - see pages 8 and 9 for details



Program a web page with a series of button presses with the insanely simple-to-use Home Page Penguin

users with an O40 processor (Afterburner, PAK accelerator, and those bizarre Atari clones). To join, send an Email with the subject 'subscribe' to: falcon040-request@rand.thn.htu.se

Polar pages

If HTML is a complete mystery, and your web page simply doesn't warrant the purchase of a "Learn How to HTML Script in 21 Seconds"-type bible, then you really need an automatic HTML scripting tool. Home Page Penguin is the first of its kind for the Atari, and although it doesn't purport to allow the creation of whizzo web pages with all the newfangled extensions (like forms, frames and so on), it does make HTML on the Atari really easy. In no time at all, it's possible to construct a simple web page that can then be built upon as your knowledge of HTML increases. Indeed the HTML it generates is liberally sprinkled with comments to help you better understand the scripting language.

Pages are constructed using HPP by filling in a series of dialogue boxes, beginning with

the title bar and sub-title, moving through simple links to other HTML pages, importing graphics, and applying colour and styles to text and background. Ideally, you must already have the graphics and text elements for your page before you start, but since Home Page Penguin can run as an accessory, it is possible to run other programs alongside it for editing on the fly.

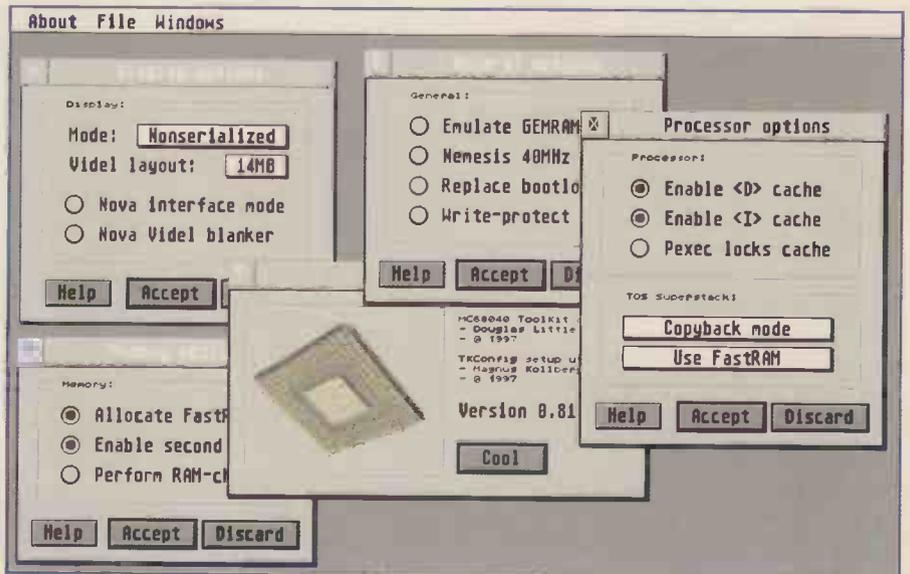
Home Page Penguin is shareware and costs £10 (plus postage costs) for the registered version, from: **CyberSTRIDER, PO Box 2023, Wickford, SS12 9RX. Email: densh@cyberstrider.org Web: <http://www.cyberstrider.org>**

Jinnee-us

The GEM desktop built into ROM on all Ataris is, compared to the newer varieties on other computers, functional (to be polite). Admittedly, it does have the advantage of always being there, taking up no memory, and ably doing what most would like it to do, but running all the wonderful new Atari programs on top of it is like mounting a Rembrandt in an MFI-cabinet (a commission for Damien Hurst perhaps?). Replacement desktops are in abundance on the Atari platform, but none look quite so impressive as ASH's new model, Jinnee.

Jinnee has so many features, from the incomprehensibly complex and 'I doubt if I'll ever use that' nature, to things that will improve your desktop processes tenfold. One of the highlights in Jinnee is 'spring folders' (just like Mac OS8): this is where you can copy files or folders to nested sub-directories by dragging the icons onto the root directory

Fiddle with Fast RAM, investigate instruction caches, and meddle with MMUs with the latest O40 toolkit



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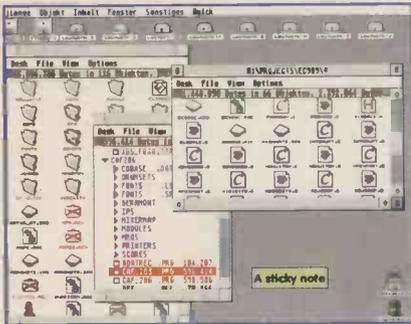
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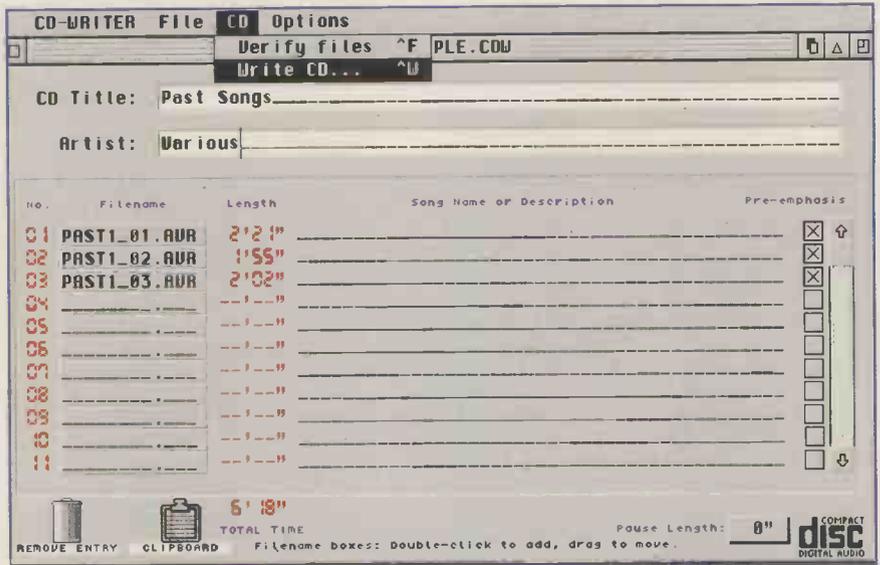
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Jinnee's just like a real-life desktop, with files everywhere, and littered with post-it notes (no coffee cups, though!)

and waiting as the desktop automatically opens all folders within that directory tree until you find your chosen place. Other features include hierarchic menu displays, custom font support, desktop and window background textures, and post-it notes. Of course, like most modern Atari desktops, Jinnee also features many other settings, including file associating, and the ability to place files and programs on the desktop.

Although primarily designed to work with multi-tasking systems like MagiC, Jinnee will run on any Atari in 640x200 (minimum) as long as the (supplied) patch WDIALOG.PRG is present. For more information on price and availability, contact **System Solutions, 17-19 Blackwater Street, East Dulwich, London, SE22 8RS Tel: 0181 683 3355 Fax: 0181 693 6936 Email: info-software@system-solutions.co.uk**



An altogether different approach to CPX use with CoPS

Enforcing some control

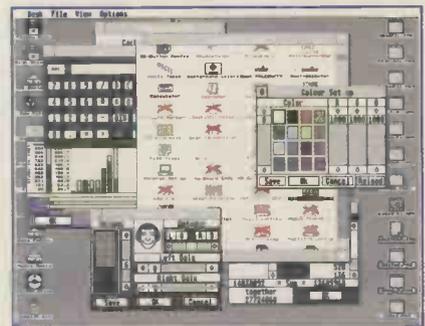
There can't be many Atari users who haven't at one time used, owned, or at least heard about, XControl, Atari's multi-configuration modular accessory. There are hundreds of CPX modules in existence, all with varying purposes and degrees of usefulness: from simple games through to sound, printer, fonts, and video set-up tools. Recently, some third-party developers have taken it upon themselves to improve the concept of XControl with new CPX-compatible loaders, and CoPS (or Control Panel Server) is one of the latest efforts.

As with the other shareware alternative ZControl (on last month's CD), you can have as many CPXs active as the operating system will allow windows open. With replacement OS like Geneva and MagiC, this is a huge number. CoPS runs as a desktop accessory, and when called from the desk menu, opens a desktop-like window with icons for each of the CPXs in the CPX directory. Disabled CPXs are drawn with a cross through, leaving the user with little doubt as to their status. CoPS not only looks like a normal desktop window, but also acts like one as well, with CPXs started by double-clicking on them in the same manner as you would any program.

CoPS is freeware and can be downloaded from Application Systems Heidelberg's web page, where a demo version of their latest desktop Jinnee can also be sourced: <http://members.aol.com/ashinfo/>

Seedy ROMs

Without a doubt, ExtenDOS is the easiest and most robust series of CD-ROM drivers available for the Atari. And now, Anodyne Software have announced a new addition to



Transform your Falcon/TT into a mini-pressing plant with ExtenDOS Gold

the product line. As with all the other versions, ExtenDOS Gold supports a vast array of CD-ROM models (even more in this version, including the Yamaha and Philips CD-Rs), but additionally, this latest upgrade features better compatibility with newer ISO9660 standards (for long and mixed-case filenames), and improved audio CD-to-disk features. It is also designed to complement their new CD creation software, CD Writer.

CD Writer offers a friendly GEM environment for building entire CDs-worth of music with just a few clicks and drags here and there. Its main features include the ability to have up to 99 tracks (74 minutes) of audio, with track numbering and titling, and provisions for pauses between tracks, as well as AVR and AIFF import and the ability to perform 'test runs' of the CD before writing it.

To run CD Writer you'll need a Falcon or TT (and obviously a CD-R and large hard drive), and a copy of the new CD-ROM driver ExtenDOS Gold. Both programs are currently being beta-tested and upgrades from ExtenDOS Pro will be offered. For more information on availability and prices, and a selection of patches to upgrade existing versions of ExtenDOS Pro (up to v2.4b), contact Anodyne Software via Email at: anodyne@cyberus.ca, or visit their web page: <http://www.cyberus.ca/~anodyne>

Running about

Since discovering Running, the new Doom-like game for the Falcon, the PC in my home has become even less frequently used.

The game is as good as any of the PC equivalents, with fast gameplay, nice graphics and disgusting sound effects aplenty. It even has the same player control using the cursor, shift and space bar keys to move around and shoot things with.

A shareware first-level-only version is available for downloading from RDT's web page at: <http://www.atari-computer.de/rdt>, whilst the full five-level version costs £20 (plus £2 postage and packing), and is available in the UK from CyberStrider (see 'Polar Pages' story on preceding page for contact details).



Running: not quite a casual stroll in the park (unless you live in Stevenage)



Running features lots of groovy graphics and disgusting sound-effects aplenty

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PC News, advice, and software for PC users, compiled by Ian Waugh

NEWS

PC98

They're a bit of a mess, PCs, aren't they? Specs, standards... what's it all about, Alfie? PC users know to their cost that there is no such thing as a 'standard' PC. Microsoft have tried to help – honest! – with such things as the MPC (Multimedia PC) standard and the Designed for Windows logo. Now, along with input from some 100 other companies, Microsoft have designed a standard for the new PC which will be on sale later this year.

The actual spec has been divided into sub-sections, but some of the main features of the new PC98 include a minimum 200MHz MMX CPU, 32Mb of RAM and 1024 x 768 video support with full-screen MPEG2. It will support Ultra DMA hard disks which can transfer data at around 33.3Mb/sec and it will have a FireWire (IEEE 1394) port. This is a serial transfer protocol theoretically capable of 400Mb/sec transfers – imagine this for d-t-d recording! – although consumer devices capable of handling this speed aren't yet available. And the PC98 will have a USB port to which many peripherals can be connected.

But one of the most interesting proposals is for the abolishment of the ISA bus in favour of PCI. The ISA has long since had its day. It's only on current designs to enable backwards compatibility, but many manufacturers have taken this as the green light for continuing to produce outdated ISA cards. There will be few PC users who wave goodbye to it with a tear in their eye.

The new proposal is for a 64-bit PCI bus running at 66-100MHz. Now, if we do away with ISA this raises a number of questions, not least of all, what do we do with existing ISA cards? The answer is simple – scrap them! There are several soundcards which are only available in ISA format, so the manufacturers will have to update them. And about time, too.

Another thing – now that we know what's in the PC98 spec, what sort of machines are we going to see until it becomes the standard? The new ISA-less PCs are expected to be coming online in July, but it will probably take several more months before ISA falls out of production completely. Now, knowing that, are you going to go out now and buy a PC with ISA slots? Me neither. So what's going to happen to current PC sales?

If the industry manages to keep the

It's Magix

How's this for a quick-change act? Regular readers will no doubt be familiar with Evolution Electronics' excellent budget-price software, such as the Evolution Audio Pro and Sound Studio MIDI sequencers. Some readers may also remember SEK'Ds Samplitude multi-track direct-to-disk recording software, although you can be forgiven if you don't 'cause it's wobbled from distributor to distributor in the UK.

Well, a version of each has found its way into a pack called Music Studio Deluxe. The MIDI Studio sequencer pays homage to Cubase and dozens of other pattern-based sequencers. It's very easy to use and has loads of editors – event, piano roll, score, lyric and drum. It can also playback pre-recorded Wave files but you can't record these in the program.

The Audio Studio program supports up to 16 digital audio tracks and includes some powerful processing features such as pitch shifting and time-stretching. It also features digital effects including reverb, echo, EQ and noise reduction. It also supports .AVI files so you can mix music and videos. It's not quite as intuitive as the sequencer and it can seem a touch idiosyncratic here and there.

The manual is good in parts – there's a fine tutorial on using the sequencer, but a scant half-dozen pages on the digital audio program. The



Magix MIDI Studio has all the basic features you need for MIDI sequencing

main manual is on disk in Adobe Acrobat format. Bit of a shame, that.

If you want to integrate MIDI and digital audio recordings you can't beat an integrated program where you can record and edit both types of data in the one window. But if that's not your main concern, the combination of these two programs offers a good range of features and facilities at a reasonable price. And you can try it for yourself because there's a demo on this month's CD. Magix Music Studio costs £99.99.

More from: Magix Entertainment, 212 Piccadilly, London, W1V 9LD. Tel: 0171 917 2897.



Magix Audio Studio offers multitrack direct-to-disk recording with digital effects at a budget price

PC98 a secret then we'll see shops selling ISA systems right up to the off. (Remember how news of the MMX chip was kept secret until after Christmas to allow dealers to shift non-MMX machines?) But knowledge is power. Stay cool, hold onto your money and watch the press.

Intel off the wall

Intel are forecasting a 10% drop in earnings this quarter, which caused trading in their shares on Wall Street to be suspended. The

company blamed lower demand from PC manufacturers, although recent events leading to decreased demand in certain chip areas (see last month's Toolbox) may have been contributing factors.

Hacked to bits

The U.S. government is a perennial target for would-be hackers. You might think that it would have the best security protection in existence and it may well be so, but this didn't stop a spate of hacks at the

Software and samples for PC are on the CD-ROM cover disc – see page 8 and 9 for details



Titanic Sound



Chris Boyes and John Oram at the 64 input BEQ Series 24 Console at Skywalker Sound, California

Chris Boyes and his Oram analogue console

"It's quieter than Digital - with headroom that just goes on for days.
I love this board. In its class, nothing comes close."

Chris Boyes and his HD EQ2 Equaliser

"I use the Oram 8-band 'Hi Def' to Equalise 'raw' recorded sounds
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(Sound Designer - the movie 'TITANIC')



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Media DJ

This is another of the cute applications from German company Best Service, the people who brought us Circle Elements. It's essentially a sample loop player which you can use to build up songs from digital audio files. It's built around three sets of concentric circles (Circle Elements only has two circles) divided into twelve segments. You drag sample loops into the segments, and they are played back together, in time.

This program is capable of a lot more interaction than Circle, and you can do a lot of 'mixing' in real-time. You can apply effects such as pitch and filter, and record mixes which will be applied next time you play back the piece. It's all jolly good fun. The pack contains two CDs and there are lots and lots of sample files for you to play with.

Like many other Best Service productions, the program was written with Macromedia Director, an authoring language for creating multimedia applications. Perhaps because of this, or perhaps because of the individuality of the programmer, the interface does not follow normal Windows



Be your own Media DJ – drag samples into the circles and mix them as they play

guidelines. The idiosyncratic file selector, for example, is a niggle – although once you know how the program works you'll have no trouble using it. Media DJ is £39.95 from Time+Space, PO Box 4, Okehampton, Devon, EX20 2YL. Tel: 01837 841100 Fax: 01837 840080.



Media DJ includes a printed manual but there's on-line help, too, in case you lose it

Pentagon and NASA, which resulted in an FBI raid on a young hacker's house in California.

It's a salutary lesson for anyone who uses the internet to take basic precautions about security – especially if they handle confidential or personal information. And if your details are stored on a computer somewhere – which they are, you can rest assured – you may wonder whose prying eyes have seen them.

A Java Future

After several protracted delays, Sun Microsystems have finally announced the JavaStation Network Computer, which will retail in the U.S. for under \$1000. Java is an object-oriented language, similar to C++ but more robust and platform independent. The computer is designed to access applications on a central system, such as the web or a larger network, where software is easier to maintain.

Sun have yet to convince the world that this is a good thing, and many potential customers are looking at Windows-based thin client systems (where the processing is handled mainly by the central server) which can run browser-based Java applications.

The big vision is that one day we won't have any data or applications on our hard disk, rather, we will log onto the internet, boot up a word processor, spreadsheet, or even a music program, and use the application there. It's a little way off yet.

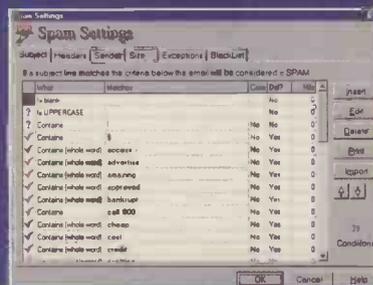
TranceMitter

Good name, eh? The TranceMitter is a filter with cutoff frequency, resonance and tracking controls, which produces those big filter sweep effects. The LFO section lets you select the LFO waveform and speed, and the trigger. It's got that retro vibe, too – it looks like an old piece of analogue equipment.

TranceMitter can be yours free of charge

Spam Spam Spam Spam

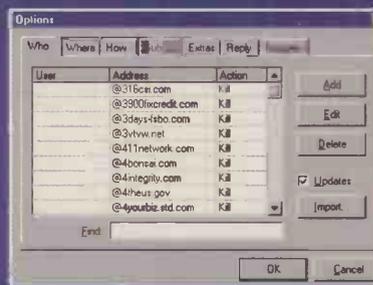
Junk Email (spam) is big business these days, and if you've surfed the net for more than a week you probably will have received spam messages. If you have a website which contains an email address you certainly will have. Damn



Spam Buster stops those annoying spam messages from getting through

nuisance, and a complete waste of time, aren't they?

Spam Buster is a program you might like to try which has a range of options for filtering out and removing spam before it gets to your mailbox. It contains lists of known spam sites which you can block. It can remove Emails with upper case titles, and with dollar signs and exclamation marks in their headers and lots more. Worth a try, eh? It's on the CD.



If you don't fancy Spam with everything, try Spam Buster

if you have a copy of Cubase VST.

We couldn't put it on the cover CD because Steinberg want to know who has it, so go to the website (<http://www.steinberg.net>), request a password – you'll have to fill in your Email address – and then download it. I bet you'll love it!



The TranceMitter plug-in for VST is free from the Steinberg website

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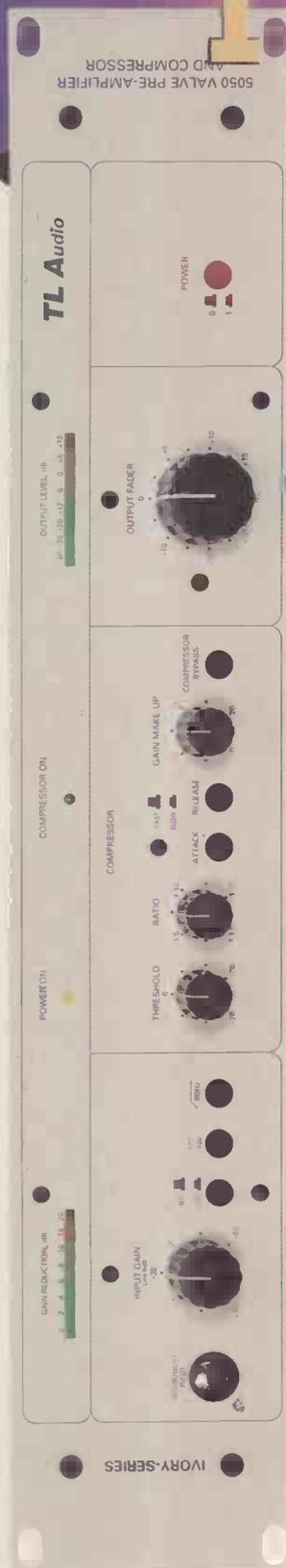
"It is amazing that TL Audio have managed to manufacture and sell these products for such reasonable prices.", while Studio Sound's Dave Foister suggested that,

"The Ivory range will be yet another TL Audio winner, delivering far more than we've a right to expect at the price."

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MAC

News, advice, and software for Mac users, compiled by Ian Waugh

NEWS

Newton down

Apple have finally pulled the plug on the Newton. What began as an experiment in PDA (Personal Digital Assistants) seven years ago moved more recently into vertical markets, but Apple have decided to concentrate their attention on the Mac operating system.

The company tried to spin off the Newton development section last year. This apparently failed but the current story is that Apple wants to keep the patents and design team. The eMate will continue to be sold throughout this year and a new version will appear next year with a cut-down version of the Mac OS.

Rumour has it that Interim CEO Steve Jobs killed the Newton because it was former CEO John Sculley's baby, and Sculley had Jobs kicked off the board once upon a time. Well, rumours, schmoozers. It does seem odd, though, that a company which threw out the inventor of its major product should invite him back to run the company. Jobs doesn't need the money. Revenge? Nah. Meanwhile, watch out for some bargains as the stock begins to flow.

CEO blues

So while Jobs closes divisions, Apple are still having problems trying to find a new CEO. The annual shareholders meeting has been postponed, which has given rise to rumours of the imminent appointment of a

new CEO. However, industry watchers say that potential candidates are not keen to take over Jobs' role.

No show for Apple

Apple are also debating whether or not to boycott Apple Expo after its name was changed to the Total Design Technology, The Mac User Show. The problem had nothing to do with the fact that the show's title wouldn't fit onto one line in a Newton but because the Apple name had been dropped. The organisers claimed that at least a quarter of the visitors used PCs and several exhibitors believe many users want a cross-platform show.

Dates and venue of this year's event have yet to be confirmed – I'll bring you more details as and when.

Sale of the century

In our 'More good buys' story last month, I commented on how Mac prices seem to experience a sheer drop every six months – good news for buyers, unless you're one of those who likes to keep close to the leading edge of Mac technology by selling a machine after a year and buying a new one.

As if to reinforce this price-chopping policy, Apple are now selling off their 20th Anniversary Mac. Barely a year old, this was released to celebrate Apple's 20th anniversary. The on-board technology wasn't spanking new even at the time, but the ancillary bits are tasty.

This was a limited edition model and only 12,000 were built. Apparently, there are still some left and the price has come whizzing down from \$7,999 to \$1,999! It's a bargain, all right, but the offer currently seems to be limited to the States. Besides which, it's not the ideal system for direct-to-disk recording.

Brief specs – a 603e processor running at 250MHz, 32Mb of RAM, 32K on-chip cache, 256K Level 2 cache, 2Mb of video RAM, and a 2Gb hard disk. The screen is a slimline 12.1 colour active matrix flat panel with back lighting, and has a resolution of 800 x 600. It also has a custom vertical-mount CD ROM drive and a 33.6Kbps GeoPort modem.

The neat bits include a custom Acoustimass sound system by Bose with integrated stereo speakers and floor-standing bass unit. It has an integrated Apple TV/FM radio system, built-in S-video input and an adapter for composite video. It has a custom keyboard with adjustable trackpad and Italian leather palm rests.

Check it out at Apple Store:
<http://store1.apple.com>.

Disinfectant

Viruses are in the news again. Well, they're never quite out of it, but every so often someone comes along with news of another virus which has everyone reaching frantically for an anti-virus program.

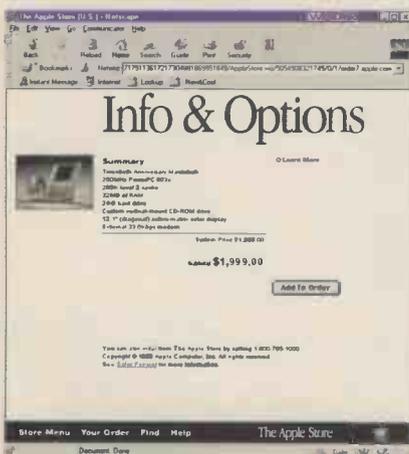
If you regularly download from the internet or swap files with friends, it makes sense to run a check on the files. One virus which seems to be making a comeback is the MBDF virus. It's not malicious but it can affect applications and the System file.

Disinfectant is free, it's not shareware, and it's highly regarded. When a new virus is detected, Disinfectant is updated to detect and remove it. It doesn't recognise the Microsoft Word and Excel Macro viruses, however. These are cross-platform viruses, but they should not affect you if you don't use Word 6 or Excel 5.

Some virus checkers sit in the background scanning new disks and software as they appear on the system. This may sound very nice but they hog memory and CPU power. For sequencing and particularly direct-to-disk recording, you'd do better to switch this off – along with anything else which runs in the background, including screen savers – and simply scan new files or disks when you're going to use them. Disinfectant can scan individual files, folders and floppies.

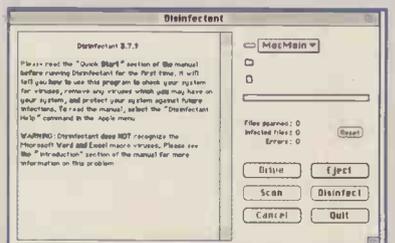
There are a vast number of viruses and if you think your Mac is acting strangely, or has become slow, run Disinfectant over it. It's on the CD and you can download a copy from many sites on the web including the official FTP site:

<ftp://ftp.nwu.edu/pub/disinfectant/>



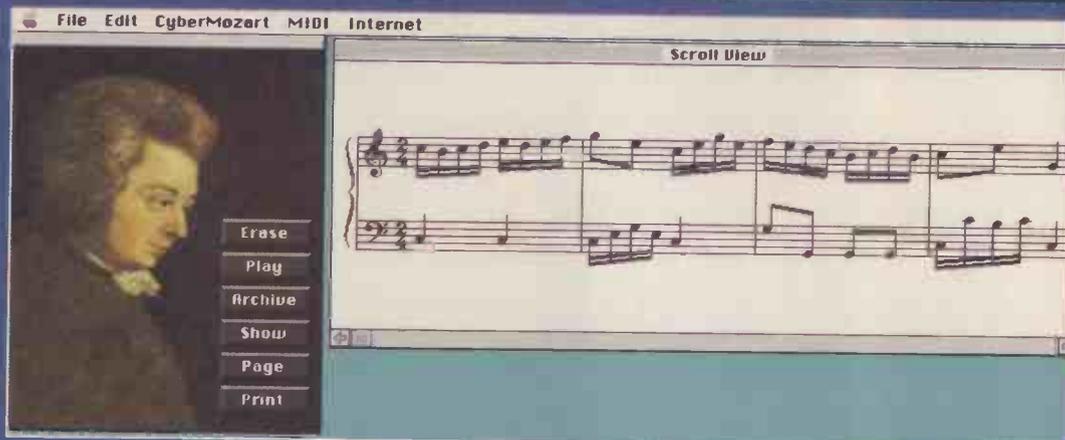
Get the lowdown on OS 8.1 from Apple's Technical Info Library

Software and samples for your Mac are on the CD-ROM cover disc – see pages 8 and 9 for details



Run Disinfectant over your Mac whenever you copy material to it from an unknown source

Button-pushin'-cyber-dice-throwin'-note-pickin' programs



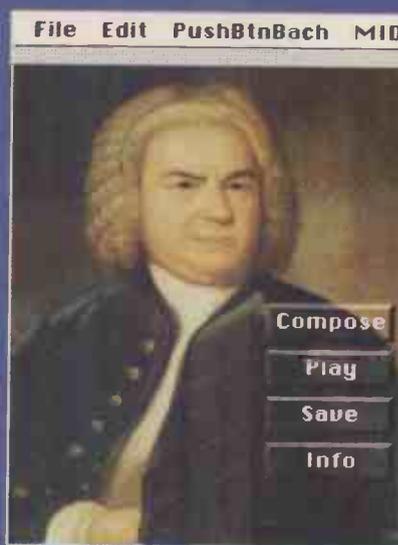
Roll dem bones and watch as Wolfgang composes yet another little tune

If you've a memory which can take you back to July 1996, you may recall a couple of composition programs we featured in this column, called Push Button Bach and Cyber Mozart. We had considerable feedback from readers at the time who seemed to like them, so here are the latest versions.

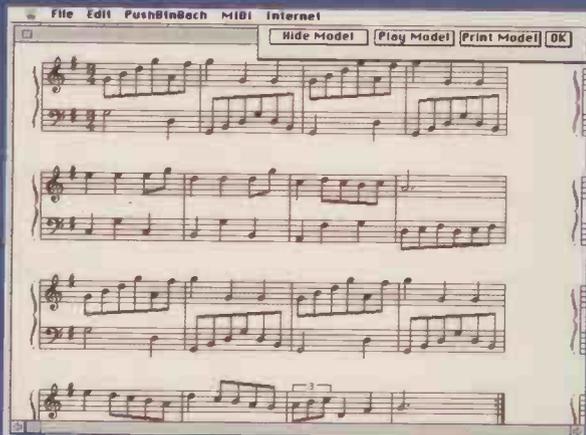
Bach is an algorithmic composition program and it generates a new minuet in the style of Bach each time you push the Compose button. It uses a minuet for its composition model, and you can see this using the Info button.

You can save the files as Standard MIDI Files in format 0 or 1 for analysis later and you can set the program to compose continuously. Another option takes you to the range of parameters you can adjust to change the way the program composes. New features in version 2.0.1 include faster processing, updated algorithms, additional MIDI settings and a new Internet menu.

CyberMozart is a computerised version of Mozart's musical dice game. One afternoon before tea, Mozart composed 176 bars of music, put them on a grid, and used a pair of dice to select which bars to play. Being Mozart, he was clever enough to compose the bars in such a way that they fitted together however the dice fell.



Press the Compose buttons and watch Bach pull a new manuscript from his coat



Recognise this? It's the model used for Push Button Bach's compositions

The program takes all the hard work out of composing and dice throwing – press the button and up pops another variation. You can see the music on the stove and watch it scroll as it plays. You can select different instruments for the left and right hand parts and save the composition as a Standard MIDI file. New features in this version, 3.0.1, are along similar lines to the updates in Bach.

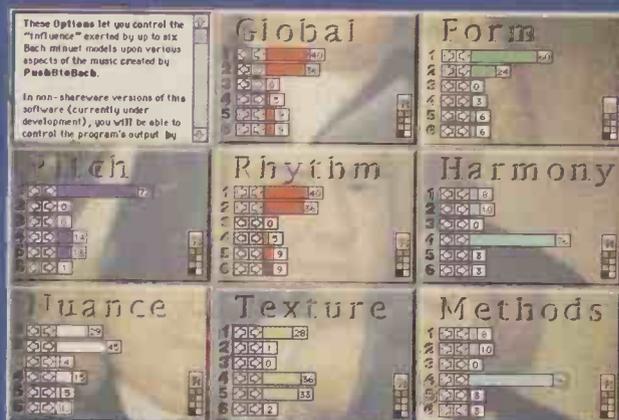
A couple of warnings. I downloaded both these programs from the Yav website but the archives turned out to be corrupt and wouldn't unpack. I tried this twice, although they may have been fixed by now. The versions on the CD were downloaded from AOL and worked fine, apart from being a little bit temperamental.

The programs are shareware and time-out after 120 days. The fact that I already had earlier versions of the programs on the hard disk seemed to confuse the new ones and Bach took a little persuading to start. But it did start eventually.

Mozart, however, wouldn't run at all on a Quadra 950 although it did run on

a PowerMac. The problem could have been the Mac or it could have been some lingering files which it didn't like. But if you're interested in computer-assisted composition, do give them a whirl. You can find out more about them at: <http://www.yav.com>

Both programs were written by Christopher Yavelow, who wrote the Macworld Music & Sound Bible and who is also the Series Editor for A-R Editions' range of technical books about computers and music, and digital audio. They aren't generally available in the UK but you can find out more from the website: <http://www.areditions.com>. If you're interested in computer-based composition, they're well worth checking out.



Push Button Bach has lots of adjustable parameters which determine how the music is constructed

HELP FILE

THE MASTERMINDS THIS MONTH'S HELP FILE TEAM



NAME: Ian Waugh
OCCUPATION:
computer journo
CHOSEN SUBJECTS:
computers, software,
Northern folksong



NAME: Danny McAleer
OCCUPATION:
software engineer
CHOSEN SUBJECTS:
Atari computers, synthe-
sis, LEGO



NAME: Paul Mac
OCCUPATION:
technical editor, *The Mix*
CHOSEN SUBJECTS:
Apple Mac, hardware,
PlayStation

Problems in the studio? Ghosts in your machines? Then you need to contact the *Help File*, where our team of audio experts do their best to solve your technical torments

Soundcard search

Q I want to use my PC for hard-disk recording, but I cannot decide from the wealth of available soundcards on the market which one suits my needs. All I need is a full duplex card so that I can listen to one track while I record another, and play back a few stereo tracks into the final mix. What do you recommend?

Also, I want to have a one-off CD burned, so I will need to mix down the track onto a removable hard drive, but I don't have a clue about what formats are acceptable for CD-writers or whether the soundcards can record in these formats. Could you perhaps point me (and others) in the right direction?

Chris Berry, Email supplied

A Most modern soundcards are full duplex but some are higher quality than others (the analogue-to-digital and digital-to-analogue converters are better) and some are better supported by different pieces of software. You need to decide if you want digital connections or just analogue I/O and how many you want.

If your aim is to produce audio CDs in 'ones' you might consider buying a CD-R and doing it yourself. These are available at under £300 and prices are falling so quickly they'll probably be under £200 by the time you read this. However, if you want to use a third party, most prefer a DAT tape, which means that to maintain the quality of your material the soundcard ought to have a digital connector. Of course, you could record to DAT via analogue connections, in which case you'd



Card shark: Korg's 1212I/O has an ADAT interface to connect you to the world

want a card with good converters. You may find a CD burning company which accepts material on removable media but you may need to shop around. Most companies will also accept material on home-burned CDs and do a remix and mastering job on it. But they may not be keen to do this for one copy!

Several cards are appearing with special features such as the WaveCentre at £498 (see review in *The Mix*, issue 46) from Et Cetera (01796 228039), which has only digital connectors, and the Darla card at £299 from Key Audio (01245 344001), which supports 20-bit audio but has no digital connections. Check out Digidesign's (01753 653322) Audiomedia III at £599, which is an 18-bit card with a S/PDIF interface and Korg's (01908 857100) 1212I/O at £599 with ADAT, digital, and analogue connections.

Ian Waugh

Phantom frolics

Q Looking for ways to improve my home studio set-up, I came up with two possible ways forward: phantom-powered microphones and hard disk recording.

If I understand correctly, I can get a far better response from my main microphone (Audio Technica ATM31a) by using a phan-

The Help File, The Mix,

**Future Publishing, 30 Monmouth St, Bath BA1 2BW
Email: themix@futurenet.co.uk**

tom power source instead of the battery, but my XLR cables do not have enough connectors. I understand that the full pin-out XLR is pin 1 earth, pin 2 in phase, pin 3 out of phase and casing +48V DC. Is this correct? It would be very helpful if you could design a circuit which supplies this 48V DC output.

Chris Berry, Email supplied

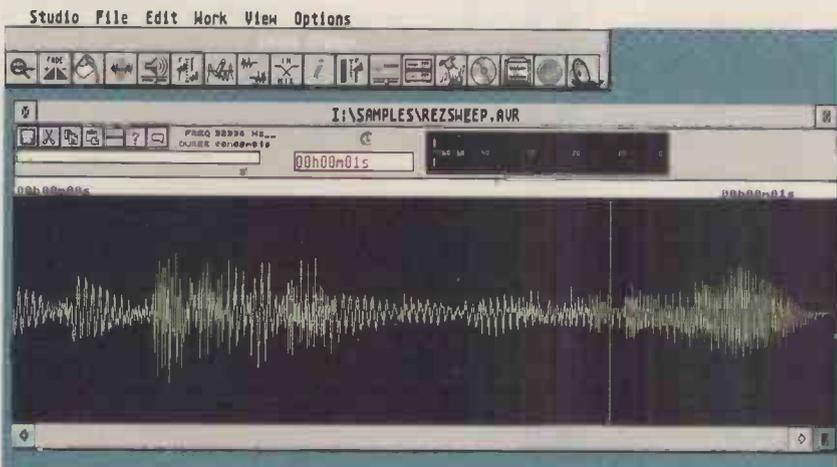
A You'd have a big problem if the casing of your microphone was held at 48V, unless of course you want that frizzy hair look so popular with electric shock victims. The 48V needed for phantom power is actually supplied through pins two and three, which also carry your audio. It may sound like a strange concept, but without suffering an electronics lecture, you'll have to live with it. This is also the reason why applying phantom power to anything other than condenser microphones has a high chance of being fatal (to the gear).

It's a bad idea to go messing about inside your microphone, or to start building power supplies without some sort of electronics training, so that leaves you with two options: use your mixing console or microphone pre-amplifier's phantom power facility (if they have one), or get yourself a DI box that has a phantom power supply built in.

However, if your concern is improving your recording, then invest in a decent microphone pre-amplifier. There are hundreds to choose from, but the 'voice channel' variety is now extremely popular. With these you get your phantom power, plus a range of processing specifically designed for microphone inputs. They needn't be too expensive either; the dbx 286A (reviewed in *The Mix*, issue 44) has compression, de-essing, enhancing, and an expander/gate, all for just £230. From here, prices get quite high, and you might feel that your money is better spent on a small mixer with phantom power built in.

Paul Mac

Are you having problems with Sound Studio?



Sound Studio solutions

Q I read with interest about the Sound Studio software that you reviewed in *ToolBox*, downloaded from a French site. I have a Falcon 030 with 14Mb RAM and NVDI 3.01, but despite many attempts to import samples (IFF or AVR), the program freezes immediately the file selector disappears. I cannot record either, and a message appears at the bottom of the screen stating Td2D Record open error -34.U. I have tried removing all autoboot programs that may clash, and have correctly installed Folder100.prg and FDI_init.prg into the auto folder. I have an FDI and CAC, but neither makes any difference. Several video modes have been tried, including 2, 16, and 256 colour, without success. I noticed that in the readme file a reference was made to CenTurbo I, III, and Evolution III. I don't know if these are necessities or compatibility issues as I have neither. The program itself looks perfect for my needs, but I have run out of ideas. I assume that you successfully got the program to work in your review, and wondered if I am missing a vital installation or set-up point.

Ian Courtney, Surrey

A Sound Studio is a great program, but it is also a bit on the patchy side. A couple of other Falcon 030 owners have reported a similar bug in the software, but as much as I do to try and bother the program, it still refuses to fall over and die. I've even tried loading in rogue files with data in headers purposely defaced, and it still works.

First, you must also have the AUTO folder patch program FPATCH2.PRG. Without this, I'm sure Sound Studio (and some other software) won't work on the Falcon. Don't use FPATCH.PRG as it's no good, and is potentially detrimental to your Falcon's health – apparently!

There are a couple of things are worth checking: Firstly, to run one of the versions, you must have a maths co-processor. Without an FPU, Sound Studio will probably crash the moment it has to per-

HELP FILE GLOSSARY

Your guide to the technical jargon contained within the Help File

ADAT

Alesis Digital Audio Tape. An 8-track digital audio format based around the SVHS tape standard. Also has proprietary digital, optical I/O format, now becoming an industry standard

CDR

Recordable CD. Achieved 'burning' data into a special coating on the CD. The newest incarnation is CDR/W (read/write), which can be erased, as well as written

Compression

A process that uses a user-set threshold level to activate a gradual attenuation on the audio. In this way, high levels are reduced and, subjectively, low levels are increased – hence 'compression'

Enhancing

A generic term for 'spectral enhancement' of sound. One popular variation is harmonic distortion, where the source is distorted and the high frequency part of that is added back into the audio, causing a 'brightening' of the sound

Freeware

A copyright statement attached to software. Freeware can be copied, used and distributed freely, without infringement of copyright

Gb

Gigabyte. A measure of hard-drive space, equivalent to 1024 Mb, or just over 700 high density floppy disks

S/PDIF

Sony/Philips Digital Interface. Digital audio connection, usually on a phono connector

Phantom power

A DC voltage that is applied to a condenser or capacitor microphone

Phase

A time relationship between two signals measured in degrees (°). If you add two identical signals together that are 180° out of phase, they will cancel each other out

form particular calculations. The 6881/2 co-processor for the Falcon is a very cheap chip to buy, and is available from most Atari hardware dealers. Try System Solutions (0181 693 3355.) I'm certain that one of the versions is for non-FPU Falcons (the program without the '82' suffix), so if you haven't tried this one, then I'd recommend that.

Also, try increasing the value of FOLDRXXX.PRG in your AUTO folder to FOLDR500.PRG. This may have some effect, but to be honest, I'm clutching at some very slippery straws. The Falcon used to review Sound Studio was set up almost identically (with AHDI v6.06, FOLDR500.PRG, FDI_INIT.PRG and NVDI V3.0, running in 16 colours in 800 x 600), but it does have a processor upgrade. This shouldn't be a problem though.

If anyone else has or hasn't managed to get Sound Studio running, it would be wonderful to hear from you. Maybe then we can build up a picture of compatibility, and hopefully be able to find a suitable way of running it successfully!

Incidentally, it's well worth visiting the website, as there's plenty of information on both the freeware and commercial ver-

sions, including bug details. The commercial version has plenty of extra bits and pieces, and for \$90 seems like a reasonable investment. More from: **Studio Capitale, 9, rue Lakanal, 75015 Paris. Tel: 33 1 45 32 10 00 Fax: 33 1 45 32 74 84 Website: http://www.emi.u-bordeaux.fr/~ricard/StudioSon/index_us.htm Danny McAleer**

Hard driving

Q I have a p133, with 32Mb RAM, a 1Gb hard drive, Cakewalk Pro Audio V6, and a Tahiti soundcard. I am looking for a second hard drive for audio. Can you recommend a good one that's AV capable for under £300? Is SCSI really necessary? If so, I have an Adaptec AIC6360 card. Will it do the trick?

Niall, Email supplied

A Most AV drives are SCSI but there are some EIDE AV drives, too. The advantages of SCSI are that you can easily add more devices to a SCSI chain and this is usually fairly easy once the SCSI card is set up. SCSI drives usually use less CPU power which you may need for processing. The new

DMA drives transfer data directly into memory, bypassing the CPU, which ought to make them as efficient as SCSI but many of the older motherboards don't support DMA transfers (the later Triton chipsets do) and in any event, the major benefits are only gained when using a truly multi-tasking operating system.

Is the AIC-6360 the name of an actual card? The AIC-6360 is best known as a chip used in Adaptec 152x and SoundBlaster SCSI cards and I can't find a card with that name on the Adaptec Website. However, providing the card is a SCSI card then, yes, it will work with a SCSI device.

But the other thing to take into consideration is the speed of the data transfer. Recent developments have produced Ultra SCSI, Wide SCSI, Fast SCSI, UltraWide SCSI and all shades of SCSI in between. You can usually connect one type of SCSI device to another but the transfer will take place at the speed of the slowest device. Check the transfer rate of your card. If it's a 'standard' SCSI card with a transfer rate of about 5Mb/sec then you may prefer to look at a EIDE drive.

Several companies produce AV drives. Three which seem to have a good name include Micropolis, Quantum and Maxtor. New drives are coming onto the market all the time, which means it's difficult to recommend one even month to month. It's a good idea to check the specialist computer press for any reviews of new gear and to check the prices. Look for a fast seek time and a high data transfer rate, and get the largest drive you can afford as you'll soon fill it!
Ian Waugh

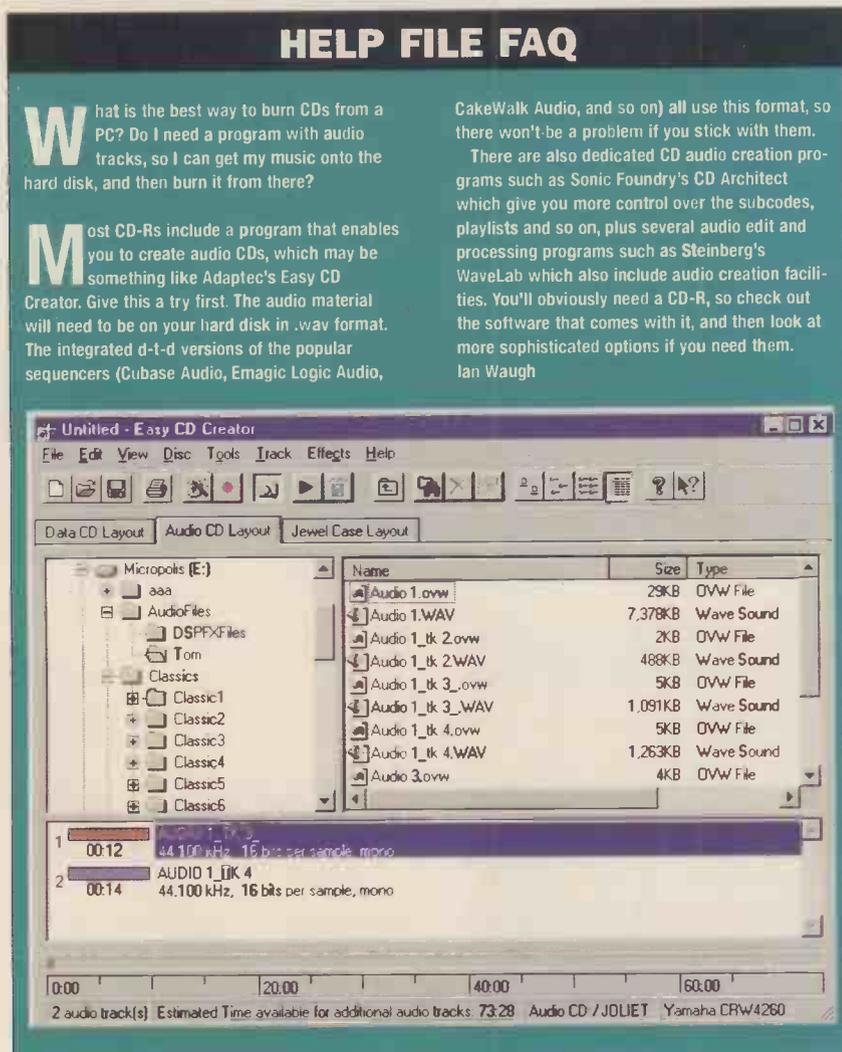
Face of experience

I just read Tim Farnden's woes ('Compound Conundrum', issue 47) with his Creative Labs AWE 64 Gold and Cubasis Audio, and can sympathise with the frustration. I can't help with his Roland keyboard, but may be able to help with the .wav files error ('The audio system has failed to respond').

I had the same problem, and I think I remember it was the Steinberg (Cubasis) support (rather than Creative who bundled Cubasis with their card) who seemed familiar with the problem, and the fix. You can twiddle card settings all you like; the fix was to go into the Cubasis Setup MME utility, and set Creative MIDI Instrument Mapper and WaveSynth/WG MIDI to inactive. Setting the Creative MIDI Instrument Mapper to inactive is the essential part. You may not need to set Wavesynth/WG MIDI inactive, as my system is considerably underpowered (486 with P83 overdrive) for the software synthesis.

Hope this makes sorting the other problems out easier. It's well worth it when you get there.

Richard Payne, Email supplied



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BITS ON THE SIDE

**16-bit or 24-bit?
48kHz or 96kHz?
Just what do
increased bit
depths and sample
rates mean to
your music? Paul
Mac and Sony's
Paul Frindle cut
through the techno
babble to give
you the answers**



Above: you can't get away from digital these days – pick a connection

Digital audio is on the agenda for almost every studio equipment manufacturer at the moment. Whether they are striving to improve the specifications of existing hardware, porting processors to plug-ins, or racing to develop the 'standard' PCI soundcard, they have decided that digital is the place to be. The fact is that modern music producers crave the kind of flexibility, quality, and efficiency that digital audio provides.

Unfortunately, we have a disturbing tendency to go for the biggest numbers, rather than question what we hear. Hardware engineer Paul Frindle of Sony Professional has spent many years in the digital domain, and has dedicated much of that time to finding out what the numbers really mean, and whether there is more to the quality equation than bit depths and sample rates. We're going to do two

things here: explain the techno babble, and then step into reality and find out what this means for everybody who already is, or will soon be on, the digital audio train.

The basics

Imagine a 'black box' digital signal processor; it doesn't matter what the process is, we just need to know that it is digital. The aim is to represent a continuous audio wave (the analogue input) as a bunch of numbers (digital audio), process those numbers, and then turn the numbers back into audio (analogue output). We'll deal with the two conversion stages first, and come back to the middle bit.

Analogue to digital conversion (A/D) is achieved by examining a continuous audio signal at regular time intervals and describing the 'level' of the signal at that moment as a number. In computer-speak, those numbers (called 'words') are constructed from several 'bits' – each one either a 1 or a 0. The more bits used to describe a level, the more accurate your measurement will be. This is rather like measuring a line in either centimetres, millimetres, or microns. You will always be more accurate when measuring in microns, but you need more of them. In audio, the number of bits that make up a word is termed 'bit depth' and one word, describing a single point on a waveform, is called a sample.

The more samples taken in any time period, the greater the frequency range that can be accurately represented. The

Whither be dither?

Paul Frindle explains the idea behind dither signals in digital audio

In a digital system, the lowest level that can pass has to be above the least significant 'bit' (LSB) of the binary code that forms the digital word. For 16-bit systems, this is at essentially -96dB. This has nothing to do with conversion, it is a theoretical mathematical limit of the digital code. Also, you can imagine that for low level signals, not many digital levels will change. Therefore the distortion caused by this LSB at -96dB gets to be more easily heard since the energy of its error is constant. And of course, you can imagine that for a signal level of say -90dB, the digital code at the output of a 16-bit system would consist of the LSB going up and down with the signal, creating essentially a square wave. This is called quantisation error, and it is pure distortion, not noise. Not a nice sound!

Years ago it was realised that if the right sort of noise is added to a digital system, this quantisation error could be removed statistically and be replaced by a constant noise rather than the nasty distortion. This was great news since the distortion due to quantisation is completely removed and you are left with a clean signal and some noise, which we all are used to.

number of samples taken per second is called the 'sample rate' and is measured in kHz (thousands of samples per second). 'CD-quality audio' has a bit depth of 16, and a sample rate of 44.1kHz.

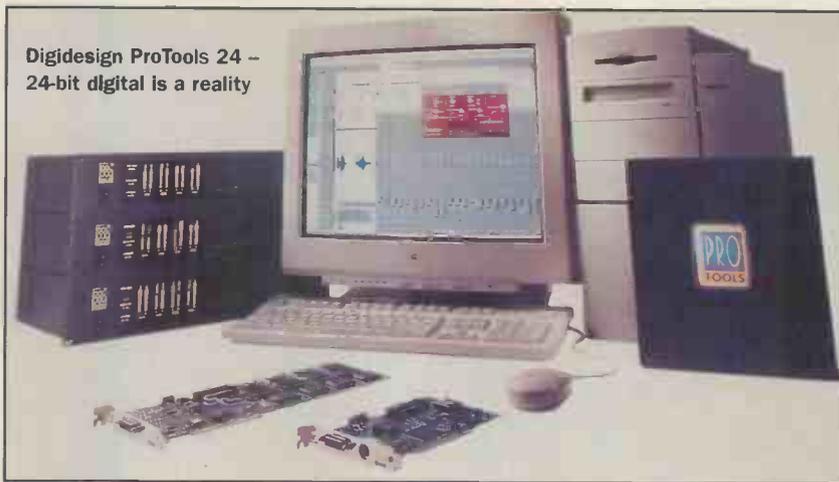
Now we have a dot-to-dot representation of a waveform, or thousands of discrete levels which, when joined together, become analogue audio once more. In fact, that is what digital to analogue conversion does, it joins the dots.

Here's one of the first big problems. The initial output of the D/A process, will be 'stepped', as if you were trying to build a circular wall out of large square bricks. The overall shape would be circular, but the surface would be far from smooth. In audio, jagged edges mean harmonics and noise, called quantisation error.

Also, when sampling, copies of your original waveform appear at a higher frequency, or pitch – called aliasing. Getting round this is fairly straight forward. In order to reproduce frequencies up to the limit of our hearing range, we have to sample at more than double the highest frequency being converted. The 44.1kHz sample rate is in fact more than double our top hearing boundary, which is generally accepted as 20kHz. We still need to smooth the edges of our waveform, and make sure that high frequencies don't get passed down the audio chain though, so we put in a low pass filter to attenuate anything above about 22kHz.

For the moment, there is one more important thing you should understand about conversion: A low level will be converted less accurately than a high level

Below: before and after – audio in the analogue and digital domains



signal, and a signal that tries to exceed the maximum number a digital signal can handle (0dB) will sound atrocious. At low levels, the inevitable errors (quantisation error) will cause distortion. So we have an ideal level that is 0dB, but definitely no higher. That is why audio software often gives you the option to maximise, or normalise the digital audio ready for output. With all this in mind, it follows that the higher the bit depth, the greater the theoretical dynamic range – not because you have higher numbers, but because the resolution at lower levels is greater (remember, dynamic range compares maximum level with the noise floor).

We have now covered much of the basic digital audio parameters. For the advanced stuff, and more practical ideas, we turn to Paul Frindle. We put some questions to Paul on behalf of everybody who would like to know what digital actually means in the real world.



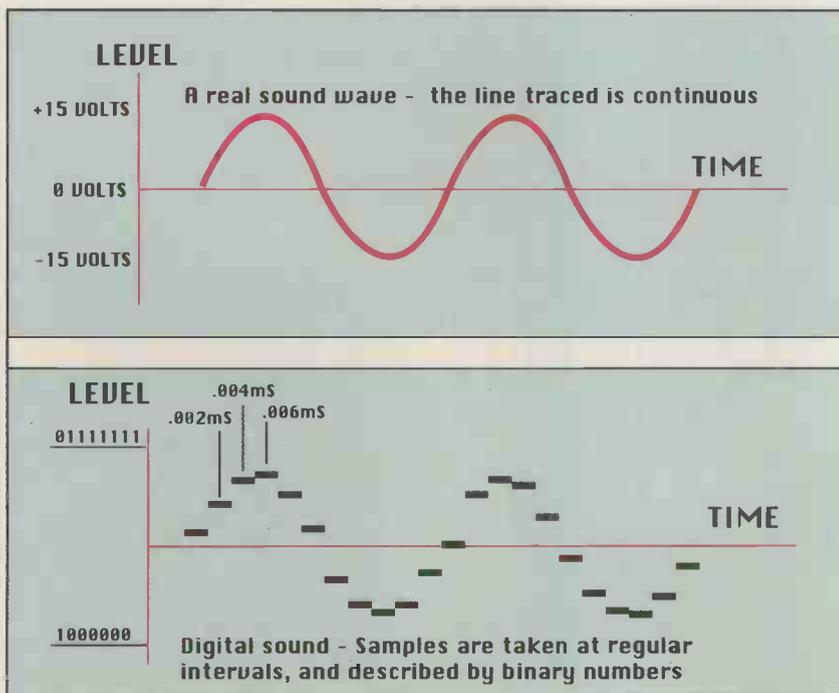
Paul Frindle of Sony Professional

Where will sample rates and bit depths stop going up? We are seeing the first steps into 96kHz and above. Is there any point?

As we have seen with the dither explanation (see separate box), there is no distortion or response advantage with larger word lengths. But the total available signal-to-noise ratio is dependent on word length. So there is definitely an audible advantage to having more bits. A 24-bit system is capable of 144dB of dynamic range. When doing multitrack productions where large numbers of signals add together, the advantage of 24 bits can be fully appreciated.

Sampling at 96kHz can be used to reproduce higher frequencies. Although it has long been accepted that audio bandwidth stops at 20kHz, there is energy above this frequency from good microphone systems, and there is a small amount of acoustic energy in percussive instruments above 20kHz. There is a school of thought that says this energy may affect our perception of sound in some way. In any case, it would seem to make sense to try to reproduce all the signal that is available from the musical source. However, so far I personally have never been able to detect differences in music restricted to 20kHz from that which is not, and we have done some fairly detailed listening tests over the years.

There are other advantages in sampling somewhat faster than current 44.1 and 48kHz rates, in that it is easier to make good converters. As previously explained, steep reconstruction filters are needed to lose as much response as possible between the end of the signal band and half the sample rate of the system. Therefore, in the case of 48kHz, the filter



Oversampling

Better performance, lower manufacturing costs. Can it be that everybody wins?

For a DAC (digital to analogue convertor) to recreate the audio from digital samples, it needs to steeply filter the frequencies above the audio range (20kHz). This used to be done using complex and noisy analogue filters. However all recent equipment uses digital filtering before the DAC to reduce the need for the analogue filter. This digital filter requires a higher output sampling rate to accomplish this task, (ie, 4X or 8X 44.1kHz). Better performance results from this arrangement because of the reduction of analogue circuitry, and it is cheaper to manufacture. You get more performance for your pound.

Right: Yes, we noise doesn't look like this on a frequency axis, but it's only a picture

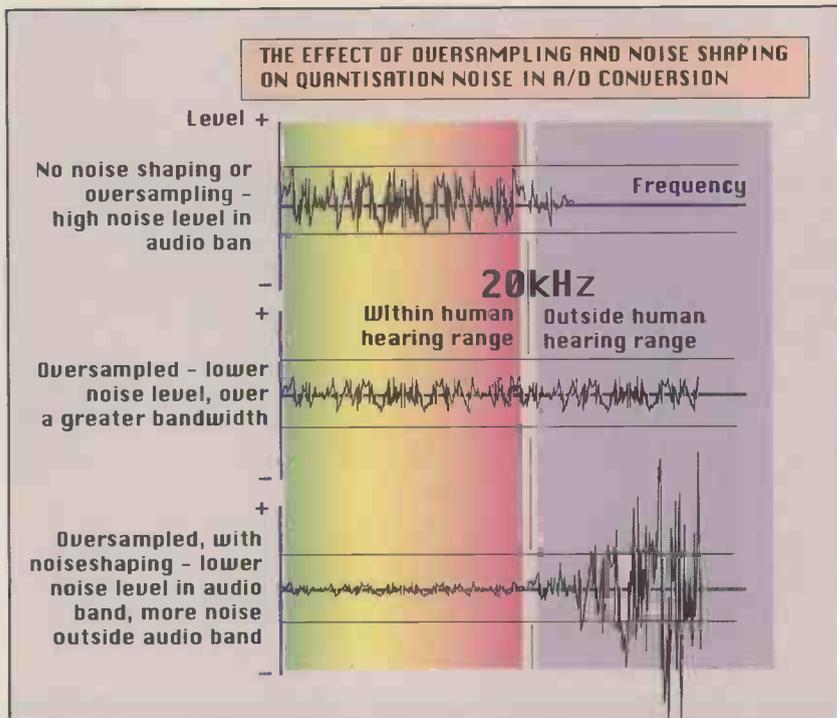
must roll off (get to maximum attenuation) almost completely before 24kHz. This is a very sharp filter, that if improperly designed can cause frequency ripple and phase problems in the audio band. Also such a filter has significant delay between input and output, which can be of concern in studio applications. A 96kHz system needs the same filtering, but at 48kHz, even if we allow a passband up to 40kHz for the signal, it would still halve the complexity and sensitivity of the filter design, as we have 8kHz in which to roll off the response. Also, the simpler filter will produce much less actual delay.

In the light of all this, it is actually easier to make a good converter at 96kHz than at 48kHz sampling. Some of the reported sonic improvements reported for 96kHz may result more from these factors than actual frequency response extension. You may get better performance up to 20kHz for your money with a 96kHz converter system. If storage and processing (which doubles at 96kHz) gets cheap enough, this may become cost-effective. But for the moment it seems more efficient to work on conversion systems to get transparent audio performance.

The argument for even greater sampling rates (i.e. 192kHz) gets a bit less compelling since most of the technical problems are addressed by 96kHz. There is no doubt that greater bandwidths and less signal delays can result, but I really do doubt the sense of audio at beyond 40kHz. There are very few natural sources of acoustic signals at these frequencies.

Where is the quality in digital systems? Do the specifications tell the whole story?

In general, almost any digital storage device is likely to perform better on paper than analogue kit we are used to. Even the lowest specified internal analogue to digital conversion found in current equipment



Noise shaping

Paul Frindle offers wisdom on the shapely variety of dither

The addition of the dither signal sets the noise floor of the system to -93dB (i.e. half an LSB on average). Engineers soon realised that dither would still work even if it was filtered into specific frequency bands. So, for example, you could add dither noise that was filtered into the high frequency bands of the signal, which would sound less loud than 'flat' spectrum noise at all frequencies.

In fact, it was possible to put some of the dither into the band of frequencies between 20kHz and 22kHz, in other words, above the passband of the system. In this case the system would measure even quieter, since the dither was largely removed by the filtering of the output converter. Fairly complex systems have evolved to take advantage of this effect, and psychoacoustic masking, to provide methods to get better than 93dB signal to noise ratio from 16bit systems.

If you take this principle further, you can imagine that if you expand the legitimate range of frequencies that can pass through the system by sampling more quickly, more and more of the dither can be filtered into higher frequency bands that are not heard. For example, in a 96kHz system you have a range between 20kHz and 48kHz to put the stuff into. In fact, you can keep on putting the sample rate up and reducing the bit depth while still retaining the same noise in the band we hear up to 20kHz. The ultimate example of this is Bitstream technology, where the bit width is reduced to one single value, but is sampled at very high rates, which is the principle on which most current audio ADCs are already working, before converting to PCM format for storage and processing.

Dither is essential for all digital audio systems, but care must be taken to get matches between systems of different bit width. For instance, if a 24-bit system is used to drive a 16-bit unit, the signal must be redithered at 16 bits or distortion will result.

My personal opinion is that systems that go further than ordinary dither by using psychoacoustic filtering have advantages in reducing threshold at which noise may be heard. This makes such systems suitable for mastering purposes, say 24-bit mastering to CD. However the noise may sound unnatural if you get to hear it. This could happen for instance if a signal is further processed by equalisation, and so on. So I would prefer to stick to simple dithered systems for multitrack and project work.

will measure lower noise and distortion than most analogue semi-professional recorders. After all, true 16-bit performance should yield signal to noise ratios of more than 90dB, which is possibly 20dB better than even the highest quality analogue recorder. The important thing to remember is that it is the actual analogue quality you hear that counts, and not buzz words like number of bits, resolution or

the like. The distortion of a digital signal has nothing much to do with the number of bits or 'resolution' if the kit is designed properly and the signals are properly dithered.

Of much greater importance is the nature of the distortions that digital conversion (and processing) can introduce. The problem is that conventional measurements used to assess analogue systems

are also inadequate in describing the actual sound quality of a digital system. All this means that even if you are armed with the manufacturer's information on resolution, number of bits, noise and distortion figures, you still do not have enough information to decide how the kit will actually sound.

Digital conversion can introduce changes in the sound due to many factors that do not show up on conventional tests. By far the most important of these is the distortion profile with level. With conventional analogue systems it is normal to expect distortion to reduce as levels reduce.

But a digital system can give the opposite effect in that errors can almost stay constant at all levels, getting more and more significant as level reduces. This can give the 'grainy' sound on instrument and reverb tails we hear sometimes. In A/B listening tests we did, it was found that this effect could be heard even if it is below the noise floor of the system. A good conversion system will produce less of this effect and will sound better as a result.

Another effect sometimes found in digital systems is phase inaccuracy. It is possible for a converter with improper phase correction to effectively allow low frequency signals to pass before high frequencies. This causes a 'softening', particularly of percussive sounds. A good converter would correct this by effectively holding up LF (low frequency) signals so the correct relationship between HF (high frequency) and LF is preserved in the output.

Other effects we have found that can occur comprise clock jitter, which can cause noise and distortion, especially if equipment is using external synchronisation; and high frequency energy above 20kHz. That is, unwanted HF signals from a converter can affect the performance of following equipment such as power amps and monitors, and so on.

How much do you really gain by buying, a dedicated D-A unit, rather than just relying on the ones that come with the gear? Since the causes of sound degradation are complex and often dependent on connections between other units, it is not given that outboard converters will always perform better than internally supplied conversions. For instance, an outboard DAC without a good clock recovery system may suffer more from clock jitter due to the interconnecting wires than a similar converter within the apparatus.

In general you will get what you pay for. A company who manufactures specific converters, whose reputation depends on results from converters, would be expected to take more care and give over more resources to addressing these problems. However it is also obvious that converters built to a low cost budget are unlikely to

Buying into digital

The sophisticated test procedures used at Sony HQ are not possible in the dealer's showroom, so if you're considering buying digital kit, how should you check it out? Paul Frindle has some suggestions

1 If possible, take the test music yourself in analogue form and compare recorded and replayed sound with the original. Things wrong with digital equipment are unlikely to sound the same as analogue problems, and what we are after is a comparison only. It is imperative to ensure that the source and comparison listening levels are as equal as possible. Small changes in level can easily fool you into thinking that one unit is better than another.

2 I would assume that the frequency response is good since these days most digital equipment is. However I would listen for overall balance or the 'initial sweetness' of the sound. Changes in timbre or character of the material indicate significant but unspecific converter errors. Don't be fooled by results that seem better than the original material. These will be caused by errors that may sound worse on other program material. It is important to remember that accuracy is what you are after, not a 'sweetness filter'.

3 Play material with lots of loud percussion and listen for softening of the attacks. Comparison between equipment is possible since attacks rarely get sharper due to errors. Softening of attacks can be caused by phase errors.

4 Play a solo piano track with some room reverb, listening for rough-sounding sustained note tails or reverb. It is possible to hear non-linear distortions and unwanted 'side tones' this way if they are quite bad.

5 Play the solo piano as above and listen for excess noise around the notes that go away in silence. This can also be heard with using soft bass guitar sounds. This can indicate clock jitter problems if they are very bad.

6 Play a solo voice with some room reverb and listen for changes in the centering of the stereo image or ambiance. Differential delays between channels can be detected very sensitively this way.

7 Lastly I would play my best-loved piece of music and decide if there was any loss of actual enjoyment in listening to it. Does it actually 'feel' the same?

If a unit passed all these sound tests without a problem, I would be happy to have it in my home and would feel confident that it would not annoy me too much.



24-bits make the Genex GX8000 a firm favourite in classical circles

contain the circuitry required to produce outstanding quality, especially under adverse conditions due to interconnections and the like.

For instance, the converters we currently supply with our high-end studio equipment contain more circuitry and signal processing than you would find in a complete outboard effects box! It would be unreasonable to expect this level of sophistication in an internal converter in a DAT machine.

Some outboard effects units offer the ability to be used as extra converters. An important thing to remember when using

this function is that there may be extra processing still active in the device. Low frequency removal filters or EQs set to 'flat' can still adversely affect frequency response, phase, and noise.

And there we leave it. We hope that you come away from this article with a little more understanding of digital audio technology, and the issues associated with it. Sometimes a bit of theory is necessary to get your head prepared for the real thing. Many thanks to Sony's Paul Frindle, whose enthusiastic response to this article made it possible. ■

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DIY PROJECT: SYNTH OVERDRIVE

Want to turn your weedy-sounding synth into a screaming beast? Geoff Waterston shows you how

This month we're going to construct an overdrive unit that will fatten out even the thinnest of synth sounds. If you've ever used guitar pedals for this purpose, you'll know that they're far from ideal. Guitar pedals need a lot of gain to amplify the weak signal from the guitar's pickups, which generates lots of noise, and sometimes, mains hum. They also use distortion methods that produce lots of harmonics from a simple sound, but because synths generate harmonically complex sounds, using guitar pedals can lead to pretty ugly results that don't sound very musical.

Circuit design

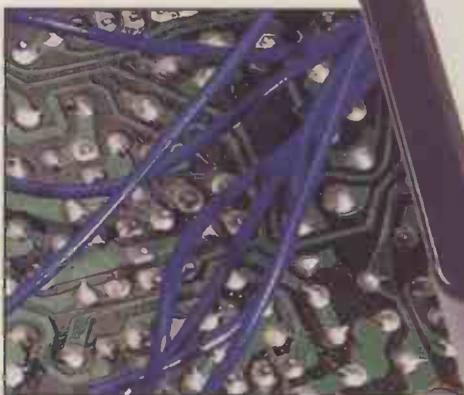
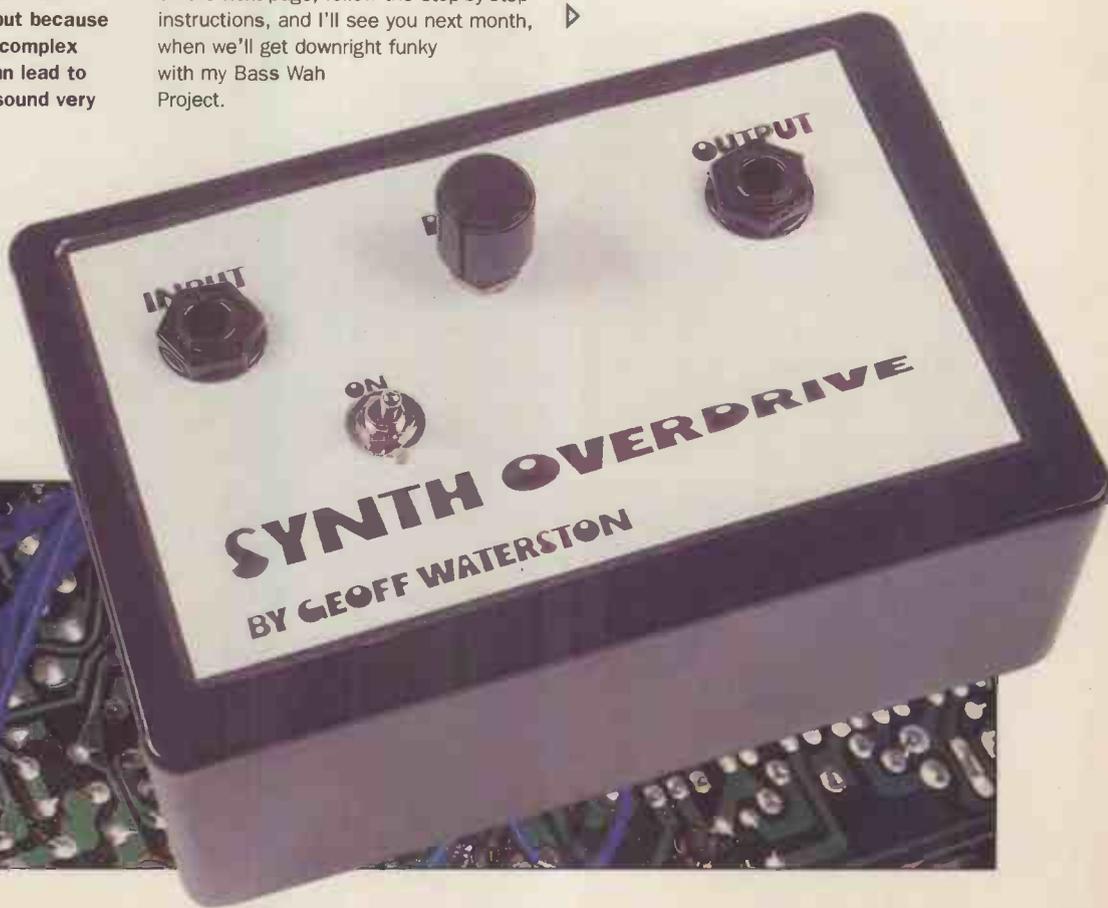
The circuit I have designed is based around a dual op-amp and two FET transistors. The op-amp provides a gain of about five, which is enough to overdrive the FETs from a line-level signal. I have used FETs because they have a similar

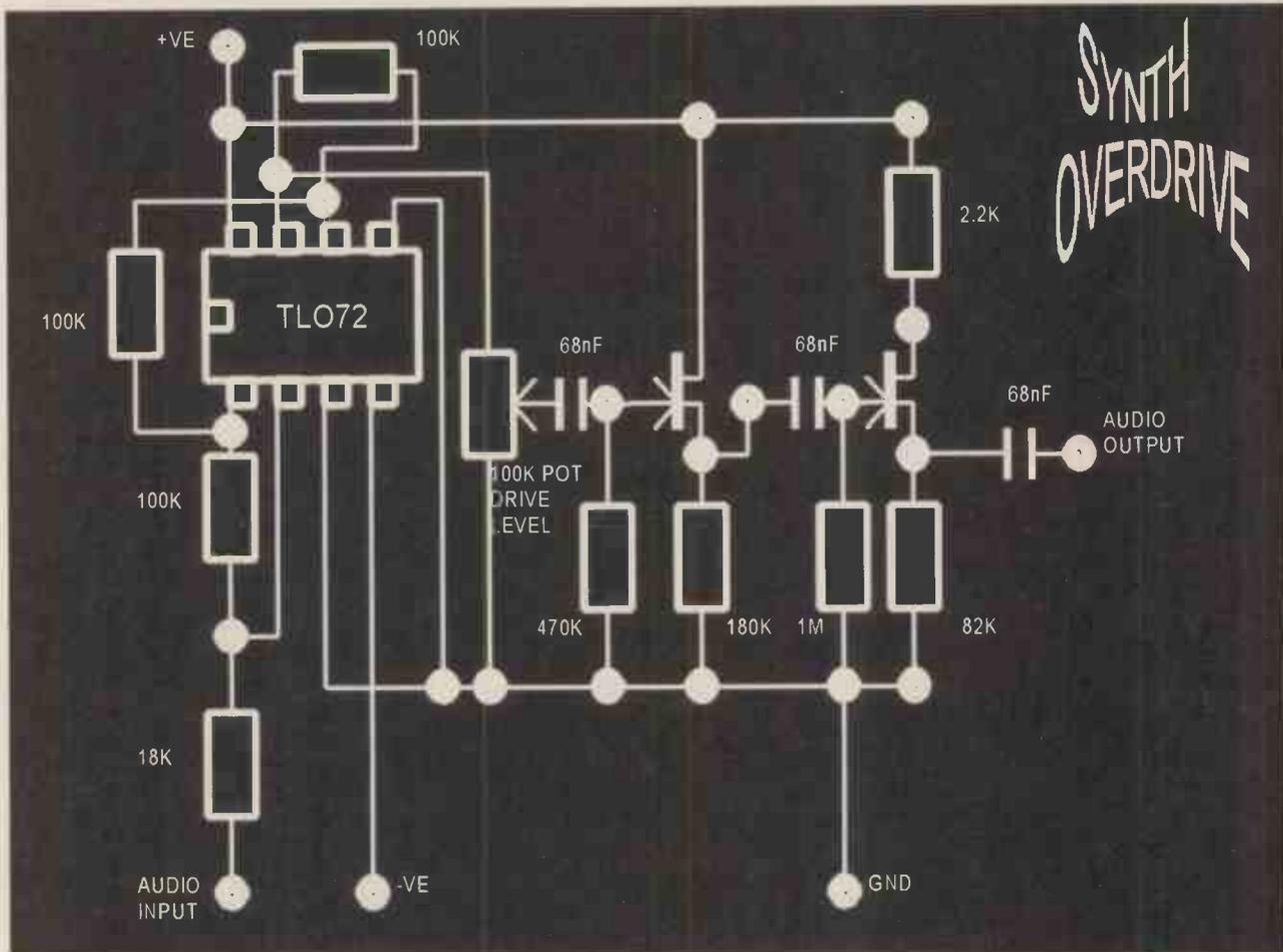
character to triode valves; when they are slightly overdriven they produce second and third harmonic distortion, which is very musical and tends to fatten the sound out a lot. When the FETs are driven a little harder they start to act as a crude level limiter, which can also be a desirable effect.

So, get your parts together from the list on the next page, follow the step-by-step instructions, and I'll see you next month, when we'll get downright funky with my Bass Wah Project. ▶



Geoff's synth overdrive beats the pants off using a guitar pedal





Due to massive demand, we regret that we are unable to photocopy previous installments of the DIY Project series. Please contact the Backissues Hotline on 01458 271 122 to order any required issues.

BUILDING STEPS

- 1** Solder the IC socket into the vero board and make all the ground and power connections with short lengths of wire.
- 2** Solder all the resistors into the vero board.
- 3** Solder the capacitors into the vero.
- 4** Solder the two FETs into the vero board, being careful not to heat them for more than three seconds at a time, otherwise you may damage them.
- 5** Solder the jack sockets and the pot to the vero board with short lengths of wire.
- 6** Attach the battery connectors.

PARTS LIST

SEMICONDUCTORS

- 1 X TL072 op-amp
- 2 X 2N3819 FET

RESISTORS

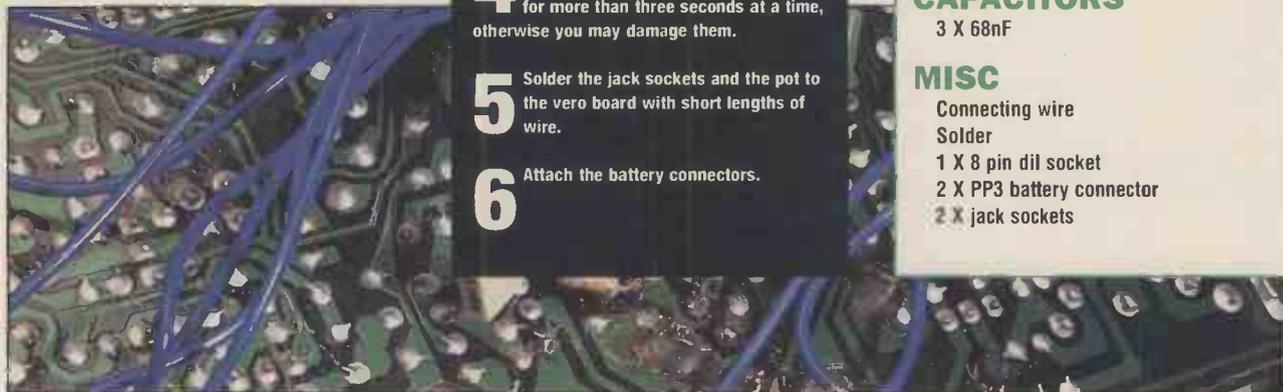
- 1 X 2.2k
- 1 X 18k
- 1 X 82k
- 3 X 100k
- 1 X 180k
- 1 X 470k
- 1 X 100k pot linear

CAPACITORS

- 3 X 68nF

MISC

- Connecting wire
- Solder
- 1 X 8 pin dil socket
- 2 X PP3 battery connector
- 2 X jack sockets



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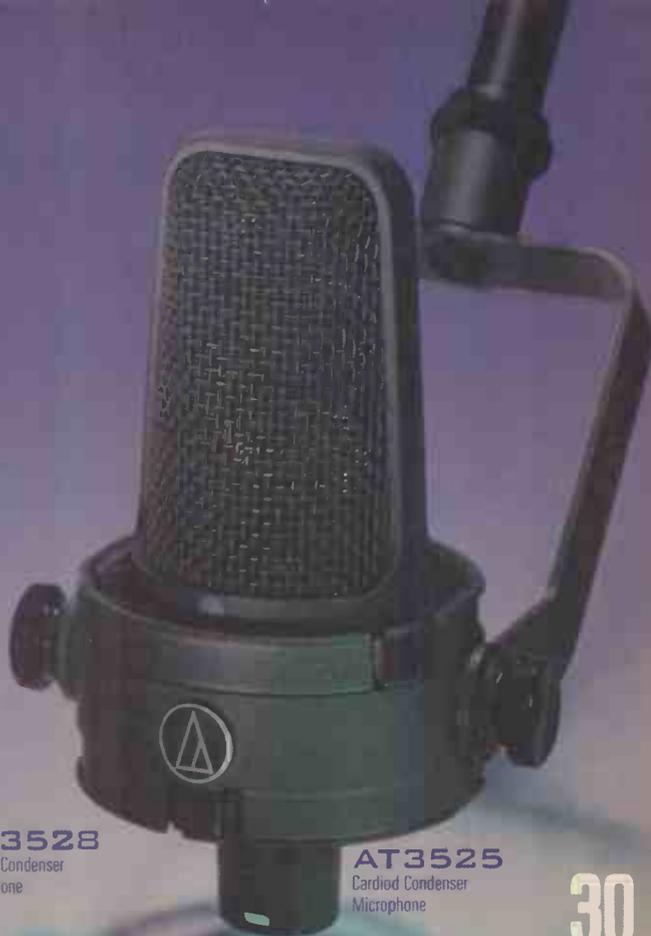
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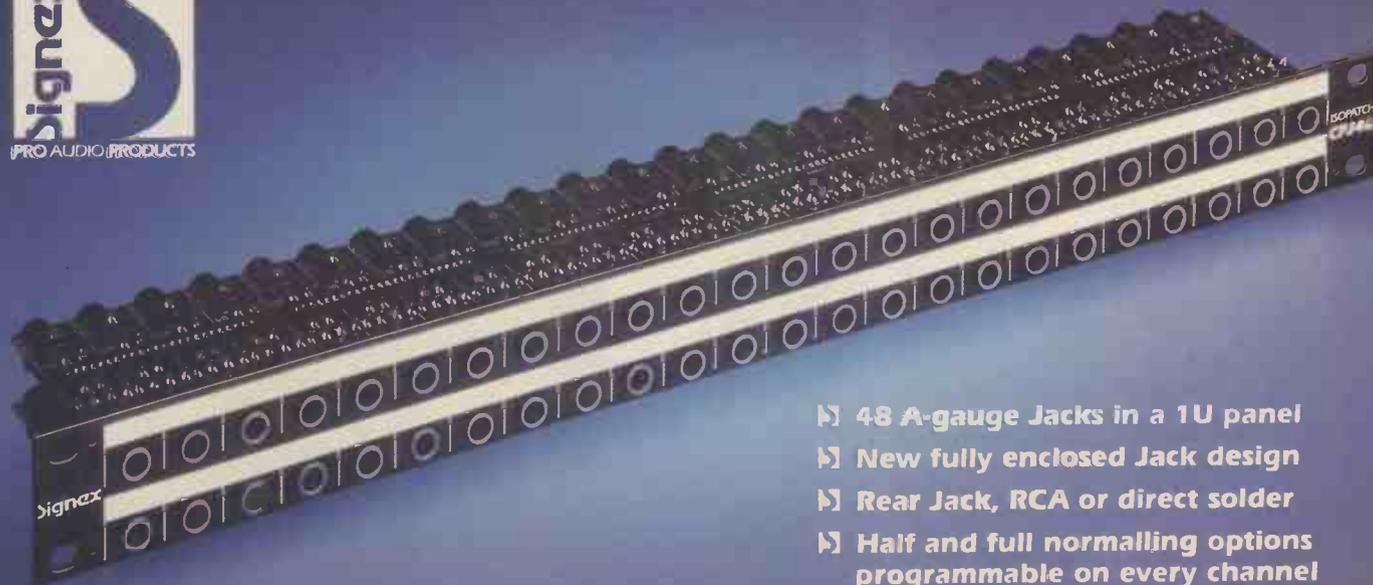
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Welcome to the inner sanctum of *The Mix's* A&R Department, where Nick Serre scrutinises your CD, cassette, DAT and vinyl demos for signs of musical and production talent.

DEMO OF THE MONTH

STEVIE G THE VIBE

Stevie G, a.k.a. Neil Buttin, is in possession of a serious amount of kit. He's also in possession of a serious amount of talent for producing dance/pop music. Stevie has been working with Stephanie Patak, a sultry vocalist, for a mere two months, but has churned out a 4-track demo of pulsating and energetic toons which smacks of a duo that have been together for years. Incessant vocal hooks and exciting melodies make this a many-listen experience. Opener 'The Vibe' kicks off with vaguely eerie vocals and pads, before a catchier-than-hell rhythm track enters the fray. Stephanie's addictive vocals fit perfectly with the track, and the sounds themselves are mind-boggling - partially to do with the abundance of cool studio gear that Stevie uses (LA Audio compressors, Focusrite EQ, to name but two) along with his obvious absorption of top-notch pop production techniques. The following three tracks are various mixes of 'Look Into Your Heart', a serene pop ditty (again), akin, in parts, to Kylie or St.

Etienne. That's no criticism, though; the whole production is a perfect slice of commercial Top 10 calibre pop. The 'Jungle Mix' and 'House Mix' of the same track take it into another dimension amicably, demonstrating Stevie's obvious prowess for remixing and producing. In all, a demo that shows true originality combined with astute pop sensibilities. This deserves to get signed. Now. But let's see what the professionals reckon...

More from: Neil Buttin Tel: 01773 540234



PROFESSIONAL VERDICTS

Stevie G definitely sets out his stall on this demo, producing well-constructed dance pop with obvious commercial leanings. He does, however, have the unenviable task of competing in a field in which all of his peers (with the exception of St. Etienne) seem to have the head start of at least a bit-part in an Australian soap opera to their name. And that's before they contemplate entering into the gladiatorial arena that is today's pop market.

What am I paying attention to? The singer, the material, the productions? None have any distinctive quality that makes me pay attention - the 'X Factor' in so many very different successful records and artists. The productions are competent, but our business suffers a glut of competence and a famine of genius. However, big labels often chuck silly money at this sort of thing, so Stevie G may crack it.

• Sam Winwood, A&R, Sony S2

• Stu Lambert, Partner, Zip Dog Records

RALE DEMO

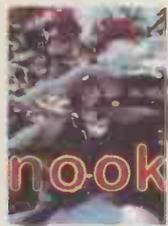


This demo has to be mentioned on the novel basis that it arrived on my desk contained within a box of latex gloves!

Not that I'm suggesting it's a publicity stunt to be employed regularly – I mean, how many latex gloves does a guy need? The real reason for including Rale's demo on these hallowed pages is that there's some seriously cool and original work going on here. Opening track 'Foolish' is a quirky distillation of drum & bass, techno, and industrial dance, all cemented together with nifty vocal samples and sweeping pads. Rale's kit list is fairly unassuming; oldish Yamaha and Roland sound modules are the mainstay of the set-up. But combining them with live guitars and bass culminates in a fresh and wholly unique style. 'Basic' is altogether darker, with male vocal inflections that are, quite simply, scary. Full marks are awarded to the production of this anthemic track; the hard drum & bass rhythms melding with syn-copated live bass hint at an anarchic attitude spearheaded by Tricky and the like. Trouble is, with tracks of this nature, you can really stretch them out – something Rale haven't exploited to the full on this tape. Aside from that, this is an intelligently-compiled effort which would warrant interest from record companies, if it were in the hands of a suitable producer.

Verdict: Sassy and original 7/10
More from: Eamon Fitzgerald Tel: 0161 747 0142

NOOK DEMO



After receiving critical acclaim from yours truly last spring, Michael Judge returns to the fray renamed, and (to an extent) revamped, as Nook (his previous incarnation being Blueberry Sands). This three track demo proves that

Michael is ever-evolving as a composer and producer, and has taken on board a broader range of influences, while taking some (well calculated) risks on the way. 'Shen Jing' is as spooky as anything, and completely endearing. "Took a lot of time to get the balance right" professes Michael, and I'm happy to report that he's made a first class, and valiant, attempt. There are sparks of genuine originality here, epitomised by the judicious use of sampling and instrumentation on 'Palmy Days', a lilting and wonderfully atmospheric blend of electronica and dub. He's got the balance just right, too; all those dub synth sounds playing off an inspired pipe riff work a treat. One omission is that of a vocal element for the tracks. To his credit, Michael is well aware of this, and is considering hiring a vocalist or using vocal samples to heighten the tracks even further. I think this would be a wise move, as the tracks would undoubtedly benefit from this addition. Not that the tracks aren't strong enough in themselves, but vocals would give the material an even stronger edge.

Verdict: Original and inspired 8/10
More from: Michael Judge Tel: 01629 813259

DARREN MICHAEL FURY BREATHING



“Yes, rockers do read *The Mix*” proclaims Darren Michael Fury, and I'm pleased to hear it. I'm also pleased to hear this demo, which is an exquisitely manufactured piece of FM friendly rawk. Of the 11

tracks supplied (on CD, with full artwork – these guys obviously mean business), the title track is possibly the strongest; albeit in a mid '80s kind of way. Swelling synth pads and synthetic-sounding guitars meld with Darren's brooding vocals. The vocal arrangement is particularly impressive, and sits well in the mix with the other parts. The song, like the bulk of the others, builds at a steady pace, with additional parts added at just the right time. 'Time Machine' is a much heavier affair, kicking off with a Van Halen-esque rock guitar riff and gruff vocals. But then it turns into lighter territory for the verses – strange, but equally compelling. The team use 16 tracks of ADAT, Mackie desk, Lexicon multi-effects, and a Korg X3 synth. Given this (slightly) limited kit, the band prove that as long as song structures are strong, you don't need a flash set-up to produce quality material. The guys are likely to be a great live act too, and regular gigs would aid them in honing their fine songs even further.

Verdict: Cool, if slightly dated, rock 7/10
More from: William Langdale Tel: 01623 843366

BUDDAHEAD BERSERKER



This London duo have already received a fair bit of record company and management interest, and it's easy to see why. Raman Kia and Amir Alam teamed up in 1996, and following advice from a former Radio 1 producer, they

took their feverish music to New York, where they were picked up by music lawyer Howard Siegel. After garnering interest, the duo moved back to Blighty to work with producer Joel Monger (of Bush fame), with the aim of "creating a more commercially viable side to balance the eccentricity of the New York recordings." Boy, have they done that – big style. Opener 'Sunshine' is a sizzling blend of rock and techno, with commercial pop elements to boot. Errol Brown of Hot Chocolate has apparently been involved in an advisory capacity, and, let's face it, with his current re-success, he's a handy guy to have around. The production and arrangements are, perhaps unsurprisingly, first-rate, and pretty esoteric in places. 'Lies' kicks off with manic guitars, perfectly complemented by a stonking drum pattern. The boys really show their forte in this field. Unfortunately, it doesn't sound live – but it's great nonetheless. Raman's vocals have a real original grainy quality, akin, in parts to Feargal Sharkey. But enough of comparisons, Berserker is unique. And brilliant.

Verdict: Tastefully bonkers pop/ rock 8/10
No contact details supplied

OLIVER SHEEN DEMO



This should be an interesting one: Oliver lists his influences as Stevie Wonder, Billy Joel, Bee Gees, Barry Manilow and Rachmaninov. The latter is probably due to the fact that by day (or by night, but you know what I mean) he is a

cabaret pianist in a swish London hotel – a job which has financed his rather impressive studio rig, which includes Yamaha's ProMix 1, and a good array of synth modules. Oliver has a firm grasp of arrangement and production techniques, and isn't afraid to take a few risks. However, he should take a few more to pull the music out of the easy listening category. Maybe that's where he wants to be, but there are a fair few musical and lyrical clichés going on here, leaving a cheesy taste in the mouth. Some live drums would help out a tad, as Oliver seems to have gone a smidgen overboard on the programming to make them sound convincing. Sorry, but it never quite works. Oliver's ambition is to get a distribution deal, and then tour the material around the world. Quite an ambition, but the material could certainly work on a circuit of some description. He doesn't say whether he's after stadium gigs or cabaret clubs, but at the moment it'll be the latter. Trying pushing a few barriers if you're after the former. Oliver, because I, for one, am sure you have the ability.

Verdict: Tasty cheese in need of maturing 7/10
More from: Oliver Sheen Tel: 0181 854 0695

A&R CHECKLIST

We receive a mountain of tapes every month, so to maximise your chances of having your demo reviewed (and if you're really good, getting on *The Mix* CD) you need to provide the following:

- Decent quality cassettes, preferably chrome (type II)
- A kit list of the gear used to produce the demo
- A biography of the act. We want to know all about you
- Artwork. This can be a picture of the act, or a groovy graphic
- Lastly, send us cool music that deserves to be going places...

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In the market for new studio kit? Well, we've made your life easier by listing every recording product, along with their prices and main features. The things we do for you!

HOW TO USE IT



MANUFACTURER	MODEL	PRICE	FORMAT	DESCRIPTION	REVIEW
TL Audio	M2	£4994	8:2	As M1 mixer, but with faders and direct outs	
Vestax	RMC-88	£395	8:2	Rackmount, 3-band EQ, 3 sends	
MANUFACTURER	MODEL	PRICE	FORMAT	DESCRIPTION	REVIEW
Yamaha	MC2410M	£4149	24:1	24-channel monitor mixing console	
Yamaha	MM1242	£749	12:2	Rackmount mixer, 4 sends	
Yamaha	MM1402	£429	14:2	Mic pre-amps, 3-band EQ, 2 sends, 2 stereo returns, 5-band graphic EQ	Nov 96
Yamaha	MVB02	£489	8:2	Rackmount mixer, 2 sends	
Yamaha	Programmable Mixer 01	£1599	18:2	20-bit AD/DA, 2 effects, 3 dynamics processors, parametric EQ, MIDI automation	Jul 94

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SOUND GEAR

FORMATS: Every studio should have a keyboard of some kind. Synthesizers and keyboards include standard 'playback' sample-based keyboards as well as more traditional synthesizers. Workstations combine some kind of sound synthesis with a keyboard, sequencer and effects for the ultimate all-in-one solution. Sound modules cover everything without a keyboard, ranging from computer sound modules to sophisticated workstations and analogue synthesizers. Modules may be desk-top, 19-inch rackmount or non-standard. Electronic percussion includes drum machines and percussion modules, and those controllers specific to their use.

POLYPHONY: More is generally better, though the number of notes you can play may be limited in some way by the multitimbral mode and arrangement.



SYNTHESIZERS & KEYBOARDS

MANUFACTURER	MODEL	PRICE	POLYPHONY	DESCRIPTION	REVIEW
Alesis	QS6	£949	64	Affordable synth featuring Quadrasynth sounds	Apr 96
Alesis	QS7	£1299	64	QS synth with 76 keys and a few added extras	May 97
Alesis	QS8	£1699	64	Heavyweight QS synth with 88 keys	May 97
Casio	GZ-500	£399	32	61 key GM keyboard with speakers, pitch bend wheel	Aug 96
Clavia	Nord Lead Classic	£999	4	Physical-modelling synth recreating analogue sounds	Jul 95
Clavia	Nord Lead 2	£1495	16	As above, but new, shiny and improved	Sep 97
Gem	RealPiano	£999	64	88 weighted keys with 8 piano-based sounds, 25W amplification	Nov 96
Kawai	K11	£1049	32	128 GM sounds, other presets, drums, 2 MIDI Ins/Outs, Mac interface	
Kawai	K5000S	£2000	32	61 keys, 4-part multi, 256 presets, 4 outputs, advanced-additive synthesis	Mar 98
Korg	Prophecy	£999	1	High-end virtual monosynth	Oct 95
Korg	X5	£799	32	Keyboard version of O5R/W mini-rack module	
Korg	X5D	£899	64	8Mb wave memory, 61 keys, 47 effects through 2 processors	
Korg	Z1	£1699	12	Multi-oscillator synthesizer	Nov 97
Kurzweil	PC88	£1889	32	48 sounds with 88-key monitor keyboard and digital effects	
Kurzweil	PC88MX	£2395	64	Double polyphony and 205 more programs than PC88	
Oberheim	Eclipse	£1779	32	88-key-weighted keyboard synth	
Peavey	DPM2	£999	16	Good sounds - optional upgrade to include sequencer	
Quasimidi	The Raven	£1599	21	Techno-g geared synth with good sounds and innovative controllers	Mar 96
Roland	JP-8000	£1199	8	A Jupiter-8 for the digital age	Mar 97
Roland	JV-35	£999	24	Expandable synth, though keyboard lacks aftertouch	
Roland	JV-35EX	£1149	56	As JV-35 with polyphony doubling VE-JV1EX5 card	
Roland	JV-90	£1399	24	Expandable synth, 76-key	
Roland	JV-90EX	£1555	56	As JV-35 with polyphony doubling VE-JV1 card	
Roland	JX-305 Groovesynth	£949	64	Dance-oriented synth with real-time control	
Roland	XP-10	£399	28	318 presets, 61 keys, arpeggiator	
Spectral Audio	ProTone	£399	1	Monosynth	
Technics	SX-WSA1	£2499	64	Sophisticated physical modelling synth	Feb 96
Yamaha	AN1x	£899	10	Virtual analogue synth	Aug 97
Yamaha	CBX-K1XG	£339	32	Combined mini-key controller keyboard and XG tone generation	
Yamaha	CS1x	£599	32	Low-cost keyboard with high quality sounds	Aug 96
Yamaha	EX5	£1899	128	76 keys with 4 types of synthesis, as well as sampling	
Yamaha	EX7	£1399	128	61 keys with 4 types of synthesis, as well as sampling	
Yamaha	VL-1	£3499	2	Virtual acoustic synth	
Yamaha	VL-7	£2199	1	Monophonic 'budget' VL1 physical modelling synth	

WORKSTATIONS

MANUFACTURER	MODEL	PRICE	POLYPHONY	DESCRIPTION	REVIEW
Emu	E-Synth	£2999	64	Sampling workstation, combining on-board sounds, sampling and real-time control	
Ensoniq	KS32	£1599	32	Machine with features of SQ2 and weighted keys	
Ensoniq	KT76	£1999	64	76-key weighted key action with piano sounds	
Ensoniq	K788	£2149	64	88-key weighted-key action synth with piano sounds	
Ensoniq	MR61	£1749	64	455 sounds, 16-track sequencer and disk drive	Jan 97
Ensoniq	MR76	£1999	64	As above, but with 76-note keyboard	Jan 97
Ensoniq	SQ-1 Plus	£899	32	180 sounds, 24-bit effects, only velocity-sensitive keyboard	
Ensoniq	SQ-2	£1099	32	Adds aftertouch and 76 extra keys to SQ-1	
Ensoniq	TS10	£1999	32	300 sounds, 254 waveforms, 24-track sequencer, 74 effects algorithms, disk drive	
Ensoniq	TS12	£2199	32	76-note version of TS10	
Gem	S2 Turbo	£1499	32	With fully usable sequencer section	
Gem	S3 Turbo	£1799	32	Larger version of S3 with 76-note keyboard	
Gem	SX2	£1626	32	61-key workstation with video features	
Gem	SX3	£1826	32	76-key workstation with video features	
Kawai	K5000W	£1750	32	Workstation incarnation of the K5000S	Feb 97
Korg	i1	£3999	32	88 keys with unique variable keyboard function	
Korg	i2	£2199	32	As below but with 76 keys	
Korg	i3	£1899	32	PCM memory, multi effects, sequencer accompaniment	
Korg	i4s	£1499	32	Scaled down version of i3 with built-in speakers	
Korg	i5s	£1099	32	Budget interactive workstation	
Korg	iX300	£1344	32	Updated member of Korg's interactive workstation family	
Korg	N264	£1499	64	An N364 with a 76-note keyboard	Dec 96
Korg	N364	£1299	64	Korg takes the X workstation to the next generation	Dec 96
Korg	Trinity	£1999	32	61-key workstation with 256 sounds and touch screen	Dec 95
Korg	Trinity Plus	£2795	32	As Trinity with built-in Prophecy card	Feb 97
Korg	Trinity Pro	£3195	32	76-note version of Trinity with Prophecy card	Feb 97
Korg	Trinity ProX-88	£4795	32	88-note weighted version of Trinity with Prophecy card and hard-disk recording	Feb 97
Kurzweil	K2vx	£2995	24	Updated K2000 with new set of sounds	Oct 96
Kurzweil	K2000	£2250	24	Classic sound now updated with V3.0 sampling software	
Kurzweil	K2000SE	£3499	24	Fully-expanded K2000 system with sampling sound blocks, flash RAM and a fan	

MANUFACTURER	MODEL	PRICE	POLYPHONY	DESCRIPTION	REVIEW
Kurzweil	K2500	£2999	48	Latest version of K2000 series, double polyphony, improved sounds	
Kurzweil	K2500/76	£3499	48	76-note version of K2500	
Kurzweil	K2500/88	£3799	48	88 note version of K2500 with real time controllers	
Kurzweil	K2500SE	£4499	48	Fully expanded K2500 with sampling, flash RAM, sound blocks and fan	
Kurzweil	K2500X	£3999	48	76-note weighted key version of K2500	
Peavey	DPM2Si	£1399	32	76 keys, 8Mb ROM samples, 80,000 note sequencer, 10 drumkits, 4 audio outs	
Peavey	DPM3-SE plus	£1499	16	Version of DPM2 with sample memory	
Peavey	DPM4	£1999	16	Expanded version of DPM3 with extended keyboard	
Roland	G-800	£1999	64	76-key 'intelligent', auto-arranging	
Roland	JV-50	£1285	24	Expandable, with built-in MIDI file sequencer though keyboard lacks aftertouch	
Roland	JV-50EX	£1399	56	As JV-50 with polyphony doubling VE-JV1EX5 card	
Roland	XP-50	£999	64	61-key version of the JV-1080 with sequencer	Apr 95
Roland	XP-80	£1499	64	Updated XP-50 with more outs and an arpeggiator	Jun 96
Solton	MS50	£1799	28	61-key workstation, 256 GM sounds, 128 user memories, video out for karaoke	
Solton	MS60	£1999	28	61-keys, 256 GM sounds, 128 user memories, video out for karaoke, live oriented	
Yamaha	QS300	£1099	32	Advanced workstation with loads of playing features	
Yamaha	W5	£1649	32	76-key sample playback workstation	
Yamaha	W7	£1399	32	61-key sample playback workstation	Mar 95

MODULES

MANUFACTURER	MODEL	PRICE	POLYPHONY	DESCRIPTION	REVIEW
Akai	EWI3020m	£599	1	Mono wind sound module	Feb 95
Akai	EWI3030m	£750	1	Waveform-based wind sound module	Feb 95
Akai	SG01k	£299	32	Budget GM sound module	Apr 96
Akai	SG01p	£299	32	Budget piano module	Mar 96
Akai	SG01v	£299	32	Budget vintage synth module	Jun 96
Alesis	NanoBass	£249	64	64-voice stereo bass module	Oct 97
Alesis	NanoPiano	£339	64	64-voice stereo piano module	
Alesis	QSR	£749	64	Sound module with expandability options	Jul 97
Alesis	S4 Plus	£899	64	Rackmount piano module	
Blue Chip Music Technology	OX 7	£999	tbc	Hammond B3 soundlike organ module with effects and 32 memories	
Casio	GZ-50M	£199	32	Low-cost GM module with effects	Nov 95
Clavia	Nord Rack	£1295	4	Rack version of the Nord Lead VS analogue synth	
Control Synthesis	Deep Bass 9	£449	1	Analogue bass module	Nov 94
Doepfer	A-100	from £699	n/a	45 module expandable analogue modular patch synth	Feb 97
Doepfer	MS-404	£345	1	'Real' rackmount synth, TB-303 analogue clone	
E-mu	Carnaval	£899	32	Latino sound module	Aug 97
E-mu	Classic Keys	£648	32	Rackmount classic synths sound module	Feb 95
E-mu	Morpheus	£1199	32	Z-plane synthesis module with filter effects	
E-mu	Orbit	£869	32	Dance-based sound module	Jul 96
E-mu	Planet Phatt	£899	32	Swingbeat and funk sounds in Orbit-like rack unit	Aug 97
E-mu	Pro-formance 1+	£359	32	Rack module with more sounds than standard unit	
E-mu	Proteus 2 Orchestral	£810	32	Orchestral sound module with 192 presets	
E-mu	Proteus 2 XR	£975	32	Orchestral sound module with 512 presets	
E-mu	Proteus FX	£610	32	Proteus sounds and digital effects	Aug 94
E-mu	UltraProteus	£1499	32	Proteus sounds with Z-plane filtering	Nov 94
E-mu	Vintage Keys Plus	£1055	32	Classic keyboard sounds module	
Ensoniq	MR-Rack	£1299	64	Flexible synth box	Jul 96
Exclusively Analogue	The Aviator	£950	3	Semi-modular analogue synth	Apr 96
FAT	Freebass 383	£199	1	TB-303 emulation	
Gem	RealPiano Expander	£449	64	Module version	Aug 97
Gem	S2R	£1399	32	Rackmount version of S2 synth plus Turbo kit	
Hammond	GM-1000	£549	32	True Hammond organ samples	
Hammond	XM1	£799	64	Digitally-programmable Hammond sounds in a box	Oct 96
Kawai	GMega	£689	32	GM/SP banks, 14 drum kits, Mac interface	
Kawai	GMega XC3	£384	28	Cut-down GMega with no panel controls	
Kawai	K5000R	£999	32	Rackmounted additive synthesis module	
Korg	i5m	£899	32	Desktop workstation with harmonies and accompaniments	
Korg	NS5R	£599	64	Desktop module that goes way beyond the usual GM limitations	Apr 97
Korg	05R/W	£499	32	128 presets, effects, Mac/PC/MIDI interface	
Korg	SG-Rack	£699	64	Piano module with 64 presets, effects, split/layer options	May 98
Korg	TR-Rack	£999	32	32Mb sound ROM, 1024 presets, 16-part multitimbral	Apr 98
Korg	X5DR	£675	64	Rackmount version of X5D keyboard	Jul 95
Kurzweil	K2000R	£2250	24	Hi-spec module with sampling, SCSI, 10 outputs	
Kurzweil	K2000RSE	£3499	24	Fully expanded K2000R	
Kurzweil	K2500R	£2999	48	New version of K2000R with doubled polyphony	Sep 95
Kurzweil	K2500RSE	£4499	48	Fully expanded K2500R	
Longwave Instruments	Pocket Theremin	£99	1	Pitch-only version of the classic synth	
Marion Systems	MSR2	£1299	8	Expandable analogue synth module	
Marion Systems	ProSynth	£699	8	Multitimbral analogue rackmount	Jun 95
MIDiman	Gman	£199	24	GM/GS compatible module	
Novation	Super Bass Station	£449	1	Much improved on the original keyboard, complete with arpeggiator	Aug 97
Oberheim	Matrix 1000	£379	6	Loads of fat analogue sounds, but no multi mode	
Oberheim	OBMX	£1500	2	2-voice rackmount, extra 2-voice cards @ £500 each	
Orgon	Enigiser	£469	1	No MIDI	Dec 96
Peavey	Paradox Valve	£tbc	1	Triple-oscillator analogue monosynth with valves on its output	
Peavey	Spectrum Bass II	£350	8	Rackmount bass synth module	Spr 97
Peavey	Spectrum Organ	£349	32	Organ rack module with rotary speaker sim	Aug 95
Peavey	Spectrum Synth	£349	12	Rackmount sample playback synth module	Oct 95
Quasimidi	Quasar	£1099	21	Flexible-structure synth module	Oct 94
Quasimidi	Rave-O-Lution	£649	16	Synthesizer and arranger	Aug 97
Quasimidi	Technox	£749	21	Techno/dance-oriented synth module	Apr 95

MANUFACTURER	MODEL	PRICE	POLYPHONY	DESCRIPTION	REVIEW
Roland	GR-30	£649	28	Budget guitar synth, needs GK-2A pick-up	Jul 94
Roland	JV-1080	£999	64	Expandable Super JV synth module	Dec 94
Roland	JV-2080	£1399	64	A JV-1080 with more effects, more sounds, graphics and 8 expansion slots	Apr 97
Roland	M-BD1	£399	28	Sampled drums and live bass sound module	May 97
Roland	M-DC1	£499	28	Preset dance module with T+S rhythm loops	Sep 95
Roland	M-GS64	£599	64	Preset-based GM synth module	Nov 95
Roland	M-OC1	£499	28	Preset orchestral module	Sep 95
Roland	M-SE1	£499	28	Preset string module	
Roland	MT 120S	£899	24	Sequencer with built-in sounds and speakers	
Roland	MT 80S	£499	24	MIDI file player	
Roland	M-VS1	£499	28	Preset vintage synth module	Sep 95
Roland	SC-55ST	£365	28	Sound Canvas with 354 sounds, 10 drumkits	
Roland	SC-7	£290	24	DTM-g geared sound module for Macs and PCs	
Roland	SC-88	£869	24	Super Sound Canvas with better editing	Jan 95
Roland	SC-88Pro	£699	64	Super Sound Canvas with effects and over 1000 sounds	Jun 97
Roland	SC-88VL	£649	64	Super Sound Canvas with effects and 654 sounds	
Roland	SD-35	£785	24	Combined file-player and sound module	
Roland	VG-8	£1999	6	Virtual modelling guitar system	Oct 95
Solton	MS40	£1499	28	256 GM sounds, user memories and video output for karaoke	
Spectral Audio	ProTone	£399	1	Analogue rack with reduced MIDI spec	Sep 96
Studio Electronics	ATC-1	£799	1	Rackmount analogue monosynth	May 97
Studio Electronics	SE-1	£1522	1	Rackmount programmable Minimoog clone	
Syntecno	TeeBee	£529	1	Mono sound, loads of CV/gate support	Mar 97
Technics	SX-WSA1R	£2199	64	Acoustic modelling rack version of WSA1	
Waldorf	Microwave II	£999	8	Highly programmable rack synth	
Waldorf	Pulse	£599	1	Highly programmable analogue synth	Feb 96
Waldorf	Pulse Plus	£700	1	Expanded Pulse, extra analogue sync and external source options	
Will Systems	MAB-303	£399	1	303 clone	
Yamaha	EX5R	£1399	128	4 types of synthesis, as well as sampling	
Yamaha	MU5	£199	28	Entry-level GM in Walkstation style, but without sequencer or effects	Apr 95
Yamaha	MU50	£349	32	Cut-down version of the MU80	Sep 95
Yamaha	MU80	£599	64	GM/XG module with big polyphony and external input	
Yamaha	MU90R	£549	64	Combination of Yamaha's soundcard technology to succeed the MU80	Spr 97
Yamaha	MU100R	£849	64	Combines sample playback with physical modeling	Dec 97
Yamaha	P50-m	£349	32	Piano module based on acclaimed Yamaha digital piano range	Feb 97
Yamaha	QY300	£599	tbc	GM sound module, sequencer and auto-accompaniment player in one	Sep 94
Yamaha	VL1-m	£2349	2	Rackmount version of VL-1 physical modeling synth	Dec 94
Yamaha	VL70-m	£499	1	Very affordable virtual synthesis module	Dec 96

ELECTRONIC PERCUSSION

MANUFACTURER	MODEL	PRICE	SOUNDS	DESCRIPTION	REVIEW
Alesis	DM5	£429	540	Drum module with 12 trigger inputs and 21 programmable drumkits	
Alesis	SR16	£249	233	Great sounding, but basic, drum workhorse	
Boss	DR-5	£319	96	Simple rhythm and bass line beat box	
Boss	DR-550 Mk II	£285	96	Updated and restyled version of classic Dr Rhythm	
Boss	DR-660	£459	255	Cost-conscious drum box with loads of sounds	
Clavia	ddrum3	£3600	n/a	Pro-spec electronic drumkit and trigger computer	
E-mu	Pro-cussion	£645	220	Massive-sounding percussion sound module	
JoMoX	XBase 09	£699	10	TR-909 clone	
Kawai	GB-2	£309	119	55 rhythms, 10 songs, card slot. Aimed at guitarists	
Korg	WD1 Wave Drum	£1995	100	Physical modelling UFO-like synth drum	Jan 95
Novation	DrumStation	£449	40	TR-808 and TR-909 sounds in a superbly programmable unit	Jul 96
Roland	TD-5K	£1095	210	As the TD-5K/P without the stand	
Roland	TD-5K/P	£1350	210	Basic electronic drum system with pads	
Roland	TD-10	£1399	654	Modular 'brain' of the V-Drum system	Apr 98
Roland	V-Drums	£2599	654	TD-10 module with PD100/PD120 pads, plus PD7, PD9, KD7, FD7 controllers	Apr 98
Yamaha	DD9	£100	55	Beginners drum-pad system, 4 pads, 10 rhythms	
Yamaha	RY20	£399	300	50 song presets, good sounds, effects and human groove feature	Oct 94
Yamaha	RY8	£189	128	Walkman-like drum machine with backings and styles	
Zoom	234 RhythmTrak	£199	174	Drum machine with pre-set patterns, bass sounds and 'groove' feature	

IN FOCUS: Clavia Nord Lead 2

Price: £1,495

Reviewed: Sept '97 (Editor's Choice)

The Nord Lead 2 took the original Nord Lead (now renamed the 'Classic'), and made it even better. Staying true to the analogue model, the Nord Lead may not offer as many bells and whistles as other virtual synths, but scores with its highly individual sound. Add to that the four audio outputs, its four-part multitimbrality and 16-note polyphony, and you have a synth perfect for studio use. If you can't stretch to the '2', you can now pick up a Classic for less than a grand.

Brief Spec

- 16-note polyphony
- 4-part multitimbral
- 49-note, velocity-sensitive keyboard
- 99 preset sounds and 100 performances
- Other features: arpeggiator, pitch bend, modulation, distortion
- Connections: 4 audio outputs, stereo headphones, MIDI In, Out and Thru, control pedal, sustain pedal





MICROPHONES

TYPE: Typically, condenser mics are more expensive than dynamic mics, but give higher sound quality. They require power to work, either from a battery or from phantom powering. Dynamic mics are more robust and so are generally used for live applications. Stereo mics can be either condenser or dynamic.

PATTERN: Mics have different directional responses: Omnidirectional mics respond to sound from all sides, unidirectional from just one direction. The latter category includes

cardioid, hypercardioid and supercardioid mics, which have more-or-less heart-shaped patterns. Figure-of-8 mics are bi-directional with two active and two 'dead' spots. You can change the capsule on some mics to get a variable response.

FREQUENCY RESPONSE: Mics pick up sound over certain frequency ranges. Condenser mics generally have the widest frequency response, though many mics are optimised for the intended purpose (vocals, acoustic instruments, drums).

CONDENSER MANUFACTURER	MODEL	PRICE	DESCRIPTION	REVIEW
AKG	C 12 VR	£3700	Large twin diaphragm, 9 patterns, 30Hz-20kHz, 2 filters, PSU	
AKG	C 391 B	£351	Cardioid, 20Hz-20kHz, LF roll-off filter, phantom powered	
AKG	C 411	£123	Vibration pick-up, 10Hz-18kHz, phantom powered	
AKG	C 411 B-Lock	£88	Battery-powered version of C 411	
AKG	C 414 B-ULS	£1174	Large twin diaphragms, 4 patterns, 20Hz-20kHz, LF roll-off filter, phantom powered	
AKG	C 414 B-TL II	£1231	Transformer-less version of C 414 B-ULS for vocals	
AKG	C 416	£159	Hypercardioid, 20Hz-20kHz, phantom powered	
AKG	C 416 B-Lock	£118	Battery-powered version of C 416	
AKG	C 418	£159	Hypercardioid, 50Hz-20kHz, phantom powered	
AKG	C 419	£159	Hypercardioid, 20Hz-20kHz, battery or phantom powered	
AKG	C 419 B-Lock	£123	Battery-powered version of C 419	
AKG	C 420	£182	Cardioid, 20Hz-20kHz, battery or phantom powered	
AKG	C 420 B-Lock	£135	Battery-powered version of C 420	
AKG	C 460	£494	Interchangeable capsule mike that uses AKF CK capsule range (£207-519)	
AKG	C 460 B with ULS/61	£646	Cardioid, 20Hz-20kHz, LF roll-off filter, phantom powered	
AKG	C 480	£535	Interchangeable capsule mike that uses AKF CK capsule range (£207-519)	
AKG	C 535 EB	£452	Cardioid, 20Hz-20kHz, 2 filters, phantom powered	
AKG	C 1000 S	£199	Cardioid/hypercardioid, 50Hz-20kHz, battery or phantom powered	Oct 96
AKG	C 3000	£299	Cardioid/hypercardioid, 20Hz-20kHz, phantom powered	Oct 96
AKG	C 5600	£306	Cardioid, 20Hz-20kHz, 2 filters, phantom powered	
AKG	C 5900	£246	Hypercardioid, 20Hz-20kHz, 2 filters, phantom powered	Aug 94
Audio-Technica	AT3525	£260	Cardioid, LF roll-off filter, phantom powered, for studio vocals	
Audio-Technica	AT3527	£175	Omnidirectional, LF roll-off filter, phantom powered, for studio instruments	
Audio-Technica	AT3528	£175	Cardioid, LF roll-off filter, phantom powered, for studio instruments	
Audio-Technica	AT4041	£320	Cardioid electret, LF roll-off filter, phantom powered, for vocals, acoustic guitar	Oct 96
Audio-Technica	AT4043	£652	Cardioid electret, LF roll-off filter, for vocals	Oct 96
Audio-Technica	ATM15A	£150	Cardioid clip-on mic for acoustic instruments, battery or phantom powered	
Audio-Technica	ATM33A	£150	Cardioid electret, battery or phantom powered, for instruments and vocals	
Audio-Technica	ATM87R	£300	Unidirectional, LF roll-off filter, Integral pre-amp, phantom powered	
Audio-Technica	ATM89R	£200	Hypercardioid (other capsules available), 70Hz-20kHz, phantom powered	Mar 98
Audio-Technica	PRO35X	£140	Miniature clip-on instrument mic, phantom powered	
Beyerdynamic	MC 711	£528	Omnidirectional, 40Hz-20kHz, LF roll-off filter, phantom powered	
Beyerdynamic	MC 713	£586	Cardioid, 40Hz-20kHz, LF roll-off filter, phantom powered	
Beyerdynamic	MC 740	£1291	Large diaphragm, 5 patterns, 20Hz-20kHz, 3 filters, phantom powered	
Beyerdynamic	MC 834	£868	Cardioid, 2 filters, for vocals, acoustic guitar	Oct 96
Beyerdynamic	MCE 80 TG	£293	Cardioid, 50Hz-18kHz, battery or phantom powered	
Beyerdynamic	MCE 81 TG	£234	Cardioid, 50Hz-18kHz, phantom powered	
Beyerdynamic	MCE 83	£222	Cardioid, 40Hz-20kHz, phantom powered	Nov 95
Beyerdynamic	MCE 84	£269	Cardioid, 40Hz-20kHz, battery or phantom powered	
Beyerdynamic	MCE 90	£1bc	Cardioid electret, low-cut filter phantom powered, for studio vocals	
Beyerdynamic	MCE 91	£1bc	Hand-held version of MCE 90, but without low-cut filter, for live or studio vocals	
Beyerdynamic	MCE 93	£1bc	Electret, shock-mounting, phantom powered, for instruments	
Beyerdynamic	MCE 94	£1bc	Electret, shock-mounting, battery or phantom powered, for instruments	
Beyerdynamic	TG-X 30.15	£304	Omnidirectional electret, 30Hz-20kHz, head-worn	
Beyerdynamic	TG-X 35.15	£304	Cardioid electret, 40Hz-17kHz, head-worn	
Brüel & Kjær	4006	£1234	Mike with interchangeable acoustic equalisers (£67-106)	
CAD	Equitek E-100	£299	Supercardioid electret, 10Hz-18kHz, LF roll-off filter, battery or phantom powered	Feb 97
CAD	Equitek E-200	£449	2 cardioid, 3 pattern, 10Hz-18kHz, LF roll-off filter, battery or phantom powered	Feb 97
CAD	Equitek E-300	£699	2 cardioid, 3 pattern, 10Hz-20kHz, LF roll-off filter, battery or phantom powered	Feb 97
Earthworks	OM1	£499	Omnidirectional, 12Hz-22kHz, phantom powered, for acoustic guitar, electric bass	Dec 96
Earthworks	QTC1	£975	Omnidirectional, for ambient recording and delicate sources	
Earthworks	Z30X	£975	Cardioid, 30Hz-30kHz, for close-miked instruments and vocals	
Electro-Voice	RE 200	£279	Cardioid, for live or studio, vocals or instruments	Oct 96
Groove Tubes	MD1a	£599	Tube condenser, cardioid	Mar 96
Groove Tubes	MD2a	£989	Tube condenser, cardioid	Mar 96
Groove Tubes	MD3a	£1369	Tube condenser, cardioid, sub-cardioid, omni	Mar 96
Groove Tubes	MD5sc	£499	Cardioid, includes case and shockmount	
Langevin	CR-3A	£385	Cardioid, LF roll-off filter, for vocals	Oct 96
Neumann	KM100	£236	Interchangeable capsule mike that uses the AK capsule range (£640-808)	
Neumann	TLM 193	£999	Cardioid, for vocals	Oct 96
Oktava	MK210	£257	Now with lifetime guarantee	
Røde	NT1	£329	Cardioid, for vocals, instruments	Aug 97
Røde	NT2	£499	Omnidirectional/cardioid, LF roll-off filter, for vocals, acoustic guitar	Oct 96
Sennheiser	K6	£206	Powering module with bass attenuator, integral XLR connector	
Sennheiser	ME 62	£129	Omnidirectional capsule for K6 system	
Sennheiser	ME 64	£152	Cardioid capsule for K6 system	
Sennheiser	ME 65	£200	Supercardioid vocal capsule for K6 system	
Shure	BG4.1	£182	40Hz-18kHz, battery or phantom powered, for live or studio instruments	Spr 97
Shure	BG5.1	£182	70Hz-16kHz, battery or phantom powered, for live or studio vocals	Spr 97
Shure	BETA 87	£382	Supercardioid, 50Hz-16kHz, phantom powered, for live vocals	Oct 96
Shure	Prologue 16L-LC	£93	Cardioid, 50Hz-15kHz, battery powered, for live or studio acoustic instruments	
Shure	SM81-LC	£444	Cardioid, 20Hz-20kHz, phantom powered, for live or studio acoustic sources	
Shure	SM87-LC	£294	Supercardioid, 50Hz-16kHz, phantom powered, for live vocals	

MANUFACTURER	MODEL	PRICE	DESCRIPTION	REVIEW
Shure	SM94-LC	£237	Supercardioid, 50Hz-16kHz, battery or phantom powered, multipurpose	
Shure	SM98A	£257	Cardioid/supercardioid, 40Hz-20kHz, phantom powered, for acoustic instruments	
Soundfield	SPS422	£1875	4 sub-cardioid, infinite patterns, 20Hz-20kHz, LF roll-off filter, PSU	Aug 96
DYNAMIC				
MANUFACTURER	MODEL	PRICE	DESCRIPTION	REVIEW
AKG	D 3700	£123	Vocal mic	Sep 96
AKG	D 3900	£234	Vocal mic	Sep 96
AKG	D 770	£79	Cardioid instrument mic	
AKG	D 880	£85	Supercardioid, 60Hz-20kHz, anti-vibration system, for vocals	
AKG	D 880S	£89	As D 880, but with on/off switch	
Audio-Technica	ATM23He	£150	Hypercardioid, 70Hz-16kHz, for percussion	Mar 98
Audio-Technica	ATM25	£175	Bass drum and toms mic	
Audio-Technica	ATM63He	£130	Instrument mic, 2 per pack	
Audio-Technica	ATR20	£20	Unidirectional, 80Hz-12kHz, for vocals, instruments	
Audio-Technica	ATR30	£35	Unidirectional, 60Hz-12kHz, for vocals, instruments	
Audio-Technica	ATR40	£55	Unidirectional, 60Hz-12kHz, for vocals, instruments	
Audio-Technica	MB-3000L	£95	Vocal and instrument mic	Sep 96
Audix	D-1	£149	Hypercardioid, 38Hz-21kHz, for snare drums, cymbals, brass	Jul 97
Audix	D-2	£149	Hypercardioid, 38Hz-21kHz, for toms, percussion, horns	Jul 97
Audix	D-3	£149	Hypercardioid, 38Hz-21kHz, for kick drums, amps	Jul 97
Audix	OM-3xb	£119	Hypercardioid, 38Hz-21kHz, for live vocals	Nov 96
Audix	OM-5	£199	Hypercardioid, 40Hz-20kHz, for live vocals	
Audix	OM-7	£249	Hypercardioid, 38Hz-21kHz, for live vocals	Nov 96
Benson	BA25	£50	Cardioid, 50Hz-15kHz, for live vocals	Sep 97
Benson	BA30	£60	Cardioid, 50Hz-15kHz, for live vocals and instruments	Sep 97
Benson	ND90	£120	Hypercardioid, 50Hz-18kHz, for live vocals	Sep 97
Beyerdynamic	Drum Package	£551	4xTG-X 5, 1xTG-X 50	
Beyerdynamic	TG-X 5	£105	Hypercardioid, 40Hz-12kHz, for percussion	
Beyerdynamic	TG-X 20	£163	Hypercardioid, 45Hz-16kHz, for vocals, amps	
Beyerdynamic	TG-X 21	£175	As TG-X 20, but with on/off switch	
Beyerdynamic	TG-X 40	£187	Hypercardioid, 35Hz-16kHz, for acoustic sources	
Beyerdynamic	TG-X 41	£199	As TG-X 40, but with on/off switch	
Beyerdynamic	TG-X 50	£222	Hypercardioid, 15Hz-18kHz, for percussion	
Beyerdynamic	TG-X 60	£234	Hypercardioid, 40Hz-18kHz, for vocals	Sep 96
Beyerdynamic	TG-X 61	£246	As TG-X 60, but with on/off switch	
Beyerdynamic	TG-X 80	£273	Hypercardioid, 30Hz-18kHz, for acoustic sources	
Beyerdynamic	TG-X 81	£304	As TG-X 81, but with on/off switch	
Beyerdynamic	M 01	£69	Supercardioid, 50Hz-15kHz, for vocals and instruments	
Beyerdynamic	M 02	£76	Supercardioid, 50Hz-15kHz, for vocals	
Beyerdynamic	M 03	£81	As M 02, but with on/off switch	
Beyerdynamic	M 04	£88	Supercardioid, 40Hz-16kHz, for vocals and instruments	
Beyerdynamic	M 05	£93	As M 04, but with on/off switch	
Beyerdynamic	M 69 TG	£199	Hypercardioid, 50Hz-16kHz, for vocal sources	
Beyerdynamic	M 88 TG	£316	Hypercardioid, 30Hz-20kHz, for vocals, brass and kick drums	Sep 96
Beyerdynamic	M 201	£234	Hypercardioid, 40Hz-18kHz, for toms	
Beyerdynamic	M 300 TG	£116	Cardioid, 50Hz-15kHz, for vocals	
Beyerdynamic	M 300 TG	£128	As above, but with on/off switch	
Beyerdynamic	M 420 TG	£163	Hypercardioid, 100Hz-12kHz, for vocals and percussion	
Beyerdynamic	M 422 TG	£93	Supercardioid, 100Hz-12kHz, for snare drums and other acoustic sources	
Electro-Voice	N/D 957	£299	Supercardioid, for vocals and instruments	
JHS	GM55	£69	Unidirectional, 50Hz-18kHz, on/off switch, '50s styling	
JHS	MUD525	£24	Unidirectional, 80Hz-12kHz, dual impedance, built-in pop screen	
JHS	MUD616	£30	Cardioid, 80Hz-12kHz, on/off switch, built-in pop screen, for live or studio	
JHS	MUD637	£25	Cardioid, 80Hz-12kHz, on/off switch, built-in pop screen, for live or studio	
JHS	MUD916	£50	Unidirectional, 50Hz-18kHz, on/off switch, for live or studio, vocals or instruments	
Roland	D-10	£49	Hypercardioid; for vocals, bass guitar, kick drum	May 97
Roland	D-20	£89	Hypercardioid, for vocals, cymbals, hi-hats	May 97
Sennheiser	BF 504	£108	Cardioid instrument mic	
Sennheiser	BF 521	£278	Cardioid all-purpose mic suitable for live and studio work	
Sennheiser	BF 531 II	£300	Supercardioid, adjustable inlet basket, for vocals	Sep 96
Sennheiser	Drum Set 504	£519	4xMD 504 with 4xMZH 504 universal drum clamps in a case	
Sennheiser	MD 421	£337	As BF 521, but with 5 position LF roll-off switch	
Sennheiser	MD 425	£200	Supercardioid, feedback rejection, for vocals	
Sennheiser	MD 431 II	£300	Supercardioid, feedback rejection, for vocals	
Sennheiser	MD 441U	£586	Supercardioid, bass- and treble-cut switches, for studio vocals	
Sennheiser	MD 504	£125	Cardioid instrument mic with drum clamp	
Sennheiser	MD 735-US	£102	Supercardioid, feedback rejection, for vocals	
Sennheiser	MD 736	£114	As MD 735-US, but with on/off switch	Sep 96
Shure	520D	£116	Omnidirectional, 100Hz-5kHz, for harmonicas	
Shure	55SH Series II	£233	Cardioid, 50Hz-15kHz, for live vocals with a nostalgic appearance	
Shure	BETA 52	£264	Supercardioid, 20Hz-10kHz, for live kick drums	
Shure	BETA 56	£176	Supercardioid, 50Hz-16kHz, for live drums, instruments	
Shure	BETA 57A	£159	Supercardioid, 50Hz-16kHz, for live acoustic or electric instruments, vocals	Sep 96
Shure	BETA 58A	£194	Supercardioid, 50Hz-16kHz, for live vocals	
Shure	BG1.1	£42	80Hz-12kHz, for live or studio, vocals or instruments	Spr 97
Shure	BG2.1	£62	70Hz-13kHz, for live vocals	Spr 97
Shure	BG3.1	£84	60Hz-14kHz, for live vocals	Spr 97
Shure	BG6.1	£115	80Hz-15kHz, for live drums and percussion, amps, brass, woodwind	Spr 97
Shure	Prologue 10H-LC	£37	Cardioid, 80Hz-10kHz, for live or studio instruments	
Shure	Prologue 10L-LC	£29	Low impedance version of 10H-LC	
Shure	Prologue 12H-LC	£49	Cardioid, 80Hz-10kHz, for vocals	
Shure	Prologue 12L-LC	£45	Low impedance version of 12H-LC	
Shure	Prologue 14H-LC	£58	Cardioid, 40Hz-13kHz, for vocals	

MIXERS

FORMAT: Stereo mixers reduce all the input signals to a stereo pair, while 4 and 8-buss models allow you to output signals directly from their busses, as well as the main stereo outputs.

EQ: On a budget stereo mixer, you may expect only a simple 2-band EQ, but on a good 8-buss mixer, you'll find quite a sophisticated 4-band EQ section. This will include a fixed high and low bands, and two sweepable (semi-parametric) mid-range bands, where you can alter the centre of frequency cut/boost. Full parametric EQs have controls for frequency, cut/boost, and bandwidth (Q).

AUXS: Auxiliaries can be used to send signals to either external effects processors or to headphones/speakers for monitoring. Aux sends may be switchable, meaning that two processors may be connected, but only one can be used at once.



STEREO

MANUFACTURER	MODEL	PRICE	FORMAT	DESCRIPTION	REVIEW
3G	Mynah 8:2	£411	8:2	3-band EQ, 2 aux	Oct 95
3G	Mynah 12:2	£581	12:2	3-band EQ, 2 aux	Oct 95
3G	Mynah 16:2	£699	16:2	3-band EQ, 2 aux	Oct 95
3G	Mynah Si	£586	10:2:1	3-band EQ, 2 aux, stereo inputs, stereo pre-amp	Oct 95
3G	Mynah SIRM	£582	12:2:1	Rackmount version of Mynah Si	Oct 95
Allen & Heath	WZ16:2	£917	16:2	4-band EQ, 2 sweeps, 6 aux, 2 stereo returns	
ARX	MaxiMix	£439	Dual 4:2	1U rackmount line mixer	
ARX	MIXX	£517	4:2	3-band EQ, 1U rackmount line mixer	
ARX	MDXMaster	£466	4:2	3-band EQ, 2 mic, 2 stereo line inputs, 1U rackmount	
Audio Toys	8MX2	£1757	8:2	Balanced XLRs, 8 limiters, phase reversal, 2-track return	Jun 97
Behringer	MX 802	£169	8:2	3-band EQ, 2 sends, 2 stereo returns, phantom power	Aug 97
Behringer	MX 1602	£229	16:2	3-band EQ, 2 sends, 2 stereo returns, phantom power	Nov 96
Behringer	MX 2802	£649	28:2	3-band EQ, 8 monos have mid sweep, 6 aux, rackable	
Boss	BX-4	£128	4:2	Basic 4 in, 2 out specification	
Boss	BX-80	£364	8:2	2-band EQ, 1 send	
Fostex	2016	£406	16:2	Rackmountable, also configurable as 8:8:2	
Fostex	MN06	£99	6:2	Simple mini-mixer	
Mackie	LM-3204	£899	32:2	Rackmount sub-mixer, 16 stereo ins, 3-band EQ, 1 sweep, 2 sends, 4 returns	Apr 95
Mackie	MS1202-VLZ	£399	12:2	4 mic pre-amps, 3-band EQ, 2 sends, with very low impedance circuitry	Nov 96
Mackie	MS1402-VLZ	£549	14:2	Mic pre-amps, 3-band EQ, 2 sends, with very low impedance circuitry	Nov 96
Midiman	Micromixer 18	£199	18:2	Half-rack, single-height mixer with gain, pan, aux sends	
Midiman	Minimixer	£69	8:1	Digital-quality line mixer; can be configured as 4:2	Nov 95
Midiman	Multimixer 6	£79	6:2	Line mixer with volume, pan and headphone jack	
Peavey	Unity 1000/12	£459	12:2	channel version of Unity 1000	
Peavey	Unity 1000/8	£339	8:2	3-band EQ, 2 sends	
Peavey	Unity 1000/8RM	£339	8:2	Rackmount version of 1000/8	
Peavey	Unity 2000/12	£539	12:2	3-band EQ, 4 sends	
Peavey	Unity 2000/16	£699	16:2	16-channel version of Unity 2000	
Peavey	Unity 2000/SM	£639	12:2	3-band EQ, 4 sends	
Phonic	MM122	£234	12:2	4 mic/line mono, 4 stereo, 2-band EQ, 2 sends, phantom power	Spr 97
Phonic	PMC802B	£351	8:2	Mic pre-amps, 3-band EQ, 3 sends, 2 returns, phantom power	
Phonic	PMC1202B	£469	12:2	Mic pre-amps, 3-band EQ, 3 sends, 2 returns, phantom power	
Phonic	PMC1602B	£586	16:2	Mic pre-amps, 3-band EQ, 3 sends, 2 returns, phantom power	
Phonic	PMC2402B	£799	24:2	Mic pre-amps, 3-band EQ, 3 sends, 2 returns, phantom power	
Roland	M-160	£899	16:2	4U rackmount mixer, no EQ, 3 sends	
Samson	Mixpad 9	£199	9:2	2-band EQ, 2 sends	
Samson	Mixpad 12	£275	12:2	2-band EQ, 2 sends	
Samson	MPL1502	£299	15:2	Rackmount mixer, 2-band EQ, 2 sends	
Samson	MPL1640	£599	16:2	Rackmount mixer, 3-band EQ, 4 sends	
Samson	PL1602	£269	16:2	Rackmount line mixer, 1 send	
Samson	PL2404	£549	24:2	Rackmount line mixer, 1 send	
Soundtracs	Topaz Macro	£469	14:2	10 mic pre-amps, 3-band EQ, 2 sends, 2 stereo returns	Nov 96
Soundtracs	Topaz Mini	£350	12:2	Compact mixer, 4 mono, 4 stereo, 3-band EQ, 2 sends	Nov 96
Spirit By Soundcraft	Folio F1	£299	14:2	6 mic pre-amps, 3-band EQ, 1 sweep, 3 sends, 3 returns, phantom power	Jan 97
Spirit By Soundcraft	Folio F1	£349	16:2	8 mic pre-amps, 3-band EQ, 1 sweep, 3 sends, 3 returns, phantom power	Jan 97
Spirit By Soundcraft	Folio FX16	£849	16:2	16 mic pre-amps, 3-band EQ, 1 sweep, 4 sends, 4 stereo returns, phantom power	May 98
Spirit By Soundcraft	Folio Notepad	£149	8:2	4 mic pre-amps, 2-band EQ, 1 send, 1 stereo return, phantom power	Nov 96
Studiomaster	Club2000 102	£276	10:2	3-band EQ, 2 sends, 1 stereo return, phantom power	
Studiomaster	Club2000 142	£323	14:2	3-band EQ, 2 sends, 1 stereo return, phantom power	
Studiomaster	Club2000 182	£410	18:2	3-band EQ, 2 sends, 1 stereo return, phantom power	
Studiomaster	Club DSP	£398	10:2	3-band EQ, 1 sweep, 2 sends, 1 stereo return, phantom power, digital effects	
Studiomaster	Diamond Compact	£70	4:2	Battery powered mini mixer with jacks/phones	
Studiomaster	Diamond Compact	£82	4:2	Battery powered mini mixer with XLRs/phones	
Studiomaster	Pro2 163	£586	16:3	3-band EQ, 1 sweep, 5 sends, 4 stereo returns, phantom power, rackmountable	
Studiomaster	Pro2 203	£704	20:3	3-band EQ, 1 sweep, 5 sends, 4 stereo returns, phantom power	
Studiomaster	Rotary Club 12	£229	12:2	3-band EQ, 2 sends, 1 stereo return, phantom power, rackmountable	
Tascam	M-08	£299	12:2	Mic pre-amps, 2-band EQ, 2 sends, 2 stereo returns, phantom power	Nov 96
Tascam	M1016	£999	16:2	3-band EQ, 1 sweep, 6 sends, 4 stereo, 2 mono returns	
Tascam	MkII	£349	8:2	Line level rackmount mixer	
TL Audio	M1	£3819	8:2	Hand-built valve mixer, 4-band EQ, no aux	
TL Audio	M2	£4994	8:2	As M1 mixer, but with faders and direct outs	
Vestax	RMC-88	£395	8:2	Rackmount, 3-band EQ, 3 sends	

MANUFACTURER	MODEL	PRICE	FORMAT	DESCRIPTION	REVIEW
Yamaha	MM1242	£749	12:2	Rackmount mixer, 4 sends	
Yamaha	MM1402	£429	14:2	Mic pre-amps, 3-band EQ, 2 sends, 2 stereo returns, 5-band graphic EQ	Nov 96
Yamaha	MV802	£489	8:2	Rackmount mixer, 2 sends	
Yamaha	O1/V	£1700 tbc	18:2	Programmable Mixer O1, with 8 digital inputs and digital interfacing	
Yamaha	Programmable Mixer 01	£1599	18:2	20-bit AD/DA, 2 effects, 3 dynamics processors, parametric EQ, MIDI automation	Jul 94

4-BUSS

MANUFACTURER	MODEL	PRICE	FORMAT	DESCRIPTION	REVIEW
3G	Mynah 16:4:3	£999	16:4:2	4-buss version of Mynah 16:2 with built-in noise gate	Oct 95
3G	Signet	£2467	16:4:2:1	4-band EQ, 2 sweeps, 8 sends	
3G	Signet	£3484	24:4:2:1	4-band EQ, 2 sweeps, 8 sends	
Allen & Heath	WZ14:4:2	£960	14:4:2	4-band EQ, 2 sweeps, 6 sends, 4 stereo returns, FOH and monitor modes	Dec 96
Behringer	MX 2642	£749	26:4:2	3-band EQ, 8 monos have mid sweep, 6 aux, rackable	Dec 96
Mackie	24-4	£1495	24:4:2	3-band EQ, 2 sweeps, 6 sends	
Mackie	32-4	£1795	32:4:2	32-channel version of 24:4	
Mackie	CR1604-VLZ	£949	16:4:2	3-band EQ, 1 sweep, 6 sends, 4 stereo returns, phantom power	Dec 96
Phonic	M1642	£1598	16:4:2	Mic pre-amps, 3-band EQ, 1 sweep, 6 sends, 2 stereo returns, phantom power	
Phonic	M2442	£1939	24:4:2	Mic pre-amps, 3-band EQ, 1 sweep, 6 sends, 2 stereo returns, phantom power	
Samson	MPL1204	£549	12:4:2	Rackmount mixer, 2-band EQ, 4 sends	
Samson	MPL2242	£749	22:4:2	Rackmount mixer, 4-band EQ, 6 sends	Feb 95
Soundtracs	Topaz 14-4	£450	14:4:2	10 mono, 2 stereo, 3-band EQ, 2 sends	
Soundtracs	Topaz Maxi 24	£1938	24:4:2	4-band EQ, 2 sweeps, 8 sends, automation ready	
Soundtracs	Topaz Maxi 32	£2291	32:4:2	4-band EQ, 2 sweeps, 8 sends, automation ready	
Spirit By Soundcraft	Folio FX16	£846	16:4:2	16 mic pre-amps, 3-band EQ, 1 sweep, 4 aux, phantom power, prog Lexicon effects	
Spirit By Soundcraft	Folio SX	£479	20:4:2	12 mic pre-amps, 3-band EQ, 1 sweep, 3 sends, phantom power	Dec 96
StuDiomaster	Pro2 163	£586	16:3	3-band EQ, 1 sweep, 5 sends, 4 stereo returns, phantom power, rackmountable	
StuDiomaster	Pro2 203	£704	20:3	3-band EQ, 1 sweep, 5 sends, 4 stereo returns, phantom power	
StuDiomaster	Trilogy 166	£704	16:4:2	3-band EQ, 1 sweep, 6 sends, 4 stereo returns, also can function as live desk	
StuDiomaster	Trilogy 206	£880	20:4:2	3-band EQ, 1 sweep, 6 sends, 4 stereo returns, also can function as live desk	Mar 97
StuDiomaster	Trilogy 326	£1199	32:4:2	3-band EQ, 1 sweep, 6 sends, 4 stereo returns, also can function as live desk	
StuDiomaster	Trilogy 140EX	£586		10 mono mic, 2 stereo line, rackmountable expander	
Yamaha	O3D	£2999	16:4:2	4-band parametric EQ, 2 effects, 40 dynamics processors, expandable to 26:8:2	Spr 97
Yamaha	MX12/4	£399	12:4	3-band EQ, 2 sends, 2 returns, stereo digital reverb, 7-band graphic EQ	Sep 97

8-BUSS

MANUFACTURER	MODEL	PRICE	FORMAT	DESCRIPTION	REVIEW
3G	Signet	£1052	24:8:2:1	8-buss version of 4-buss Signet	
3G	Signet	£960	-	8-channel expander for Signet 8-buss range	
3G	Silk 16:8:16:2	£2402	16:8:16:2	4-band EQ, 2 sweeps, 4 sends	
3G	Silk 24:8:16:2	£2908	24:8:16:2	4-band EQ, 2 sweeps, 4 sends	
Allen & Heath	GS3000	£tbc	24:8:2	4-band EQ, 2 sweeps, 2 valve mic/guitar pre-amps	
Allen & Heath	GS3000	£tbc	32:8:2	4-band EQ, 2 sweeps, 2 valve mic/guitar pre-amps	
Allen & Heath	WZ20:8:2	£960	20:8:2	4-band EQ, 2 sweeps, 6 sends, 6 stereo returns, 28 inputs on mixdown	
Behringer	MX8000	£2299	24:8:24:2	4-band EQ, 2 sweeps, 6 sends, dual input desk	Jan 97
Fostex	2016	£406	8:8:2	Rackmountable, also configurable as 16:2	
Fostex	812	£1209	12:8	3-band EQ, 2 sweeps, 4 aux, optional MIDI muting	
Korg	168 SoundLink	£999	24:8:2	3-band parametric EQ, 2 sends, effects	Dec 96
Mackie	8•bus	£2875	16:8	4-band EQ, 1 sweep, 6 sends, 6 stereo returns	Jan 97
Mackie	8•bus	£3590	24:8	4-band EQ, 1 sweep, 6 sends, 6 stereo returns	Jan 97
Mackie	8•bus	£4395	32:8	4-band EQ, 1 sweep, 6 sends, 6 stereo returns	Jan 97
Soundcraft	Ghost	£3956	24:8:2	4-band EQ, 2 parametric mids, 8 sends, 4 stereo returns	Jan 97
Soundcraft	Ghost	£4700	24:8:2	4-band EQ, 2 parametric mids, 8 sends, 4 stereo returns, various MIDI controls	Jan 97
Soundcraft	Ghost	£4806	32:8:2	4-band EQ, 2 parametric mids, 8 sends, 4 stereo returns	Jan 97
Soundcraft	Ghost	£5558	32:8:2	4-band EQ, 2 parametric mids, 8 sends, 4 stereo returns, various MIDI controls	Jan 97
Soundtracs	Topaz	£3289	24:8:2	Dual EQ (1x4-band 2-sweep or 2x2-band), 6 sends, 4 stereo returns	
Soundtracs	Topaz Project 24-8	£2937	24:8:2	4-band EQ, 2 sweeps, 6 sends	Jan 97
Soundtracs	Topaz Project 32-8	£3877	32:8:2	4-band EQ, 2 sweeps, 6 sends	
Soundtracs	Virtual	£21737	48:8:2	4-band parametric EQ, 8 sends, 8 stereo returns, compressor/gate	Spr 97
Spirit By Soundcraft	328	£3523	32:8:2	3-band parametric EQ, 4 sends, 2x Lexicon effects processors, digital interfacing	Apr 98
Spirit By Soundcraft	Spirit 8	£3162	16:8:2	4-band EQ, 2 sweeps, 6 sends, 6 stereo returns, also can function as live desk	
Spirit By Soundcraft	Spirit 8	£4279	24:8:2	4-band EQ, 2 sweeps, 6 sends, 6 stereo returns, also can function as live desk	
Spirit By Soundcraft	Spirit 8	£5395	32:8:2	4-band EQ, 2 sweeps, 6 sends, 6 stereo returns, also can function as live desk	
Spirit By Soundcraft	Spirit 8	£6511	40:8:2	4-band EQ, 2 sweeps, 6 sends, 6 stereo returns, also can function as live desk	
Spirit By Soundcraft	Studio	£1568	16:8:2	4-band EQ, 2 sweeps, 6 sends, 4 stereo returns	Jan 97
Spirit By Soundcraft	Studio	£2123	24:8:2	4-band EQ, 2 sweeps, 6 sends, 4 stereo returns	Jan 97
Spirit By Soundcraft	Studio	£2839	32:8:2	4-band EQ, 2 sweeps, 6 sends, 4 stereo returns	Jan 97
StuDiomaster	Mixdown Classic 8	£1526	16:8:16:2	3-band EQ, 2 sweeps, 6 sends, 1 stereo return, MIDI muting, phantom power	
StuDiomaster	Mixdown Classic 8	£1644	24:8:16:2	3-band EQ, 2 sweeps, 6 sends, 1 stereo return, MIDI muting, phantom power	
StuDiomaster	Mixdown Classic 8	£1879	32:8:16:2	3-band EQ, 2 sweeps, 6 sends, 1 stereo return, MIDI muting, phantom power	
Tascam	M-1600	£1399	16:8:2	3-band EQ, 1 sweep, 6 sends, 4 stereo returns, Tascam DA series interfacing	Apr 97
Tascam	M-1600	£1699	24:8:2	3-band EQ, 1 sweep, 6 sends, 4 stereo returns, Tascam DA series interfacing	Apr 97
Tascam	M2616	£2499	16:8:2	4-band EQ, 2 sweeps, 8 sends, 6 returns	
Tascam	M2624	£3299	24:8:2	4-band EQ, 2 sweeps, 8 sends, 6 returns	
Yamaha	O2R	£7049	24:8:2	4-band parametric EQ, 2 effects, 50-dynamics processors, expandable to 44:8:2	
Yamaha	RM800	£1499	16:8:2	3-band EQ, 1 sweep, 4 sends	
Yamaha	RM800	£1899	24:8:2	3-band EQ, 1 sweep, 4 sends	



MONITORING

HEADPHONES: Closed headphones are suitable for miked recording, since the sound source is enclosed. Open phones are good for general monitoring purposes.

POWER RATINGS: Where possible, all amp ratings are quoted. Where not indicated, assume an 8Ω load.

MONITORS: All monitors are priced per pair for easy comparison. Nearfield monitors should be located close to the listener (within one or two metres). They are designed to give you an accurate representation of the sound, without being coloured by the room's

acoustics. Full-range monitors can reproduce more extreme frequencies without distortion. Active monitors feature internal amplification, often one amp per driver. This means that amp and speaker are usually better matched.



HEADPHONES

MANUFACTURER	MODEL	PRICE	DESIGN	DESCRIPTION	REVIEW
Audio-Technica	ATH-M40fs	£120	Closed	Extended low-frequency response to 5Hz for professional monitoring/mixing	
<i>Aural Envelope</i>	DX220	£30	Closed	<i>Beyer DT 100 'copies'</i>	
Beyerdynamic	DT 48	£269	Closed	16Hz-20kHz, available with 8, 25, 200 Ohm impedance	
Beyerdynamic	DT 100	£152	Closed	30Hz-20kHz, available with 8, 400, 2000 Ohm impedance	
Beyerdynamic	DT 150	£175	Closed	5Hz-30kHz, 250 Ohm impedance	
Beyerdynamic	DT 220	£116	Closed	20Hz-20kHz, available with 20, 400 Ohm impedance	
Beyerdynamic	DT 250	£116	Closed	10Hz-30kHz, 80 Ohm impedance	
Beyerdynamic	DT 250	£140	Closed	As above, but with 250 Ohm impedance	
Beyerdynamic	DT 770 Pro	£152	Closed	5Hz-35kHz, 600 Ohm impedance	
Beyerdynamic	DT 831	£180	Closed	Extended frequency response for studio monitoring of digital recordings	
Beyerdynamic	DT 931	£234	Open	Extended frequency response for studio monitoring of digital recordings	
Beyerdynamic	DT 990 Pro	£187	Open	5Hz-35kHz, 600 Ohm impedance	
JHS	LH036	£50	Closed	Studio reference headphones	Jan 97
JHS	LH115	£15	Closed	Monitor headphones	Jan 97
JHS	LH135	£30	Closed	Monitor headphones	Jan 97
Sennheiser	HD 25	£160	Closed	Lightweight monitoring headphones with split headband, 70 Ohm impedance	
Sennheiser	HD 25-13	£160	Closed	As HD 25, but with 600 Ohm impedance	
Sennheiser	HD 25SP	£85	Closed	As HD 25, but with single headband	
Sennheiser	HD 250 II	£140	Closed	Monitoring headphones with enhanced bass response, 300 Ohm impedance	
Sennheiser	HD 265	£125	Closed	Monitoring headphones, 150 Ohm impedance	
Sennheiser	HD 445	£55	Open	Headphones, 60 Ohm impedance	
Sennheiser	HD 580	£200	Open	Monitoring headphones, 300 Ohm impedance	
Sennheiser	HD 600	£250	Open	Monitoring headphones, 300 Ohm impedance	
Yamaha	RH-5M	£47	Closed	Dynamic-type professional headphones	
Yamaha	RH-10M	£85	Semi-open	Dynamic-type professional headphones	
Yamaha	RH-40M	£116	Closed	Professional monitor headphones	

POWER AMPS

MANUFACTURER	MODEL	PRICE	POWER	DESCRIPTION	REVIEW
ATC	SPA2-150	£2500	tbc	Power amplifier	
<i>C Audio</i>	GB202	£439	200W	3U, 2-4 Ohm operation possible, limiter, LF roll-off filter	
<i>C Audio</i>	GB402	£549	400W	3U, 2-4 Ohm operation possible, limiter, LF roll-off filter	
<i>C Audio</i>	GB602	£599	600W	3U, 2-4 Ohm operation possible, limiter, LF roll-off filter	
MTR	SPA-200	£355	200W	1U, all aluminium chassis, no fan	
MTR	SPA-400b	£450	400W	1U, balanced, soft start, Speakons	
Phonic	MAR2	£405	150W	2U, also 2x230W 4 Ohm, 2x300W 2 Ohm, 1x540W 4 Ohm	
Phonic	MAR4	£523	270W	2U, also 2x425W 4 Ohm, 2x550W 2 Ohm, 1x1100W 4 Ohm, switchable limiting	
Phonic	MAR6	£693	400W	3U, also 2x650W 4 Ohm, 2x1000W 2 Ohm, 1x2000W 4 Ohm, switchable limiting	
QSC	CX4	£664	150W	2U, also 2x225W 4 Ohm, 2x350W 2 Ohm, 2-speed fan	
QSC	CX4T	£840	150W	2U, also 2x225W 4 Ohm, 2x350W 2 Ohm, 2-speed fan, direct and distributed outputs	
QSC	CX6	£917	200W	3U, also 2x300W 4 Ohm, 2x450W 2 Ohm, 2-speed fan	
QSC	CX6T	£1052	200W	3U, also 2x300W 4 Ohm, 2x450W 2 Ohm, 2-speed fan, direct and distributed outputs	
QSC	CX12	£1293	400W	3U, also 2x600W 4 Ohm, 2x900W 2 Ohm, 2-speed fan	
QSC	CX12T	£1492	400W	3U, also 2x225W 4 Ohm, 2x900W 2 Ohm, 2-speed fan, direct and distributed outputs	
QSC	EX800	£999	175W	2U, also 2x275W 4 Ohm, 2x400W 2 Ohm, limiter	
QSC	EX1250	£1234	275W	2U, also 2x400W 4 Ohm, 2x600W 2 Ohm, limiter	
QSC	EX1600	£1469	400W	2U, also 2x600W 4 Ohm, 2x800W 2 Ohm, limiter	
QSC	EX2500	£1951	500W	3U, also 2x750W 4 Ohm, 2x1000W 2 Ohm, limiter	
QSC	X4000	£2291	800W	3U, also 2x1200W 4 Ohm, 2x1600W 2 Ohm, limiter	
QSC	MX700	£576	170W	2U, also 2x270W 4 Ohm, 2x350W 2 Ohm, 2-speed fan	
QSC	MX1000a	£981	275W	2U, also 2x400W 4 Ohm, 2x500W 2 Ohm, 2-speed fan	
QSC	MX1500a	£1046	400W	2U, also 2x600W 4 Ohm, 2x750W 2 Ohm, 2-speed fan	
QSC	MX2000a	£1387	475W	3U, also 2x725W 4 Ohm, 2x1000W 2 Ohm, 2-speed fan	
QSC	MX3000a	£1974	825W	3U, also 2x1250W 4 Ohm, 2x1600W 2 Ohm, 2-speed fan	Dec 94
QSC	PowerLight 1.0	£1351	200W	2U, also 2x325W 4 Ohm, 2x500W 2 Ohm, limiter, variable speed fan	
QSC	PowerLight 1.4	£1610	300W	2U, also 2x500W 4 Ohm, 2x700W 2 Ohm, limiter, variable speed fan	
QSC	PowerLight 1.8	£1874	400W	2U, also 2x650W 4 Ohm, 2x900W 2 Ohm, limiter, 2 variable speed fans	
QSC	PowerLight 2.0HV	£1992	650W	2U, also 2x400W 16 Ohm, 2x1000W 4 Ohm, limiter, 2 variable speed fans	
QSC	PowerLight 3.4	£2773	725W	3U, also 2x1150W 4 Ohm, 2x1700W 2 Ohm, limiter, variable speed fan	
QSC	PowerLight 4.0	£3102	900W	3U, also 2x1400W 4 Ohm, 2x2000W 2 Ohm, limiter, variable speed fan	
QSC	USA400	£582	125W	3U, also 2x200W 4 Ohm, 2x250W 2 Ohm, limiter, high-pass filter	
QSC	USA900	£687	270W	3U, also 2x450W 4 Ohm, 2x500W 2 Ohm, limiter, high-pass filter	
QSC	USA1310	£1052	400W	4U, also 2x655W 4 Ohm, 2x1000W 2 Ohm, limiter, high-pass filter	
SoundTech	PS802	£449	400W	1U, also 1x800W	
StuDiomaster	700D	£528	350W	2U, 4 Ohm, bridge and mono modes	Aug 96
StuDiomaster	1200D	£680	600W	2U, 4 Ohm, bridge and mono modes	
StuDiomaster	1600D	£939	800W	2U, 4 Ohm, bridge and mono modes	
Yamaha	A100A	£289	50W	2U-high but half a 19-inch rack wide, VU meters	
Yamaha	P1600	£499	230W	2U, with stereo, parallel and bridged modes	
Yamaha	H3000	£1599	350W	2U, also 2x450W 4 Ohm, 1x900W 4 Ohm	



MANUFACTURER	MODEL	PRICE	POWER	DESCRIPTION	REVIEW
Yamaha	P3200	£599	520W	2U, with stereo, parallel and bridged modes	
Yamaha	P4500	£699	720W	2U, with stereo, parallel and bridged modes	
Yamaha	H5000	£2049	550W	2U, also 2x700W 4 Ohm, 1x1400W 4 Ohm	
Yamaha	H7000	£2479	750W	2U, also 2x1000W 4 Ohm, 1x2000W 4 Ohm	
Yamaha	P1500	£499	170W	3U, also 2x240W 4 Ohm, 1x420W 4 Ohm	
Yamaha	P2500	£599	285W	3U, also 2x430W 4 Ohm, 1x700W 4 Ohm	
Yamaha	P3500	£699	395W	3U, also 2x620W 4 Ohm, 1x1000W 4 Ohm	

NEARFIELD MONITORS

MANUFACTURER	MODEL	PRICE	POWER	DESCRIPTION	REVIEW
Alesis	Monitor One	£329	120W	2 way	
Alesis	Point Seven	£249	75W	2 way	Feb 97
ATC	SCM10	£1000	tbc	Studio control monitors	Feb 97
ATC	SCM10 PRO	£929	tbc	Studio control monitors	
ATC	SCM20 PRO	£1468	tbc	Studio control monitors	
ATC	SCM20 SL	£1600	tbc	Studio control monitors	
ATC	SCM20 SL TOWER	£2100	tbc	Studio control monitors	
ATC	SCM20A PRO	£3049	tbc	Studio control monitors	
ATC	SCM50 SL	£3751	tbc	Studio control monitors	
ATC	SCM50A PRO	£5586	tbc	Studio control monitors	
ATC	SCM50A SL	£5251	tbc	Studio control monitors	
Audix	Nlie V	£1287	250W	40Hz-20kHz, 2 way, 7-inch woofer, 1-inch tweeter	
Audix	Studio 1A	£569	250W	50Hz-18kHz, 2 way, 6.5-inch woofer, 1-inch tweeter	
Audix	Studio 3A	£849	350W	47Hz-19kHz, 2 way, dual 6.5-inch woofers, 1-inch tweeter	
Dynaudio	BM5	£399	100W	2 way, 6-inch bass/mid driver	
Dynaudio	BM6P	£646	100W	2 way	
Dynaudio	BM15	£799	250W	2 way, 10-inch bass/mid driver	
Dynaudio	M1	£1810	300W	2 way, console mounted, 1000W peak handling	
Electro-Voice	S40	£311	160W	2 way	
Electro-Voice	S60	£576	100W	2 way	
Electro-Voice	S80	£905	80W	2 way	
Epos	ES12	£500	100W	2 way	Feb 97
Event	20/20	£399	200W	50Hz-20kHz, 2 way, 8-inch woofer, 1-inch tweeter	Jan 97
FAR	CR10	£499	110W	45Hz-23kHz, 2 way, 5-inch woofer, 1-inch tweeter	Jul 96
Genelec	1029AM	£645	tbc		
Genelec	1030A	£1124	tbc		
Genelec	1031A	£1956	tbc		
Genelec	1032A	£2472	tbc		
Genelec	S30C	£2890	tbc	Vertical and horizontal versions available	
Genelec	1091C	£445	tbc	Subwoofer system for 1029A	
Genelec	1092A	£1102	tbc	Subwoofer system	
Genelec	1094A	£1850	tbc	Subwoofer system	
JBL	4206	£357	300W	2 way, 6.5-inch woofer	
JBL	4208	£504	300W	2 way, 8-inch woofer	Feb 97
JBL	Control 1	£198	150W	2 way	
JBL	Control 1+	£398	150W	As Control 1, but with enhanced performance	Feb 97
JBL	Control 5	£515	175W	Compact monitor	
JBL	Control 5+	£574	175W	As Control 5, but with enhanced performance	
JBL	Control SB1	£269	150W	Sub-woofer for Control 1	
JBL	Control SB5	£339	175W	Sub-woofer for Control 5	
KRK	E7 Exposé	£2697	140W	54Hz-20kHz, 2 way, 7-inch bass driver, 1-inch tweeter	
KRK	E8 Exposé	£tbc	tbc	2 way, 8-inch bass driver, 1-inch tweeter	
KRK	K-Rok	£352	100W	2 way	
KRK	K-RokS	£463	100W	As K-Rok, but magnetically shielded	
KRK	RoKits	£269	75W	2-way, 6-inch woofer, 1-inch tweeter, magnetically shielded	
KRK	V8	£tbc	130W	2 way, 8-inch woofer, 1-inch tweeter, bi-amped	
Peavey	PRM308Si	£638	80W	3 way, time-corrected	
Phonic	SE206	£88	50W	70Hz-16kHz, 2 way, 5.25-inch woofer, 1-inch tweeter	
Phonic	SE207	£116	100W	70Hz-20kHz, 2 way, 6.5-inch woofer, 1-inch tweeter	
PMC	TB1S	£430	150W	2 way, magnetically shielded	Feb 97
PMC	XB1	£587	150W	Bass extender for TB1 monitors	
Richard Allen	RA8M	£229	100W	BBC-spec nearfield monitors	Sep 94
Spirit By Soundcraft	Absolute 2	£272	100W	45Hz-20kHz, 2 way, 6.5-inch woofer, 1-inch tweeter, magnetically shielded	Feb 97
Spirit By Soundcraft	Absolute Zero	£206	95W	55Hz-18kHz, 2 way, 6.5-inch woofer, 1-inch tweeter	
Tannoy	System 6 NFMII	£494	175W	6.5-inch dual-concentric driven monitor speakers	
Tannoy	System 600	£467	130W	2 way	
Tannoy	System 8 NFMII	£752	200W	2 way, 8-inch dual-concentric	
Tannoy	PBM 5II	£294	75W	2 way	Jul 95
Tannoy	PBM 6.5	£306	100W	Dual-driver monitor speakers	Aug 94
Tannoy	PBM 8II	£529	80W	Mid-level, dual-driver monitor speakers	Feb 97
Tannoy	System 6 NFMII	£494	175W	6.5-inch dual-concentric driven monitor speakers	
Tannoy	System 600	£467	130W	2 way	
Tannoy	System 8 NFMII	£752	200W	2 way, 8-inch dual-concentric driver	
Tannoy	System 800	£646	150W	2 way	
Westlake Audio	Lc 6.75	£995	80W	<60Hz-18kHz, 2 way	Dec 96
Xpression!	DPM1	£379	175W	48Hz-20kHz, 2 way, 1-inch tweeter, 8-inch woofer, magnetically shielded	Jun 97
Xpression!	MS1	£349	175W	Sub-woofer for DPM1	Jun 97
Yamaha	NS10M-STUD	£375	150W	2 way, 20Hz-20kHz, classic studio nearfield monitors	Feb 97
Yamaha	S15	£218	150W	Trapezoidal bass-reflex speaker, 65Hz-40kHz, 5-inch woofer, 1-inch tweeter	
Yamaha	S55	£195	150W	Trapezoidal bass-reflex speaker, 60Hz-40kHz, 6.5-inch woofer, 1-inch tweeter	
Yamaha	YS12ME	£165	125W	2 way, 12-inch bass, HF driver and horn	
Yamaha	YS212E	£159	125W	2 way, 12-inch bass, HF driver and horn	
Yamaha	YS215E	£189	125W	2 way, 15-inch bass, HF driver and horn	



MANUFACTURER	MODEL	PRICE	POWER	DESCRIPTION	REVIEW
Yamaha	YS312E	£249	125W	3 way, 12-inch bass, 6.5-inch mid, HF bullet	
Yamaha	YS315E	£249	125W	3 way, 15-inch bass, 6.5-inch mid, bullet tweeter	
Yamaha	YSSW12E	£249	125W	2x12-inch sub woofer, internal low-pass filter	
Yamaha	YSSW15E	£249	125W	2x15-inch sub woofer, UK made	

MID- & FULL-RANGE MONITORS

MANUFACTURER	MODEL	PRICE	POWER	DESCRIPTION	REVIEW
Alesis	Monitor Two	£799	150W	Large studio monitors for full-range work	
Genelec	1033A	£16212	tbc		
Genelec	1034A	£24200	tbc		
Genelec	1035B	£38340	tbc		
Genelec	1037B	£4714	tbc	3-way main monitors	
Genelec	1038A	£6892	tbc	3-way main monitors	
Genelec	1039A	£14186	tbc	3-way main monitors	
JBL	Control 8SR	£586	200W	3 way control monitor	
JBL	Control 10	£1314	250W	3 way control monitor	
JBL	Control 12	£1643	400W	3 way control monitor	
PMC	AB1	£3936	300W	2 way studio monitors with bass reflex port	
PMC	LB1	£1998	200W	2 way studio monitors with bass reflex port	
Wilmslow	ATC K100	£1951	500W	High-end studio monitors in kit form	

ACTIVE MONITORS

MANUFACTURER	MODEL	PRICE	POWER	DESCRIPTION	REVIEW
Audix	PH3-s	£239	20W	100Hz-20kHz, 2 way, 3.5-inch woofer, 0.75-inch tweeter	
Audix	PH5-vs	£289	25W	75Hz-20kHz, 2 way, 5.25-inch woofer, 0.75-inch tweeter	
Audix	PH15-vs	£439	45W	50Hz-20kHz, 2 way, 5.25-inch woofer, 0.75-inch tweeter	
Audix	PH25-vs	£569	50W	50Hz-20kHz, 2 way, dual 5.25-inch woofers, 0.75-inch tweeter	
Dynaudio	BM6A	£1386	150W	2 way	Jul 97
Dynaudio	BM15A	£1650	150W	2 way, 2 x 150W amplifiers (150W per driver)	
Fostex	SPA11	£724	100W	Powered version of full-range SP11	
Fostex	SPA12	£856	100W	Full-range speaker with 3-band EQ	
Fostex	SPA303	£534	30W	High-frequency speakers	
Fostex	SPA707	£1034	150W	Bass speaker	
Genelec	1030A	£1320	150W	2 way	Jul 97
Goodmans	Active 70	£35	5W	1 way, 3-inch full-range speaker unit	
JBL	6208	£1056	125W	2 way, bi-amped	Sep 97
JBL	EON 15PAK	£799	110W	2 way	May 9
Phonic	Versatap 30	£88	30W	120Hz-20kHz, 2 way, 4-inch woofer, 1-inch tweeter	
Phonic	Versatap 50	£174	50W	75Hz-20kHz, 2 way, 6.5-inch woofer, 1-inch tweeter	
Quested	VS1112	£1598 each	400W	1 way, 300mm bass driver, sub-bass unit	Apr 98
Quested	VS2108	£2304	210W	2 way, 200mm bass driver, 28mm tweeter, bi-amped	Apr 98
Quested	VS2205	£1716	150W	75Hz-19kHz, 2 way, dual 120mm woofers, 28mm tweeters, bi-amped	Jul 97
Spendor	QT100	£704	100W	2 way	Oct 97
Spendor	SA200	£1404	125W	2 way	Jul 97
Spirit By Soundcraft	Absolute 4P	£799	100W	40Hz-20kHz, 2 way, 170mm bass driver, 25mm tweeter, bi-amped	Jul 97
Tannoy	AMS8	£2702	150W	Dual concentric, professional active monitoring system	Jul 97
Tannoy	System 600A	£848	75W	44Hz-20kHz, 2 way, 6.5-inch dual-concentric driver, bi-amped	
Xpression!	DPM1 Proactive	£849	75W	46Hz-20kHz, 2 way, 2 x 75W amplifiers, 8-inch woofer, 1-inch tweeter	Mar 98
Zobel	Active One	£1380	100W	2 way, dual woofers	Jul 97

Buying Advice

Where to buy

- Mail-order companies may give you the best price, but don't count on getting any after-sales service.
- Local music shops are good for trying instruments out, but they may not have an expert on more specialised products.
- Pro audio specialists should offer expert advice on the most technical of recording and music gear. A good level of after-sales service should be provided.

Planning your purchase

- Check what is included in the price: cables, delivery, VAT? Adverts must by law say if VAT is *not* included. If it doesn't then VAT is included – check the fine print.

■ If you're buying by mail, check price and availability. Just because a product is advertised, it doesn't mean it is available or in stock. Check what the company's policy is if you have problems, and get a definite delivery date.

■ If buying in person, check everything works before leaving the shop. If buying by post, check the goods when they arrive. If you don't have time, mark the delivery note "goods not inspected". Don't use the product if you're not happy with it.

■ Whether you buy from a shop or by mail, the laws states that a product must be: 1. "Of satisfactory quality" (i.e it works) 2. "As described" – this applies whether in an advert or in person (and also from a private seller). 3.

Fit for the purpose for which it was sold or which you specified.

■ If it doesn't meet any of these points, you are entitled to a full refund, or the replacement of the product.

How to complain

■ If you're not happy with your purchase, contact the dealer and explain the problem. If it isn't sorted, describe your problem in writing and explain how you want it resolved. Allow the dealer a couple of weeks to respond.

■ If you're still not happy, you may need to take legal action. Seek advice from a solicitor, or from the following:
Citizens Advice Bureau, Trading Standards Office, Office of Fair Trading, County Court.

SIGNAL PROCESSORS

This section covers all aspects of signal processing. Entries have been categorised under their primary purpose. For instance, unless a limiter is specifically a limiter, it is likely to be listed under compressors. The same is true of expanders and noise gates.

ENHANCERS: This category includes 'exciters' and other trademarked psycho-acoustic enhancing brands.

EQs: Both graphic and parametric equalisers are covered in this category, as well as more specialist devices like feedback preventers, filters and vocoders.

MULTI-EFFECTS: This category is for effects processors that have more than one

function i.e. they have reverb, delay or other effects algorithms in one unit.

Some multi-effects processors allow several effects to be used at once, either in parallel or series, and may also offer discrete ins/outs for each effect.

DEDICATED EFFECTS: Effects units that are dedicated to one effect are found in their own section, e.g. reverbs, delays and so on.



COMPRESSORS

MANUFACTURER	MODEL	PRICE	DESCRIPTION	REVIEW
Alesis	3630	£275	More than competent compressor/limiter/gate	
Alesis	NanoCompressor	£149	Stereo compressor/limiter in tiny package	Jul 97
Altec Lansing	1712A	£692	Single-channel compressor/limiter	
Aphex	106 Easyrider	£399	Budget 4-channel automatic compressor	Sep 94
Aphex	108 Easyrider	£239	Budget 2-channel automatic compressor	Sep 96
Aphex	Compellor	£1817	Compressor/limiter/leveler	
Aphex	Expressor	£640	Rackmount compressor	
ART	Levelar	£155	Compressor/limiter	Feb 97
ARX	Afterburner	£582	Split-frequency, enhanced compressor/limiter	
ARX	DDP1	£658	Dual-channel gate/compressor/limiter	
ARX	QuadComp	£670	4-channel compressor/limiter	
Behringer	MDX1000	£199	Automatic compressor/limiter	Dec 94
Behringer	MDX2100	£299	Automatic compressor/expander/limiter	
Behringer	MDX2400	£299	Automatic quad compressor/limiter	
Behringer	MDX4000	£499	Multi-band compressor/limiter/leveler	
Behringer	MDX8000	£2199	Multi-band compressor/limiter/leveler	
BSS	DPR 402	£934	Stereo dynamics processor	
BSS	DPR 944	£582	2 compressors and 2 noise gates, all with independent inputs and outputs	
dbx	160A	£504	Mono compressor/limiter	
dbx	163X	£186	Mono compressor/limiter	
dbx	165A	£426	Studio-quality mono compressor/limiter	
dbx	166	£549	Dual compressor/limiter	
dbx	168A	£1426	Studio dynamics processor	
dbx	262	£233	Compressor/limiter/expander	
dbx	266	£351	Dual compressor/gate	
dbx	903	£323	Soft-knee compressor module	
dbx	1066	£528	Compressor/limiter/gate	
dbx	DPP	£tbc	New Digital Dynamics Processor with processing retained in the digital domain	
dbx	MC6	£100	Mini compressor	May 98
DigiTech	VCS-1	£799	Dual vacuum tube compressor/noise gate/de-esser/limiter	Nov 97
Drawmer	1960	£1170	Valve compressor/limiter	
Drawmer	DL241	£441	Auto compressor	
Drawmer	DL241X	£500	Auto compressor with balanced XLRs	
Drawmer	DL251	£560	Spectral compressor	
Drawmer	DL441X	£500	Auto compressor/limiter with balanced XLRs	
Drawmer	M500	£911	Digitally controlled dynamics processor	
Drawmer	MX30	£229	Dual gate/compressor/limiter	Aug 97
Focusrite	Green 4	£1056	Dual compressor/limiter	May 97
Focusrite	Green 6	£998	Quad compressor/limiter	
Focusrite	Red 3	£2579	Dual compressor/limiter	
Joemeek	SC2	£tbc	Award-winning compressor with VU meter	
Joemeek	VC2	£tbc	'Tube' channel compressor	
Joemeek	VC6	£349	Compressor/pre-amp/enhancer	Dec 97
LA Audio	4x4	£464	Dual compressor/gate/variable filter	Mar 97
LA Audio	C	£399	Quad compressor/limiter/de-esser/filters	
LA Audio	C-2021	£706	Dual valve compressor	Nov 96
LA Audio	Classic	£925	High-quality compressor/limiter	
LA Audio	CV	£699	8-channel compressor	
LA Audio	CX2	£249	Dual compressor/limiter	
LA Audio	GCX2	£189	Dual compressor/gate	Apr 97
Peavey	CDS-2	£183	Compressor/limiter/de-esser	
Phonic	PCL3200	£200	Compressor/limiter/gate	
Presonus	ACP-8	£595	8-channel analogue-controlled dynamics processor	Feb 97
Presonus	Blue Max	£189	Mono/stereo compressor/limiter/pre-amp with presets	Sep 97
Presonus	DCP-8	£749	8-channel fully programmable dynamics processor	Feb 97
Rane	DC-24	£635	Stereo compressor/limiter/gate with built-in crossover	
Rane	SC-22	£452	Dual compressor/limiter with full control/metering	
SPL	DynaMaxx	£586	Dual auto-compressor, noise gate, de-compressor, soft limiter	
Symetrix	421	£529	Automatic gain controller	
Symetrix	25	£399	Stereo/dual mono compressor/limiter/expander	
Symetrix	488	£585	8-way compressor for multitrack use	
Symetrix	501	£329	Single-channel peak/RMS compressor/limiter	
Symetrix	501/01	£379	501 with input transformer	
Symetrix	602	£2110	Stereo digital dynamics processor, MIDI, digital I/O	
Symetrix	SX208	£288	Stereo compressor/limiter	
TC Electronic	M5000	£2957	Digital audio mainframe processor: 2 digital/2 analogue I/Os, expandable system	
TL Audio	3021	£351	2-channel compressor	
TL Audio	C1	£1170	Stereo valve compressor	
TL Audio	Indigo 2021	£704	2-channel valve compressor	Jun 96
TL Audio	Indigo 2051	£704	Mono valve voice processor	Jun 96

MANUFACTURER	MODEL	PRICE	DESCRIPTION	REVIEW
UFEX	Comp	£247	Dual stereo compressor	
Vestax	L-201	£449	Dual compressor/limiter	
Yamaha	GC2020C	£359	2-channel compressor/limiter	

DELAYS					
MANUFACTURER	MODEL	PRICE	EFFECTS	DESCRIPTION	REVIEW
Klark Teknik	DN7204	£tbc		2-in, 4-out digital delay with parametric EQ and limiter	
Korg	DL8000R	£469		Digital multi-tap delay	Dec 97
Roland	SDE-330	£856	19	High-quality delays using the RSS system for 3D sound	
TC Electronic	2290-22D4	£1886		Digital delay/sampler/effects processor, expandable	
Yamaha	D1030	£1369		18-bit DA, 1 in, 3 out digital delay line/crossover	
Yamaha	D5000	£1279	12	Professional digital delay for live or studio use with 20-bit processing	

ENHANCERS				
MANUFACTURER	MODEL	PRICE	DESCRIPTION	REVIEW
Aardvark	Aardscape	£675	Analogue tape saturation processor	Spr 97
Aphex	104 Aural Exciter C2	£239	Budget exciter with 'Big Bottom' sub-harmonic synthesis	
Aphex	Aural Exciter III	£1143	Studio-quality exciter with full spec	
BBE	DI-100	£120	DI box with Sonic Maximizer	May 97
Behringer	EX1	£249	Virtual stereo image processor with phase correlation meter	
Behringer	EX1000j	£249	Sub-harmonic synth ('boom box') with limiter	
Behringer	EX2100j	£149	Dual processor sound enhancer (with jacks)	
Behringer	EX3100j	£249	Multi-band enhancer with bass and surround processor	
Behringer	EX4000	£249	Multi-band studio enhancer	
DBX	120XP	£300	Sub-harmonic synthesizer ('boom box')	Feb 97
DBX	296	£417	Spectral enhancer	
Digilab	GSE-3D	£116	Expressor	
PPM	Francinstein	£586	Unusual stereo image enhancer/exciter/EQ	
SPL	Charisma	£1174	8-channel 'tube' processor designed to simulate tape saturation	Dec 96
SPL	Charisma 2	£586	2-channel version of Charisma	
SPL	Classic Vitalizer	£tbc	Spectral enhancer	
SPL	Machine Head	£2349	Digital tape saturation processor	
SPL	Stereo Vitalizer	£586	Jack-fitted stereo spectral enhancer	
SPL	Tube Vitalizer	£2349	Stereo enhancer with valves	Feb 98
TC Electronic	Finalizer	£1750	Digital, programmable mastering processor	Jan 97
TL Audio	2031	£469	2-channel valve overdrive	Jan 98

EQs				
MANUFACTURER	MODEL	PRICE	DESCRIPTION	REVIEW
Altec Lansing	1431A	£504	1/3-octave, 31-band graphic EQ	
Altec Lansing	1432A	£809	Dual 1/3-octave, 31-band graphic EQ	
Altec Lansing	1905A	£1745	5-band parametric EQ	
Amek	System 9098 EQ	£1350	Neve-designed EQ with built-in mic amp	
Aphex	109 Parametric EQ	£399	4-band parametric EQ with 'Tubessence' valve technology	
Aphex	Dominator	£2019	3-band peak processor	
ARX	EQ15	£698	Dual 2/3-octave constant Q graphic EQ	
ARX	EQ30	£634	Single 1/3-octave constant Q graphic EQ	
ARX	EQ60	£993	Dual 1/3-octave constant Q graphic EQ	
ARX	MultiQ	£656	6-band, fully sweepable parametric EQ	
Behringer	DE2000	£250	Multi-band de-esser/feedback killer	
Behringer	DSP8000	£649	Dual EQ/limiter/feedback killer	
Behringer	PEQ305	£246	5-band parametric EQ	
BSS	DPR501 MkII	£934	4-band mono parametric EQ	
BSS	FCS916	£640	Parametric EQ	
BSS	FCS930	£687	Mono/dual 30-band graphic EQ	
BSS	FCS960	£1087	Dual stereo EQ	
dbx	242	£339	Parametric EQ	
dbx	263X	£186	Mono de-esser	
dbx	902	£323	De-esser module	

IN FOCUS: FAT PCP330 Procoder

Price: £299

Reviewed: Nov '97

You want that classic '70s vocoded sound, but can't stretch to the more sophisticated models available? An answer may be FAT's affordable Procoder. It's not the most tastefully-designed processor you'll ever see, but who cares at

this price?

Our reviewer Peter Forrest said of the PCP330:

"the Procoder manages to give the user the overwhelming majority of functions that still tempt people to spend 4-figure sums on classic vocoders, at around a quarter of the price. Standard vocoder sounds are achieved

effortlessly, and there's huge potential for experimentation..."

As Pete says, "methinks it's time to stop sampling those old Herbie Hancock records and doing it for real!" Quite...

Brief Spec

- Filter centre frequencies: 100, 225, 330, 470, 700, 1030, 1550, 2280, 3300, 4700, 9000Hz
- Internal oscillator range: 15 to 600Hz
- Internal unvoiced signal: white noise
- Mic (balanced XLR) and line (unbalanced jack) analysis inputs
- Mono line output



MANUFACTURER	MODEL	PRICE	DESCRIPTION	REVIEW
dbx	905	£548	3-band parametric EQ	
dbx	1531	£460	2x15 or 1x31 graphic EQ	
dbx	3015	£763	Dual 15-channel graphic EQ	
dbx	3031	£763	Single 31-channel graphic EQ	
dbx	3231	£1174	Dual 31-channel graphic EQ	
Drawmer	1961	£1170	Valve EQ	
FAT	PCP330 Procoder	£299	11-band vocoder	Nov 97
Focusrite	Green Two	£939	EQ with mic pre-amp, line inputs	May 97
Focusrite	Red2	£2345	Stereo EQ	
Klark Teknik	DN360	£1bc	Dual 32-band graphic EQ	
Klark Teknik	DN3600	£1bc	Programmable dual channel 30-band graphic EQ	
Klark Teknik	DN4000	£1bc	Dual channel 5-band parametric EQ with delay	
Klark Teknik	DN6000	£1bc	DSP audio spectrum/time analyser	
Klark Teknik	DN8000	£1bc	Loudspeaker processor	
LA Audio	V8	£817	8-channel valve signal conditioner	Jun 96
MTR	GE-1515	£240	Dual 15-band graphic, 1U, balanced, XLRs	
Mutronics	Mutator	£740	MIDI-controlled analogue filterbank and envelope generator	Apr 97
Nightpro	EQ-3D	£1056	Dual-channel 6-band EQ	Aug 97
Peavey	AEQ-2800	£434	MIDI-equipped programmable graphic EQ	
Peavey	PME-4	£183	4-band parametric EQ	
Peavey	PME-8	£306	Dual 4-band parametric EQ	
Peavey	Spectrum Filter	359	Analogue filter unit for fattening sounds	
Phonic	PEQ3300	£170	31-band mono graphic EQ	
Phonic	EQ3400	£176	15-band stereo graphic EQ	
Phonic	PEQ3600	£259	31-band stereo graphic EQ	
Prism Sound	MEA-2	£2000	Stereo/2-channel 4-band precision EQ with switchable Q and frequency	Mar 98
Rane	FME-15	£383	2/3-octave, 15-band micrographic module	
Rane	FPE-13	£383	3-band parametric EQ modular Flex module	
Rane	GE14	£602	Dual 2/3-octave, 14-band constant-Q filter graphic EQ with switchable boost/cut	
Rane	GE27	£583	Dual 1/3-octave, 27-band constant-Q filter graphic EQ with switchable boost/cut	
Rane	GE30	£799	Single 1/3-octave, 30-band constant-Q filter graphic EQ with 60mm faders	
Rane	GE60	£969	Dual 1/3-octave, 30-band constant-Q filter graphic EQ with accurate calibration	
Rane	GQ30	£651	1/3-octave, 30-band constant-Q filter graphic EQ	
Rane	ME15	£435	Dual 2/3-octave, 15-band graphic EQ with switchable boost/cut	
Rane	ME15B	£464	Balanced version of ME15	
Rane	ME30	£427	1/3-octave, 30-band graphic EQ with switchable boost/cut	
Rane	ME30B	£452	Balanced version of ME30	
Rane	ME60	£764	Dual 1/3-octave, 30-band graphic EQ with sweepable HPF/LPF	
Rane	MPE 14	£879	Dual programmable 2/3-octave, 14-band constant-Q filter graphic EQ	
Rane	NEQ228B	£1169	2x28-band programmable EQ, up to 16 presets	
Rane	PE15	£423	5-band parametric EQ with balanced connectors	
Rane	PE17	£552	5-band parametric EQ with balanced connectors and 20Hz-20kHz range	
Roland	AP-700	£1599	Multi-EQ feedback processor	
Sabine	BX Solo	£335	Single-channel line feedback killer	
Sabine	FBX Solo	£387	Single-channel line feedback killer with mic inputs	
Samson	E30	£219	Dual 15-band graphic EQ	
Samson	E62	£299	1/3-octave, dual 31-band graphic EQ	
Samson	PF6	£349	6-channel, 4-band parametric EQ	
Sherman	Filterbank	£449	Filter module	May 97
SPL	Optimizer	£939	4-band parametric EQ	
Symetrix	SX201	£270	3-band parametric EQ with pre-amp	
TC Electronic	1128	£1965	Programmable graphic EQ and room analyser	
TC Electronic	1140HS	£522	4-band mono parametric EQ/pre-amp	
TC Electronic	2240HS	£884	4-band stereo parametric EQ/pre-amp	
TL Audio	3011	£351	2-channel 4-band EQ	Mar 97
TL Audio	3012	£351	2-channel parametric EQ	Mar 97
TL Audio	3013	£821	2-channel valve parametric EQ	Apr 98
TL Audio	EQ1	£822	2-channel valve EQ with mic pre-amps	Jan 95
TL Audio	EQ2	£1522	2-channel parametric valve EQ with mic pre-amps	Jan 95
TL Audio	Indigo 2011	£704	2-channel, 4-band valve EQ	Jun 96
TL Audio	Indigo 2012	£704	2-channel, parametric valve EQ	Nov 96
TL Audio	N1	£1875	Dual shelve/peak Neve EQ, repackaged in 19-inch rack	
Vestax	GE-30	£350	Dual 15-band graphic EQ	
Vestax	GE-31	£350	31-band graphic EQ	
Vestax	GE-33S	£499	Stereo 30-band graphic EQ	
Vestax	GE-62	£550	Dual 31-band graphic EQ	
Waldorf	Miniworks 4-pole	£269	Filter module	
Yamaha	DE05	£2399	19-bit AD, 20-bit DA, studio-quality fully digital EQ system in 2U box	
Yamaha	DEQ5E	£1849	Slave unit for DE05	
Yamaha	GQ1031C	£319	Mono 31-band graphic EQ	
Yamaha	GQ2031B	£589	Stereo 31-band graphic EQ	
Yamaha	GQ2015A	£319	Stereo 15-band graphic EQ	
Yamaha	Q1131	£879	Professional-quality mono 31-band graphic EQ	
Yamaha	Q2031A	£589	Stereo 31-band graphic EQ	
Yamaha	YDG2030	£1199	Professional digital graphic EQ with 20-bit AD/DA	
Yamaha	YDP2006	£1199	Professional digital parametric EQ with 20-bit AD/DA	
Z-Sys	z-q1	£2932	Stereo digital parametric EQ	Mar 97

EXPANDERS

MANUFACTURER	MODEL	PRICE	DESCRIPTION	REVIEW
Aphex	622	£1039	Pro-quality stereo expander/gate	
Behringer	XR1400	£299	Quad semi-automatic expander/gate	
Behringer	XR2000	£299	Automatic class-A expander/gate	

MANUFACTURER	MODEL	PRICE	DESCRIPTION	REVIEW
Behringer	XR2400	£399	Automatic quad expander/gate	
DBX	274	£539	Quad expander/gate	
Drawmer	DL231	£560	Dual expander	
Drawmer	DS301	£617	Dual expander/noise gate	
Drawmer	LX20	£229	Expander/compressor	
Symetrix	564	£1058	Quad expander/gate	

LIMITERS

MANUFACTURER	MODEL	PRICE	DESCRIPTION	REVIEW
Behringer	1800	£299	8-channel recording limiter for ADAT/DA-88	
Digilab	GSL-4M	£212	Quad limiter	

MULTI-EFFECTS PROCESSORS

MANUFACTURER	MODEL	PRICE	EFFECTS	DESCRIPTION	REVIEW
Alesis	MicroVerb 4	£229	3	100 presets, 2 adjustable parameters, 100 memories	Mar 95
Alesis	MidiVerb 4	£329	20	4 simultaneous effects	Mar 95
Alesis	Q2	£699	44	Alesis' top-of-the-line effects processor	
ART	DRX-2100SE	£639	60	10 simultaneous effects	
ART	Effects Network	£299	7	Quality studio incarnation of ART's stage effects	
ART	Extreme	£225	8	Rock-guitarist geared processor with 2 simultaneous effects	
ART	FX-1	£159		30 presets, dual processing, true stereo	Jan 97
ART	FXR	£200	16	255 presets, can be used as 2 separate mono effects, but no memories	
ART	FXR Elite	£299	16	FXR with more programming and MIDI control	Oct 94
ART	MDC-2001	£499	5	Features 5 combinable effects	
ART	MR-1	£169	16	Pocket-sized budget preset effects module	
ART	Multiverb Alpha SE	£399	60	Good mid-range unit with 7 simultaneous effects	
ART	SGX 2000	£799	70	Same as the Nightbass, but aimed at guitarists	
ART	SGX Nightbass SE	£799	70	Quality bass effects and amp sims with 20 simultaneous effects	
ART	SGX Nitro	£629	70	1U guitar effects processor with 12 simultaneous effects	
Behringer	Virtualizer DSP1000	£144	7	20-bit A/D and D/A converters, MIDI-controllable and dual mono operation	
Boss	SX-700	£469	30	128 presets, 128 memories, MIDI control	Jul 96
Boss	VT-1	£399	3	Vocal transformer	Jan 98
DigiTech	DHP-33	£699	5	Combined three-part harmony generator and effects processor	
DigiTech	GSP-2101	£999	21	Tube pre-amp with similar effects to the TSR-12	
DigiTech	MIDI Vocalist	£449	5	As Vocalist II, but without song memories	
DigiTech	RPM1	£549	1	Valve-based rotary-speaker simulator	
DigiTech	Studio 100	£199 tbc	tbc	New budget effects unit	
DigiTech	Studio 400	£800	23	Beefed-up version of the Studio Quad with similarly high-quality effects	Jan 97
DigiTech	Studio Quad V2	£529	22	Independent dual mono/stereo parallel effects processor	
DigiTech	Studio Twin	£230	12	99 presets, 3 adjustable parameters, 99 memories, parametric EQ, MIDI control	
DigiTech	Studio Vocalist	£999	5	Improved harmony processor, can provide instant voice sex changes	
DigiTech	TSR-12	£399	55	Similar to the TSR-24, but lacks some of the more powerful features	Feb 95
DigiTech	TSR-24S	£799	55	24-bit effects processor with user-definable effects chains	
DigiTech	TSR-6	£299	22	Cut-down version of the TSR-12	
DigiTech	Vocalist II	£549	5	Creates harmonies of up to five parts and stores up to 50 song lists	Jan 95
DigiTech	Vocalist Workstation	£750	6	Four-part harmonies created on the fly or via MIDI control	
DigiTech	VOFX	£249	9	Vocal multi-effects processor. You want Daleks? You got Daleks	
DDD	512	£180	6	Multi-effects processor working in true stereo or dual mono	
Ensoniq	DP/2	£799	61	Stereo and dual mono effects unit	
Ensoniq	DP/4+	£1299	21	Extremely powerful unit which can act as four separate units or combine effects	
Ensoniq	DP Pro	£999	39	128 presets, 256 memories, true stereo in/out, dual effects processor	Aug 97
Eventide	DSP4000	£4694		The ultimate in high-end effects processors, the proverbial 'clever box'	
Hughes & Kettner	Tube RotoSphere	£249	4	Valve-driven Leslie simulator, for the studio or stage	
Ibanez	VA3	£299	8	Amp simulator and effector floor unit	
Kawai	RV4	£849	4	Aimed to be a rival to the QuadraVerb, this is a simple but good sounding delay unit	
Korg	AM8000R	£468	40	128 presets, 128 memories, with good real-time control and MIDI	Feb 98
Korg	G5	£299	1	Turns bass players into Bootsy with synth bass treatment	
Korg	ih	£399	3	Harmoniser panel to complement i-series keyboards	Jun 96
Lexicon	300	£4641	3	Good-sounding studio effects with digital I/O	Dec 94
Lexicon	LXP15	£979	2	Easy to use unit based on the classic LXP range	Dec 94
Lexicon	MPX G2	£tbc	tbc	New processor especially for guitar effects	
Lexicon	MPX100	£249 tbc	tbc	240 presets, full MIDI control, and a replacement for the Alex	
Lexicon	MXP1	£1199	6	200 presets, 250 memories, MIDI control, S/PDIF I/O	Apr 97
Lexicon	PCM80	£2133	10	Extremely impressive pro-level effects	Feb 95
Lexicon	Reflex	£469	8	Budget, but usable, multi effects	
Lexicon	Vortex	£468	16	Unusual 'morphing' effects system	
Nureality	Vivid 3D Plus	£71	1	Adds 3D effect to sounds	
Oberheim	GM1000	£800		18-bit, 512 presets, 9 simultaneous effects	
Oberheim	GM400	£500		Smaller version of GM1000, 384 presets	
Peavey	Addverb	£300	35	Superb range of effects types and features for the price	Feb 97
Peavey	Bass-Fex	£699	18	Flexible, bass-gated effects with eight simultaneous effects	
Peavey	DeltaFex	£155	9	2 adjustable parameters, but no memories, true stereo	Nov 96
Peavey	Pro-Fex	£699	18	Full control over all 16 simultaneous effects make this extremely flexible	
Peavey	Ultraverb 2	£319	6	MIDI controllable unit with 600 memories	
Peavey	Univerb 2	£229	2	Rich-sounding reverbs and basic echo	
Roland	RE-800	£265	5	Budget, mic-ready reverb and delay	
Roland	RSS-10	£2199	1	3D sound creator using the Roland Sound Space system to great effects (geddit?)	Nov 95
Sony	HRMP5	£449	100	Small, but impressive effects	

MANUFACTURER	MODEL	PRICE	EFFECTS	DESCRIPTION	REVIEW
Sony	DPS-V77	£1322	64	198 presets, 198 memories, true stereo in/out	Jul 97
TC Electronic	G-Force	£1299	9	255 presets, 100 memories, MIDI, S/PDIF, true stereo guitar effects processor	Feb 98
TC Electronic	M5000	£2648		Open-ended, software-based super effects system	
TC Electronic	Wizard M2000	£1639	7	256 presets, 256 memories, analogue/digital I/O	Aug 96
Viscount	EFX10	£200	18	MIDI controllable, true stereo	Jun 96
Viscount	EPX100	£190	16	100 presets, 200 programs, 100 user	
Yamaha	SPX990	£850	43	20-bit processing, superb effects and flexible programming	
Yamaha	SPX1000	£1385	22	Excellent effects, the ability to take short samples and a digital I/O	
Zoom	1201	£99	11	363 effects, with one banks devoted to reverbs, delays/multis and weird stuff	
Zoom	Studio 1202	£200	16	512 presets, 2 adjustable parameters, 100 memories, 2-band EQ	Oct 96
Zoom	Studio 1204	£199	17	Parallel effects, 2 adjustable parameters, true stereo, MIDI controllable, 2-band EQ	
Zoom	7010 Fire	£300	28	Combined effects and guitar amp	

NOISE GATES

MANUFACTURER	MODEL	PRICE	DESCRIPTION	REVIEW
Aphex	105 Logic Assisted Gate	£399	Budget 4-channel noise gate	
ARX	xGate	£528	6-channel noise gate with balanced I/O	
BSS	DPR502	£793	Stereo noise gate	
BSS	DPR504	£852	Quad noise gate	
BSS	DPR 522	£464	Fully specified 2-channel gate with fine control over all its parameters	Apr 98
dbx	172	£954	'Super gate' noise gate	
dbx	904	£323	Noise gate module	
Digilab	GSG-3D	£193	Dual noise gate	
Digilab	GSG-4M	£193	Quad gate	
Drawmer	DF320	£499	Noise filter	
Drawmer	DS201X	£405	Dual noise gate with balanced XLRs	
Drawmer	DS404	£617	Quad noise gate	
Drawmer	MX40	£382	Quad punch gate	May 98
LA Audio	4G	£399	Quad noise gate/filters	
LA Audio	GX2	£249	Dual frequency-sensitive gate	
LA Audio	MG	£995	16-channel programmable noise gate	
Peavey	NGT-2	£183	Dual noise gate	
UFEX	Gate	£247	Dual stereo noise gate	
Vestax	DGT-202	£295	Dual-frequency turntable gate	

NOISE REDUCTION

MANUFACTURER	MODEL	PRICE	DESCRIPTION	REVIEW
Behringer	SNR1000	£199	2-channel, single-ended noise reduction system	
Behringer	SNR2000	£299	Multi-band, single-ended noise reduction system	
George Massenburg Labs	9550	£7397	Digital dynamic noise filter for the restoration of old or damaged masters	
Peavey	Q-Factor	£275	Dynamic noise reducer	

PRE-AMPS

MANUFACTURER	MODEL	PRICE	DESCRIPTION	REVIEW
Aphex	107 Thermionic Pre-amp	£549	2-channel valve-driven pre-amp	
ART	Acoustic	£349	Pre-amp/processor for acoustic guitar	Dec 96
Bellari	RP520	£399	2-channel valve-driven pre-amp	Oct 97
CLM Dynamics	DB400S	£1380	4-channel pre-amp with independent limiters	Jun 97
dbx	286a	£230	Mic pre-amp/processor	Jan 98
Demeter	VTDB-2B	£558	DI box	
DigiTech	VTP-1	£1000	Valve pre-amp, solid state EQ, A/D converter	Oct 97
Earthworks	LAB 101	£740	Single-channel, half-rack, 2Hz-100kHz, 3 output levels, phantom power	
Earthworks	LAB 102	£740	2-channel, full-rack, 2Hz-100kHz, 3 output levels, phantom power	
Fairman	TRC	£4582	Valve pre-amp, EQ, compressor	Jun 97
Focusrite	Green One	£821	Dual pre-amp	May 97
Focusrite	Green Three	£998	Pre-amp, compressor, de-esser, 3-band voice-optimised EQ	May 97
Focusrite	Green Five	£1174	Pre-amp, line input, 6-band EQ, gate, compressor	
Focusrite	Red One	£2261	Quad pre-amp	
Joemeek	Studio Channel VC1	£704	Pre-amp/compressor/enhancer	Apr 97
Joemeek	Pro Channel VC3	£299	Pre-amp/compressor/enhancer	Sep 96
Symetrix	01	£2110	Mic pre-amp/voice processor, MIDI, digital I/O	
TL Audio	3001	£351	4-channel mic pre-amp	Apr 97
TL Audio	Indigo 2001	£704	4-channel valve pre-amp	
TL Audio	Indigo 2031	£704	2-channel valve overdrive	
TL Audio	PA1	£1052	2-channel pentode valve pre-amp	
TL Audio	PA2	£1052	2-channel valve pre-amp	
TL Audio	V11	£465	8-channel valve interface	
TL Audio	VIS	£347	Record/playback switching unit for V11	

REVERBS

MANUFACTURER	MODEL	PRICE	EFFECTS	DESCRIPTION	REVIEW
Alesis	NanoVerb	£169	8	16 presets, 1 adjustable parameter, true stereo	Sep 96
Alesis	Wedge	£449	28	Desktop unit with 4 control sliders for real-time editing	
Roland	SRV-330	£856	22	High-quality reverbs using the RSS system for 3D sound	
Viscount	Gammaverb	£118	12	16 preset variations per effect	
Yamaha	Pro R3	£1056	6	Pre-/post-EQ reverb unit, 32-bit processing	
Yamaha	REV100	£265	28	100 presets, 3 adjustable parameters, 100 memories, MIDI controllable	
Yamaha	REV500	£399	9	100 presets, 100 memories, MIDI controllable, 32-bit processing	May 97

SAMPLERS

FORMATS: Rack samplers are the traditional production tool, capable of sampling sounds or complete sections, with some offering effects and HDR. *Drum Machines* combine short samples with a sequencer. *Phrase* (or sampling workstations) and *Keyboard* samplers are most suited to performing DJs and musicians, and may offer sequencing and effects.

POLYPHONY: More is generally better, though may (on cheaper models) mean poorer sound quality. Common offerings are 16, 32, 64, and now, even 128-note polyphony.

MEMORY: Again, more is better. It ranges from 384k to 128Mb (on pro models), and this is often expandable. The recently-developed *Flash ROM* retains data on powering-down.

OUTPUTS: Up to eight individual outputs as well as a main stereo pair are the norm for pro machines. On less advanced models you may find only a stereo pair, or two stereo

pairs, although expander boards are available for some models.

OTHER FEATURES: SCSI will allow you to connect hard drives, CD-ROM drives, and computers to your sampler. *Digital I/O*; *synthesis*; and *sequencing* (ranging from notepad to 48-track affairs) are additional features on some units.



DRUM MACHINE

MANUFACTURER	MODEL	PRICE	RAM	DESCRIPTION	REVIEW
Akai	MPC2000	£1199	2Mb	32-note polyphony, 2 outs, up to 48Mb RAM, sequencer	Apr 97
Akai	MPC3000	£2799	2Mb	32-note polyphony, 10 outs, up to 16Mb RAM, S/PDIF input, sequencer	Jun 95

PHRASE

MANUFACTURER	MODEL	PRICE	RAM	DESCRIPTION	REVIEW
Akai	Remix 16	£749	2Mb	8-note polyphony, 2 phono outs, up to 16Mb RAM, notepad sequencer, crossfader	Jul 96
Akai	S20	£499	1Mb	8-note polyphony, 2 outs, up to 16Mb RAM, notepad sequencer	Mar 98
Boss	SP202 Dr Sample	£299	2Mb	4-note polyphony, 2 outs, up to 4Mb RAM via SmartMedia	
Ensoniq	ASR-X	£1199	2Mb	32-note polyphony, 2 outs, up to 34Mb RAM, synthesis, sequencer, effects	Nov 97
Roland	SP-808 Groovesampler	£1099	tbc	16-note polyphony, 4 outs, integral effects, built-in ZIP drive, D-Beam controller	
Yamaha	SU10	£299	384K	4-note polyphony, 1 out, flash RAM, ribbon controller, scratch function	

KEYBOARD

MANUFACTURER	MODEL	PRICE	RAM	DESCRIPTION	REVIEW
Ensoniq	ASR-10	£1799	2Mb	31-note polyphony, 2 outs, up to 16Mb RAM, sequencer, HDR, effects, 61 keys	
Ensoniq	ASR-88	£2999	16Mb	As ASR-10, but with maximum RAM, SCSI, CD-ROM drive, 88 weighted keys	
E-mu	E4K	£3526	4Mb	64-note polyphony, 8 outs, up to 128Mb, HD, sequencer, 76 semi-weighted keys	Aug 96
Kurzweil	K2000S	£2799	2Mb	24-note polyphony, 6 outs, up to 64Mb RAM, synthesis, 76 semi-weighted keys	
Kurzweil	K2500S	£4349	2Mb	48-note polyphony, 10 outs, up to 128Mb RAM, synthesis, 76 semi-weighted keys	
Kurzweil	K2500S	£4610	2Mb	48-note polyphony, 10 outs, up to 128Mb RAM, synthesis, 88 weighted keys	

RACK

MANUFACTURER	MODEL	PRICE	RAM	DESCRIPTION	REVIEW
Akai	CD3000XL	£1699	8Mb	32-note polyphony, 10 outs, up to 32Mb RAM, HDR, built-in CD-ROM	Jan 97
Akai	S2000	£799	2Mb	32-note polyphony, 2 outs, up to 64Mb RAM	
Akai	3000XL	£1499	2Mb	32-note polyphony, 10 outs, up to 64Mb RAM, HDR	Jan 96
Akai	S3200XL	£2499	16Mb	32-note polyphony, 8 outs, up to 32Mb RAM, effects, HDR	Oct 97
E-mu	e6400	£2519	4Mb	64-note polyphony, 8 outs, up to 128Mb RAM, sequencer	
E-mu	E4X	£3149	4Mb	64-note polyphony, 8 outs, 540Mb HD, up to 128Mb RAM, sequencer, effects	Aug 96
E-mu	E4X Turbo	£4409	4Mb	128-note polyphony, 8 outs, 1Gb HD, up to 128Mb RAM, sequencer, effects	Oct 97
E-mu	ESI-4000	£1199	2Mb	64-note polyphony, 4 outs, up to 128Mb RAM, SCSI	Feb 98
E-mu	ESI-4000 Turbo	£1499	2Mb	As ESI-4000, but with 2 extra outs, effects, effects sub-mix out, S/PDIF I/O	Feb 98
E-mu	ESI-4000 TurboZ	£1699	2Mb	As ESI-4000 Turbo, but with 100Mb ZIP drive	Feb 98
Kurzweil	K2000RS	£2799	2Mb	24-note polyphony, 6 outs, up to 64Mb RAM, synthesis, sequencer, effects	
Kurzweil	K2500RS	£3881	2Mb	48-note polyphony, 10 outs, up to 128Mb RAM, synthesis, sequencer, effects	Oct 97
Peavey	SP+	£1169	2Mb	Sample playback module for SXII: 32-note polyphony, 4 outs, up to 32Mb RAM	
Peavey	SXII	£399	256K	Sampling front-end for SP+: up to 16Mb RAM, SCSI	
Yamaha	A3000	1299	2Mb	64-note polyphony, 4 outs, up to 128Mb RAM, 3 effects processors	Jul 97

Sampling Heavyweights

You want a sampler, but you also want a bit of heavy-duty hammer action keyboard bolted on too. What are the alternatives?

Kurzweil K2500S (£4,610)

Kurzweil's K2500 is available in several incarnations, one of which is the weighted-action keyboard. For your money you get 48-note polyphony, 10 audio outs, synthesis, and 2MB of RAM as standard (expandable to 128MB).

Ensoniq ASR88 (£2,999)

The ultimate model in Ensoniq's ASR range of samplers, the '88' gives you 31-note polyphony, 16MB of RAM as standard, hard disk recording, effects and SCSI. You only get two outputs, though, and the operating system isn't

the most user-friendly. A good price, though...

Korg ProX-88 (£4,795)

Okay, it's not a sampler in the strict sense, but with the sampling option and hard disk recording, it may very well fulfil your requirements. Add to that the awesome Trinity sounds, a built-

in Prophecy and some serious effects processing and you may have the ultimate in keyboard enjoyment. As you should, for the best part of five grand...



MAC SOFTWARE & HARDWARE

SEQUENCERS: The sequencer is at the heart of every MIDI system. This list includes sequencers with digital audio capabilities that might require specific additional hardware (covered in 'Audio Hardware'), as well as more traditional versions.

EDITOR/LIBRARIANS: A universal (or 'generic') editor or librarian is a single piece of software that is able to communicate with many different MIDI devices to edit or arrange their stored patches.

SCORING: Scoring packages range from simple programs designed to provide quick output of score to fully specified professional



music publishing solutions.

HARDWARE: Audio hardware covers computer-based hard-disk recording (HDR) systems and other computer hardware.

MIDI INTERFACES: These are covered in the separate section entitled 'Interfaces'.

PLUG-INS: The increasing number of plug-ins available are relevant to audio programs such as Cubase VST, Digital Performer and Digidesign's ProTools. Some are program specific, while others will work across several packages.

Wherever possible, Power Mac-specific gear is mentioned, as well as RAM requirements.

SEQUENCERS

PROGRAM	MANUFACTURER	PRICE	RAM	DESCRIPTION	REVIEW
Cubase Audio XT v3	Steinberg	£699	16Mb	Includes Virtual Studio Technology, HDR and TimeBandit, Power Mac only	Jul 96
Cubase Score v3 VST	Steinberg	£499	8Mb	Includes Virtual Studio Technology, HDR and scoring, Power Mac only	Feb 96
Cubase VST v3.5	Steinberg	£329	16Mb	HDR, support for 3rd-party plug-ins, data streaming, Power Mac only	Sep 97
Cubasis	Steinberg	£129	8Mb	64-track, entry-level program based around Cubase	Mar 95
Cubasis AV	Steinberg	£129	16Mb	64 MIDI tracks with 8 stereo audio tracks for Power PC	
CyberSound	InVision	£199	8Mb	Sequencer and software synthesizer combination	Aug 96
Digital Performer v2.11	Motu	£549	16Mb	Sequencer integrated with HDR, mixing, real-time effects, sampler support	Jan 98
EZ Starter Kit	Opcode	£200		Includes MusicShop, Band-In-A-Box, MIDI book, MIDI Translator II	
EZ Vision	Opcode	£100	4Mb	Entry-level version of Vision	
Freestyle v2	Motu	£149	4Mb	Open, trackless sequencer/composer program with 'Sense Tempo' feature	
Logic Audio v3	Emagic	£599	32Mb	Logic with integrated HDR, sample editor, effects processors, Power Mac only	Mar 98
Logic Audio Discovery	Emagic	£269	16Mb	Budget version of Logic Audio	Nov 94
Logic AV	Emagic	£75		Power Mac-only extension for Logic Audio	
Logic CBX	Emagic	£75		Logic Audio extension for Yamaha CBX-D5 users	
Logic DAE	Emagic	£75		Logic Audio extension for Digidesign users	
Logic TDM	Emagic	£75		Logic Audio extension for TDM plug-in hardware	
Logic v3	Emagic	£399	4Mb	Hugely powerful and flexible MIDI system	Apr 97
MasterTracks Pro v6	Passport	£150	2Mb	Pro-level, easy-to-use sequencer, but only single-staff notation	
microLOGIC v2	Emagic	£99	4Mb	Entry-level version of Logic	Jul 94
microLOGIC XL	Emagic	£119	4Mb	microLOGIC with GM files and keyboard shortcuts	Jul 94
MusicShop	Opcode	£150	4Mb	Sequencer/notation based around EZ Vision	
Performer v5.5	Motu	£349	8Mb	Visually pleasing interface; requires 12Mb in System 7.5, 16Mb on Power PC	
StarterPac	Steinberg	£149		Cubasis and Interface starter package	
Studio Vision AV	Opcode	£649	4Mb	Sequencer with Sound Manager-based HDR, Galaxy librarian	May 96
Studio Vision Pro v3	Opcode	£649	4Mb	Sequencer integrated with DAE/CBX-based recording, Galaxy librarian	May 96
Vision v3	Opcode	£350	4Mb	Graphical sequencer: includes Galaxy librarian	

SCORING

PROGRAM	MANUFACTURER	PRICE	RAM	DESCRIPTION	REVIEW
Composers' Mosaic	Motu	£399	2Mb	Top of the range notation package; specially priced academic version available	
Encore v4 Academic	Passport	£250	4Mb	Special education version of Encore	
Encore v4	Passport	£450	4Mb	Features MIDI input and automatic beaming	
Finale Allegro v2.01	Coda	£350	2Mb	Cut-down version of Finale	
Finale Fonts	Coda	£70	-	Fonts package for use with Finale	
Finale Mac Academic	Coda	£350	4Mb	Education version with full Power Mac support	
Finale Mac v3.2	Coda	£700	4Mb	Features MIDI input, playback and Power Mac support	
MusicTime	Passport	£100	4Mb	Cut-down version of Encore	
Nightingale	Musware	£395	5Mb	Flexible, open-ended score-writer	
Overture v1.1	Opcode	£450	4Mb	Power Mac-native notation package	Nov 94

UNIVERSAL EDITORS & LIBRARIANS

PROGRAM	MANUFACTURER	PRICE	RAM	DESCRIPTION	REVIEW
Edit One	Opcode	£100	4Mb	An individual Galaxy editor for a specific instrument	
Galaxy Plus Editors v2	Opcode	£349	4Mb	Universal librarian plus editors for certain instruments	Jun 97
SoundDiver v1	Emagic	£199	1Mb	Universal sound editor and librarian system	
Unisyn v1.14	Motu	£279	4Mb	Universal sound editor and librarian system	

PLUG-INS

MANUFACTURER	MODEL	PRICE	PLATFORM	DESCRIPTION	REVIEW
Antares	JVP	£430	TDM	Voice processor	
Antares	MDT	£516	TDM	Multi-band dynamics tools	Oct 96
Antares	SST	£430	TDM	Corrects or simulates listening conditions	
Apogee	MasterTools	£934	TDM	UV22 encoding for mastering	
Arboretum	Hyperprism DAS	£311	AudioSuite	25 plug-ins based on programs from Arboretum's TDM and stand-alone versions	
Arboretum	Hyperprism TDM	£311	TDM	23 different effects	Oct 96
Arboretum	Hyperprism VST	£276	VST	24 effect algorithms with real-time control	Spr 97
Bias	SFX Machine	£225	Cross	Modular synthesis	May 98
Digidesign	D-Fi	£351	AudioSuite	4 plug-ins: analogue filter, grunge, rectification, varispeed	Aug 97
Digidesign	DPP-1	£445	TDM	Pitch processor	
Digidesign	D-Verb	£445	TDM	Reverb processor	Oct 96

MANUFACTURER	MODEL	PRICE	PLATFORM	DESCRIPTION	REVIEW
Digidesign	SampleCell TDM	£352	TDM	SampleCell sampling	
Drawmer	Dynamics	£539	TDM	Gate/compressor/expander/limiter	Dec 97
Focusrite	d2	£880	TDM	EQ	
Focusrite	d3	£716	TDM/AudioSuite	Multi-dynamics processor comprising dual compressor/limiter	Apr 98
INA/GRM	GRM Tools	£306	TDM	5 plug-ins	Oct 96
Intelligent Devices	IQ	£823	TDM	Matching equaliser	Feb 97
MotU	PureDSP	£1bc	AudioSuite	Pitch-shifting and time-scaling	
Opcode	fusion: Vinyl	£79	Cross	Transforms samples to classic turntable sounds	
Opcode	fusion: Vocode	£125	Cross	Vocoder with 5-band graphic EQ	
Prosonic	Roomulator	£299	VST	High-spec reverb	Mar 98
Steinberg	Loudness Maximizer	£169	VST	Compressor/limiter	Mar 97
Steinberg	Magneto	£299	VST/TDM	Analogue tape saturation emulator	Mar 98
Steinberg	RedValve+It	£499	TDM	Valve pre-amp simulator	May 97
TC Works	MasterX	£659	TDM	Multi-band dynamics processing	
TC Works	TC Tools	£774	TDM	Reverb and chorus	Oct 96
Wave Mechanics	PurePitch	£576	TDM	Real-time pitch processor	
Waves	AudioTrack	£299	VST	EQ, compressor/expander, noise gate	Mar 97
Waves	EasyWaves	£125	Cross	Audio Track (dynamics) and EZVerb (reverb) bundle	
Waves	Native Power Pack	£399	Cross	6 plug-in bundle	Spr 97

AUDIO SOFTWARE

PROGRAM	MANUFACTURER	PRICE	RAM	DESCRIPTION	REVIEW
Alchemy	Passport	£500	4Mb	Near-classic SCSI sample editor	
Audioshop v2	Opcode	£150	4Mb	Sample editor and CD-ROM controller	
Hyperprism v2.1	Arboretum	£266		21 real-time effects, PPC-native	
MasterList	Digidesign	£434		Audio cue sheet and edit list software for mastering systems	Sep 96
Peak v1.53	BIAS	£225	8Mb	Audio editor supporting 3rd-party plug-ins and sampler transfer	Nov 97
Pro Tools v4.0	Digidesign	£400		New AudioSuite architecture providing Sound Designer II processing features	Jan 97
ProTools PowerMix v4	Digidesign	£716		Software only, works with any Digidesign hardware or Power Mac AV system	Sep 96
ReBirth RB-338 v1.5	Steinberg	£149	16Mb	Virtual synth with 2x TB-303s, a TR-808, effects, sequencer for Power Macs	
ReCycle!	Steinberg	£199	4Mb	Sample and groove processor/resampler	
Session	Digidesign	£187		HDR software; Power Macs need no extra hardware	Sep 96
Sound Designer II	Digidesign	£369	4Mb	Sample processor supporting most sample formats	Sep 96
Synchro Arts	ToolBelt	£387		Pro Tools complement, with added effects	Oct 97
Time Bandit	Steinberg	£199	4Mb	Groove, tempo and pitch-shifting resampling system	
Turbosynth SC	Digidesign	£304	1Mb	Virtual synthesis, sample manipulation and processing	

AUDIO HARDWARE

MANUFACTURER	MODEL	PRICE	DESCRIPTION	REVIEW
Digidesign	882	£892	I/O audio interface for NuBus or PCI Macs	Sep 96
Digidesign	882	£1785	Studio interface for NuBus or PCI Macs	Sep 96
Digidesign	888	£2678	I/O audio interface for NuBus or PCI Macs	Sep 96
Digidesign	Audio Media II	£469	Analogue/digital I/O, Sound Designer II, for NuBus Macs	Sep 96
Digidesign	Audio Media III	£704	18-bit stereo AD/DA converters, stereo S/PDIF I/O, for PCI Macs	Sep 96
Digidesign	Bridge I/O	£1244	Adds another 8 I/O via 882/888	Sep 96
Digidesign	DINR	£892	Intelligent post-production noise-reduction system	
Digidesign	DSP Farm	£2231	4xDSP upgrade for TDM systems	Sep 96
Digidesign	ProTools 24	£7132	24-bit digital recording system, with PCI card, interface and software	Feb 98
Digidesign	Pro Tools III	£6240	16-track core system including I/O card and Pro Tools software, for NuBus Macs	Aug 96
Digidesign	Pro Tools III	£7131	16-track core system including I/O card and Pro Tools software, for PCI Macs	Aug 96
Digidesign	Pro Tools Expansion	£4464	Adds 16-tracks to Pro Tools III, for NuBus Macs	Sep 96
Digidesign	Pro Tools Expansion	£5228	Adds 16-tracks to Pro Tools III, for PCI Macs	Sep 96
Digidesign	Pro Tools Project	£2232	8-track recording with Pro Tools software, for NuBus Macs	Sep 96
Digidesign	Pro Tools Project	£2232	8-track recording with Pro Tools software, for PCI Macs	Sep 96
Digidesign	SampleCell II	£1499	8-note polyphonic sampling card, for NuBus Macs	Sep 96
Digidesign	Session 8	£1785	Core system including Session software and I/O card, for PCI Macs	Sep 96
Digidesign	Session 8 Upgrade	£4369	Upgrade from Session 8 hard/software to Pro Tools III	
Digidesign	Session 8XL	£5226	Full Session virtual recording and mixing studio	
Digidesign	SoundTools II	£3091	Entry-level incarnation of Digidesign HDR system	
Digidesign	SoundTools II Upgrade	£3047	Upgrade from SoundTools II to Pro Tools III	
Emagic	Audiowerk8	£499	16-bit stereo, 2 in, 8 out PCI-based AD/DA converters, stereo S/PDIF I/O	Jun 97
Korg	1212 I/O	£599	PCI-based card, 10 in, 10 out PCI-based AD/DA converters, S/PDIF I/O	Jun 97
Mackie	HUI	£3171	'Human User Interface' for ProTools	Feb 98
MotU	2408	£995	24 I/O (analogue, ADAT, DA-88, S/PDIF), 16- or 24-bit recording at 44.1/48 kHz	
MotU	Digital Timepiece	£1049	Audio/timecode synchroniser	Sep 97
Steinberg	ACI	£349	Sequencer-controlled ADAT machine control box	

Updates...Updates...Updates...

Are you a manufacturer or distributor? Are your products listed in *The Mix Buyer's Guide*? To make sure we have all your products correctly listed, you should keep us updated with the latest prices and model names of your product ranges. If you do spot an inaccuracy, or change your prices, please send us the correct details:

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 By fax:
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Remember, it's in your interest to be in the *Buyer's Guide*, so make sure you check your entry!

ATARI SOFTWARE & HARDWARE

This section mainly covers the ST and its variants, but the Falcon is mentioned in specific cases.

The original budget studio computer, the Atari range maintains its appeal in studios for its built-in MIDI ports and low price. The sequencer is at the heart of every MIDI system, and this list covers the many available for the Atari. Universal (or generic) editors and librarians are single pieces of software that are able to communicate with many different

devices. Scoring packages range from simple programs designed to provide quick output of score to more sophisticated music publishing solutions. Audio hardware covers sampling systems and other computer hardware.

NOTE: *The Mix* is committed to covering the Atari platform for as long as it is being used.

SEQUENCERS

PROGRAM	MANUFACTURER	PRICE	RAM	DESCRIPTION	REVIEW
Breakthru Plus	Software Technology	£130	1Mb	As Breakthru, but with 32 MIDI channels	
Breakthru Score Printing Kit	Software Technology	£50		Score-printing add-on for Breakthru	
Breakthru v1.2	Software Technology	£100	1Mb	MIDI/sample sequencer with score and drum editing	
Breakthru v2	Software Technology	£130	1Mb	64-track version of Breakthru with extensions	
Breakthru v2 Plus	Software Technology	£150	1Mb	32-channel version with special interface	
Cubase Audio Falcon	Steinberg	£699	4Mb	Sequencer/16-channel recorder using Falcon interface	Jun 96
Cubase Lite	Steinberg	£99	1Mb	Entry-level Cubase with arrange and score edit only	Jun 96
Cubase Score v2	Steinberg	£449	2Mb	MIDI sequencing and full score editing/printing	Jun 96
Digital Home Studio	Softie	£tbc	tbc	Pattern-based sample and MIDI-sequencing, HDR, sample editing, synth, for Falcon	
MIDIGrid	CDP	£149	1Mb	Phrase-based graphic sequencer	
Logic v2.5	Emagic	£59	tbc	Upgrade only available to registered users	
Sequencer One	Software Technology	£20	512K	Straightforward beginners' MIDI sequencer	
Sequencer One Plus	Software Technology	£50	512K	Expanded Sequencer One with better editing	

SCORING

PROGRAM	MANUFACTURER	PRICE	RAM	DESCRIPTION	REVIEW
Music DTP Ed	Take Control	£229	1Mb	Intermediate user's package with MIDI input	
Music DTP Lite	Take Control	£111	1Mb	Entry-level notation package with MIDI input	
Music DTP Pro	Take Control	£347	1Mb	Pro-level package with real-time MIDI input	
Vivace Module 3	Desert Software	£90	1Mb	Score module for use with Vivace sequencer	

UNIVERSAL EDITORS & LIBRARIANS

PROGRAM	MANUFACTURER	PRICE	RAM	DESCRIPTION	REVIEW
CMpanion	Software Technology	£50	512K	For Roland D-series and Roland desktop modules	
Patch Vision	Intrinsic Technology	£50	512K	Universal librarian desk accessory with search and sort options	
PC128	Intrinsic Technology	£19	512K	Desk accessory sound organiser; runs in colour or mono	
Studio Module	Steinberg	£159	2Mb	Universal editor, MIDI set-up saver and editor; needs Cubase	

AUDIO SOFTWARE

PROGRAM	MANUFACTURER	PRICE	RAM	DESCRIPTION	REVIEW
A-Loader MSK-100	Newtronlc	£25	1Mb	Sample loader for S-10/S-220/MKS-100	
Avalon v2.1	Steinberg	£349	2Mb	Mono editor supporting over 18 sample types	
Clarity 16 v2.0	Microdeal	£60	4Mb	Sample editor for the Falcon with 44.1/48kHz sampling and HDR	
Replay 16 v1.11	Microdeal	£80	1Mb	16-bit sampling cartridge and editor	
Slam v1.1	Intrinsic Technology	£89	512K	Librarian/manager for Akai samplers	
Stereo Master	Microdeal	£39		8-bit stereo sampler/editor	
Zero-X v2.0	System Solutions	£169	1Mb	ReCycle!-type groove-based sample editor	

AUDIO HARDWARE

MANUFACTURER	MODEL	PRICE	DESCRIPTION	REVIEW
Microdeal	Replay 16	£129	16-bit sampling cartridge and editor	
Microdeal	Replay Stereo	£79	Stereo 8-bit sampling system	
MotU	MIDI Timepiece AV	£649	8x8 MIDI interface with SMPTE, LTC video, ADAT Digidesign Superclock sync	Apr 97
Steinberg	AudioSpecter	£399	Spectrum analyser software and cartridge for Falcon	
Steinberg	FDI	£329	Digital interface cartridge for Falcon	

IN FOCUS: Syntrillium Cool Edit Pro

Price: £349

Reviewed: Feb '98

CoolEdit has long been a favourite shareware program among digital audio enthusiasts, so it was no surprise when Syntrillium finally released a commercial version. Even at this price, it has a lot going for it, with its built-in effects and 64 maximum tracks. The two main windows are the Wave Editor screen (where you can edit individual waveforms) and the Multitrack screen (where recording takes place).

This is what reviewer Ian Waugh said of CoolEdit Pro: "Cool Edit Pro is easy to use, its range of processing and general functions is impressive, and it has several unique features which will endear it to the hearts



of many."

"If processing plays an important part in your music, this is a program you simply can't afford

to ignore."

Praise indeed, but it's also worth noting that Cool Edit's effects aren't real-time, and as ever, you need the most powerful PC you can afford to run this type of software.

Brief Spec

- 64 tracks of audio
- 30 effects
- 32-bit internal processing
- Support for 16 file formats
- Waveform and Spectral View options
- Requirements: Pentium PC with Win95 or NT, 32 Meg of RAM

You can download a demo of Cool Edit from the Syntrillium website: www.syntrillium.com



PC SOFTWARE & HARDWARE

SEQUENCERS: The sequencer is at the heart of every MIDI system. This list includes sequencers with digital audio capabilities that might require specific additional hardware (covered in 'Audio Hardware').

EDITOR/LIBRARIANS: A universal (or 'generic') editor or librarian is a single piece of software able to communicate with many different devices.

SCORING: Scoring packages range from simple programs designed to provide quick output of scores to fully specified professional music publishing solutions.

AUDIO HARDWARE: This listing covers hard-disk recording (HDR) systems and other computer hardware.

MIDI INTERFACES: These are covered in the separate section entitled 'Interfaces'.

PLUG-INS: The increasing number of plug-ins available are relevant to audio programs such as Cubase VST and Digital Performer. Some are program specific, while others will work across several packages.

Wherever possible, Win95-specific software is mentioned. Soundcards are listed under 'Audio Hardware'.



SEQUENCERS

PROGRAM	MANUFACTURER	PRICE	RAM	DESCRIPTION	REVIEW
Audio Pro	Evolution Electronics	£100	4Mb	MIDI/audio sequencer with 16 styles and karaoke	
Audition GS/XG	Sunrize	£82	4Mb	MIDI sequencer with GS/XG editing	
Cakewalk Express	Cakewalk	£49	2Mb	2 audio tracks, digital effects	
Cakewalk Home Studio v5	Cakewalk	£99	2Mb	2 audio tracks, compatible with DirectX plug-ins	
Cakewalk Pro Audio Deluxe	Cakewalk	£379	16Mb	As Pro Audio, but with 2 CD-ROM collection of additional software	
Cakewalk Pro Audio v6	Cakewalk	£329	16Mb	256 MIDI and 64 audio tracks, effects, plug-ins, HDR; requires CD-ROM and Win95	Oct 97
Cakewalk Professional	Cakewalk	£199	2Mb	256 MIDI and 8 audio tracks, though fewer plug-ins, none in real-time	
Cakewalk SongStation v5	Cakewalk	£69	2Mb	Entry-level composition system on CD	
Cubase Audio XT v3	Steinberg	£699	16Mb	Includes HDR	Jul 96
Cubase Score v3	Steinberg	£499	8Mb	Includes HDR and scoring	Feb 96
Cubase VST 3.5	Steinberg	£329	16Mb	32 channels of digital audio, 128 real-time EQs, 4 channel and 4 master effects	Jan 98
Cubase VST 3.5 Score	Steinberg	£329	16Mb	As above, but with scoring facilities	
Cubase v3.02	Steinberg	£329	16Mb	HDR, WaveLab Lite, support for 3rd-party plug-ins, Audio Media III/Korg 1212	Mar 97
Cubase v3.5 VST	Steinberg	£329	16Mb	As v3, but with data streaming, requires P100, 24Mb RAM	Sep 97
Cubase On Line	Heavenly Music	£13	-	On-line tutorial and help software for Cubase	
Cubasis AV	Steinberg	£99	8Mb	64-track, entry-level program based around Cubase	
Cubasis Audio	Steinberg	£199	4Mb	Cubasis with WAV recording support	
Digital Orchestrator Plus	Voyetra	£130	4Mb	Windows-based sequencer with digital audio and effects	
Freestyle	MotU	£149	4Mb	Open, trackless sequencer/composer program	
Logic Audio Discovery	Emagic	£99	16Mb	Budget version of Logic Audio	Nov 96
Logic Audio v3	Emagic	£599	32Mb	Logic with Integrated HDR, sample editor, effects processors, Win 95/Pentium	Mar 98
Logic v3	Emagic	£399	16Mb	Full-featured sequencing package	
MasterTracks Pro v6	Passport	£150	2Mb	Pro-level, easy-to-use sequencer, but only single-staff notation	
microLOGIC v2	Emagic	£99	2Mb	Entry-level version of Logic for Windows users	
microLOGIC XL	Emagic	£119	4Mb	microLOGIC with GM files and keyboard shortcuts	
MIDI Workshop	Passport	£70	1Mb	Entry-level version of MasterTracks with multimedia	
MIDIGrid	CDP	£149	1Mb	Phrase-based graphic sequencer	
Musicator Audio	Musicator A/S	£300	8Mb	Sequencer/hard-disk recorder with notation, mixing, SMPTE/MTC sync	
Musicator Windows v2.1	Musicator A/S	£200	4Mb	Windows version of Musicator GS with hard-disk recording facility	
PC Drummer v1	Sunrize	£58	2Mb	GM rhythm pattern editor: very basic stuff	
Powertracks Pro	PG Music	£50	1Mb	48 tracks, MIDI file support, GS editor and sync	
Quartz	Canam	£40	4Mb	Multimedia sequencer, links MIDI to WAV files	
Quartz	Canam	£40	8Mb	8-track hard-disk recorder	
QuickScore Pro	Dr T's	£99	4Mb	Score editor with extra MIDI functions	
Sequencer Plus Classic	Voyetra	£100	640K	500-track DOS/text-based sequencer	
Sequencer Plus Gold v4.1	Voyetra	£250	640K	3,300-track expanded version of Classic	
Sequencer Plus Junior	Voyetra	£40	512K	Entry-level DOS/text MIDI sequencer	
Sound Studio	Evolution Electronics	£60	4Mb	32-track sequencer and 2-track recorder	
Sound Studio Pro	Evolution Electronics	£150	4Mb	100-track sequencer and 4-track recording package	
Sound Studio Gold	Evolution Electronics	£150	4Mb	256-track sequencer with 16 audio tracks	Spr 97
Sound Suite	Voyetra	£140	4Mb	Bundle which includes Orchestrator Plus, WAV editor, AV players and MIDI files	
StarterPac	Steinberg	£149	4Mb	Cubasis and interface starter package	
Vision v2.5 for Windows	Opcode	£234	12Mb	Vision for the Mac has been ported for Windows	Mar 97

SCORING

PROGRAM	MANUFACTURER	PRICE	RAM	DESCRIPTION	REVIEW
Finale 1997	Coda	£499	8Mb	Music notation software, requires Win95/Pentium	

UNIVERSAL EDITORS & LIBRARIANS

PROGRAM	MANUFACTURER	PRICE	RAM	DESCRIPTION	REVIEW
MIDIQuest Windows v5	SoundQuest	£250	4Mb	Generic editor and librarian	
SoloQuest	SoundQuest	£100	2Mb	Single-instrument editor for Windows; DOS version also available	
Studio Module	Steinberg	£159	2Mb	Universal editor, MIDI set-up saver and editor; needs Cubase	
Unisyn v1.2	MotU	£229	4Mb	Universal editor and librarian	

PLUG-INS

MANUFACTURER	PROGRAM	PRICE	PLATFORM	DESCRIPTION	REVIEW
Opcode	fusion: Vinyl	£79	DirectX	Transforms samples to classic turntable sounds	
Opcode	fusion: Vocode	£125	DirectX	Vocoder with 5-band graphic EQ	
Sonic Foundry	Sound Forge Plug-Ins	£299	Sound Forge	Batch converter, noise reducer, spectrum analyser plug-ins	Jul 97
Soundscape	Reverb	£275	Soundscape	Reverb plug-in	Jul 95
Soundscape	Time Module	£150	Soundscape	Time compression plug-in	Jul 95
Steinberg	Clicker	£299	WaveLab	Click removal plug-in	
Steinberg	Denoiser	£299	WaveLab	Noise removal plug-in	
Steinberg	Loudness Maximiser	£299	WaveLab	Volume adjustment plug-in	
Steinberg	Magneto	£299	WaveLab	Analogue tape saturation emulator	Mar 98
TC Works	Native Essentials	£159	DirectX	Entry-level bundle comprising reverb, EQ and dynamics processing	
Waves	EasyWaves	£125	Cross	Audio Track (dynamics) and EZVerb (reverb) bundle	
Waves	Native Power Pack	£399	Cross	6 plug-in bundle	Spr 97

AUDIO SOFTWARE

PROGRAM	MANUFACTURER	PRICE	RAM	DESCRIPTION	REVIEW
Audio Architect v3	Karnataka Group	£120		Modular analogue synthesizer	
CD Architect	Sonic Foundry	£259		Red Book-standard CD burning software, for Win95 and NT, inc Sound Forge XP	Nov 97
CDP	CDP	£495		High-end sampler/synthesis/sound processing system	
Cool Edit Pro	Syntrillium	£349	8	64 audio tracks, DirectX plug-in support, Cakewalk integration, for Win95 and NT	Feb 98
DART	Tracer	£349		Removes clicks, hums, buzzes and other noises from WAV files	
FastEdit	DAL	£189		Editor for WAV files with MIDI trigger playlist; works with any Win soundcard	
Native PowerPack	Waves	£499		WaveConvert plus processing and effects plug-ins for SoundForge, WaveLab	
ReBirth RB-338 v1.5	Steinberg	£149	16Mb	Virtual synth with 2x TB-303s, a TR-808, effects, sequencer for Pentiums	
ReCycle!	Steinberg	£199	4Mb	Sample and groove processor/resampler	
Resample Pro	KCCM	£99	4Mb	Sample format converter covering all major types	
Samplitude Pro	SEK'D	£250	4Mb	High-quality hard-disk recorder/editor	Mar 95
Samplitude Studio	SEK'D	£400		16-track version of Samplitude Pro, needs fast hard disk	Mar 95
Session v2.52	Digidesign	£175		2-4 tracks of HDR, 8 tracks of simultaneous playback, plus EQ, mix automation	Sep 96
SoundForge v4.0a	Sonic Foundry	£299	8Mb	Sample editing, timestretching and format conversion, CD-ROM required	May 97
SoundForge XP	Sonic Foundry	£99		Basic editing only in this budget version	
Soundstation	Sunrize	£58	4Mb	Sample editor with Fourier analysis, synthesis, MIDI pitching	
WaveConvert v1.01	Waves	£229		File format converter; handles sample rates and bit depths	
Wave For Windows v2	Turtle Beach	£69		Digital sample editor	
WaveLab v1.6	Steinberg	£399	16Mb	Waveform editor and processor with plug-ins, CD mastering; for Win95 or NT	Jun 97
Wave Safe	PSL	£65		Protection and salvage of digital audio files	Apr 98
Wave Safe Pro	PSL	£130		As above, with additional support and features	Apr 98

AUDIO HARDWARE

MANUFACTURER	MODEL	PRICE	DESCRIPTION	REVIEW
AdB	MultiWAV	£449	AES/EBU and S/PDIF digital I/O card	
AdB	MultiWAV Pro 18	£549	Pro-level, 18-bit digital I/O card	
Audio and Video	SADIE	£2300	4-track HDR plus Windows editing software, timecode, digital I/O, DSP, MIDI	
AVM	Apex	£299	32-note polyphony, 16-part multi, up to 64Mb RAM, analogue I/O, MIDI	
CreamWare	TripleDAT	£1290	Digital I/O card with HDR software	Dec 96
Creative Labs	AWE32 PnP	£210	32-note polyphony, 512K RAM, wavetable synthesis, sampling, 3-format CD-ROM	
Creative Labs	AWE64	£169	64-note polyphony, 512K RAM, expandable to 8Mb, wavetable synthesis, sampling	Apr 97
Creative Labs	AWE64 Gold	£199	64-note polyphony, 4Mb RAM, expandable to 8Mb, wavetable synthesis, sampling	Jul 97
Creative Labs	SoundBlaster 16 Value	£86	Full-length 16-bit sampling true stereo card, FM synth, MIDI	
Creative Labs	SoundBlaster 16 Value	£86	Full-length 16-bit sampling true stereo card, FM synth, MIDI for IDE interface	
Creative Labs	SoundBlaster 32	£146	16-bit, 44.1kHz sampling, 32-note GM wavetable synth, up to 28Mb RAM	
Creative Labs	WaveBlaster II	£67	Soundcard based on E-mu's synthesis; 32-note polyphony, GM compatibility	
DAL	CardD Plus	£599	16-bit simultaneous HD recording and playback	
DAL	Digital Only CardD	£349	Digital-only version of CardD	
DAL	I/O CardD	£249	Adds S/PDIF digital I/O to CardD	
Digidesign	882	£892	I/O audio interface	Sep 96
Digidesign	882	£1785	Studio interface for Session 8	Sep 96
Digidesign	888	£2678	I/O audio interface	Sep 96
Digidesign	Audio Media III	£704	18-bit stereo AD/DA converters, stereo S/PDIF I/O	Sep 96
Digidesign	Bridge I/O	£1244	Adds another 8 I/O via 882/888	Sep 96
Digidesign	SampleCell II	£1139	8-note polyphonic sampling card, for ISA PCs	Sep 96
Digidesign	Session 8	£1785	Core system including Session software and I/O card	Sep 96
Emagic	Audiowerk8	£499	16-bit stereo, 2 in, 8 out PCI-based AD/DA converters, stereo S/PDIF I/O, Win95	Jun 97
Ensoniq	Soundscape Elite	£239	16-bit, wavetable card with excellent Ensoniq sounds	
Frontier	WaveCenter	£498	16-bit ISA card, with S/PDIF and ADAT digital I/O but no analogue audio	Mar 98
Gravis	PnP	£150	44.1kHz, 16-bit sampling, GM synth with 1Mb ROM on Plug and Play card	
Gravis	PnP Pro	£200	Plug and Play with added 512K sample RAM	
Innovative Quality	SAMM	£399	Digital system for use with Yamaha's ProMix 01	
Innovative Quality	SAW Classic	£249	Original 4-track version of SAW at entry-level price	
Innovative Quality	SAW Plus	£699	Expanded, 16-track version of SAW; needs fast hard disk and P90 or better	
Innovative Quality	SAW v6	£399	Pro-quality 4-track HDR system with editing, mixing, playback and effects	
Koch	TripleDAT	£1173	Card and software for editing and remastering DATs	
MediaTrix	AudioTrix Pro	£270	Full duplex AD/DACs, CD-ROM ports, MIDI cable, GM and 3D-sound option	
MAXi	Sound 64 Home Studio	£150	44.1kHz, 16-bit sampling, 64-note polyphony, expandable to 16Mb RAM, PnP	May 97
Midiman	DiO	£1bc	1-in, 1-out AES/EBU and S/PDIF digital audio card	
Midiman	DMan	£249	16-bit, full-duplex digital audio card	
Midiman	DMan 2044	£1bc	20-bit digital audio card with 4 I/Os, on-board DSP, synth and MIDI interface	
Midiman	DMan Digital Studio	£279	DMan card with Samplitude software	
Midiman	EQMan	£89	7-band stereo graphic equaliser PC card	
Midiman	Flying Cow	£1bc	20-bit stereo external DAC in half-rack module	
MotU	2408	£995	24 I/O (analogue, ADAT, DA-88, S/PDIF), 16- or 24-bit recording at 44.1/48 kHz	
MotU	MIDI Timepiece AV	£649	8x8 MIDI interface with SMPTE, LTC video, ADAT Digidesign Superclock sync	Apr 97
New Dimensions	Technosound PC	£40	Real-time effects processor board for SoundBlaster cards	
Orchid	NuSound PnP	£100	3D surround-sound wavetable synth with Plug and Play support for Win95	
Reveal	WAVExtreme32	£80	GM soundcard	
Roland	ATW-10	£360	16-bit sampling card with GM synthesis and Audio Toolworks editing software	
Roland	SCC-1	£299	24-note, 16-part GM/GS card with MIDI interface	
Soundscape	SS8IO-1	£600	8-channel analogue upgrade: TDIF, ADAT I/O, Word/Super Clock	Jul 95
Soundscape	SSAC-1	£600	Accelerator card upgrade, enables additional program and 8-channel TDIF	Jul 95
Soundscape	SSHDR1	£2500	Rackmount, 8-track HDR system	Jul 95
Soundscape	SSHDR1 Plus	£9165	20 analogue I/24 analogue O, 4 I/8 O S/PDIF and AES/EBU, for Win95 or NT	
Terratec	EWS64XL	£399	2 analogue I/O, 1V/20 S/PDIF digital, 2 MIDI interfaces, 32 channels	May 98
Turtle Beach	CD Master II	£849	Pro digital mastering with included CD-ROM drive kit	Dec 94
Turtle Beach	Digital I/O upgrade	£120	Digital port upgrade for Fiji and Pinnacle cards	Dec 94
Turtle Beach	Fiji	£369	High-quality soundcard, supports hard-disk recording	Dec 94
Turtle Beach	Fiji with Digital I/O	£469	Fiji card with digital connection support	
Turtle Beach	Interface adapter	£20	MIDI port for Maui and Monterey cards	
Turtle Beach	Pinnacle	£479	Latest high-quality soundcard	



STEREO RECORDERS



CASSETTE: Still the most widely used consumer recording format, analogue audio cassette can provide acceptable results as a mastering format when high-quality machines and media are used. Models aimed at the studio and musician are generally of a higher quality than consumer models and will subsequently give better results.

CD-R: Recordable CD is a format growing in popularity, largely due to the price of

recorders coming down. There are two types of CD-R available: stand-alone hardware models, and SCSI-based drives that connect to your computer. Blank CD-Rs are getting cheaper, too, with time/price currently at around 2.5 to 4p per minute.

DAT: Digital Audio Tape is still the mastering format of choice for most studios, providing (as it does) excellent sound quality and relatively cheap media. Audio quality does not vary wildly between basic models and 'professional' models, though with the more expensive DATs you can expect balanced I/O, digital I/O, and a fully-featured remote.

MINIDISC: This format does not give as good quality audio as DAT, but it is a cheap way into digital mastering – consumer models typically cost several hundred pounds. The media itself isn't too expensive and can be overwritten many times.

CASSETTE

MANUFACTURER	MODEL	PRICE	DESCRIPTION	REVIEW
Denon	DN790R	£699	Studio-quality cassette deck	
Sony	WMD-6C	£299	Top-spec, professional recording Walkman	
Tascam	102MkII	£479	Pro-quality cassette mastering deck	
Tascam	202MkII	£799	Pro-quality double cassette mastering deck	

CD-R

MANUFACTURER	MODEL	PRICE	DESCRIPTION	REVIEW
Fostex	CD200	£1522	32/44.1/48kHz inputs, AES/EBU, S/PDIF coaxial and optical I/O	
HHB	CDR-800	£1299	32/44.1/48kHz inputs, digital synchronous dubbing mode	
Marantz	CDR610	£3989	Analogue and digital I/O	
Marantz	CDR615	£tbc	Built-in SRC, balanced analogue I/O, auto-track increment, S/PDIF I/O	
Philips	CDR 870	£500	CD recorder that can also use rewriteable discs	Jan 98
Pioneer	PDR-04	£699	Analogue and digital I/O, but writes SCMS	
Pioneer	PDR-05	£1299	Analogue and digital I/O, but writes SCMS	Nov 96
Plasmon	CD4240	£586	Internal CD-ROM burner	Oct 96
Plasmon	CD4240	£870	External CD-ROM burner, SCSI card, software	Oct 96
Traxdata	CDR 4120 Pro	£tbc	4x record/12x playback with internal or external options; requires PC	
Traxdata	TraxCopier	£tbc	CR-R and automated CD duplicator	

DAT

MANUFACTURER	MODEL	PRICE	DESCRIPTION	REVIEW
Fostex	D5	£899	Semi-pro standard digital recorder	Mar 97
Fostex	D10	£2695	Pro-level DAT master machine	
HHB	PDR1000	£3401	4 heads, portable	
Panasonic	SV-3800	£1099	2 head, 44.1/48kHz sample rates, analogue/digital I/O, error display	Mar 97
Pioneer	D-05	£899	2 head	Mar 97
Sony	DTC-670	£799	Semi-pro DAT	
Sony	DTC-A6	£799	2 head, 32-48kHz sample rates, SCMS	Jun 97
Sony	DTC-A8	£949	2 head, 32-48kHz sample rates, SCMS	Jun 97
Sony	DTC-A9	£1169	2 head, 32-48kHz sample rates, XLR in/out, SCMS	Jun 97
Sony	DTC-D8	£599	Mic input, 44.1kHz analogue in, 1-bit A/D and D/A, digital I/O, portable	Mar 97
Sony	PCM-2300	£1481	2 heads, balanced I/O	
Sony	PCM-2600	£1469	2 heads	
Sony	PCM-2700A	£2095	4 heads	
Sony	PCM-R500	£1169	32-48kHz sample rates, AES/EBU I/O	Oct 97
Sony	PCM-R700	£2056	4 heads, 32-48kHz sample rates, AES/EBU I/O	Oct 97
Tascam	DA-20 MkII	£799	44.1kHz sample rate	Mar 97
Tascam	DA-30 MkII	£1299	44.1kHz analogue in, AES/EBU I/O, balanced analogue out, shuttle wheel	Mar 97
Tascam	DA-60 MkII	£tbc	Advanced timecode DAT	
Tascam	DA-302	£1499	2 DAT recorders in one unit, for simultaneous digital cloning and duplication	Apr 98
Tascam	DA-P1	£1499	Professional portable DAT recorder with XLRs and 48V phantom power	

MINIDISC

MANUFACTURER	MODEL	PRICE	DESCRIPTION	REVIEW
Tascam	MD-301	£699	44.1kHz with sample rate conversion, analogue phono I/O, digital optical I/O	May 98
Tascam	MD-501	£899	44.1kHz with sample rate conversion, analogue XLR/phono I/O, digital optical I/O	May 98

IN FOCUS: Alesis M20 ADAT

Price: £4,999 ex.VAT

If you're a fan of Alesis' ubiquitous ADAT, and have a bit of cash to spend, then the M20 is the machine for you. It's the top model in their new range of Type II digital multitracks, and features the same 20-bit recording performance as the XT20 (reviewed last month) and the affordable LX20. What those extra bits mean is an increased dynamic range – now at 117dB – and along with its 24-bit A/D converters, this gives a significant increase in audio quality over Type I (16-bit) ADATs. You can still keep your trusty 'classic' ADAT, though, because the M20 will link up to it

without any trouble. Marvellous, eh?

Brief Spec

- 20-bit recording
- 24-bit converters
- 117dB dynamic range
- Built-in SMPTE/EBU synchronisation
- Balanced audio connections
- Compatibility with Type I ADATs





MULTITRACK RECORDERS



ANALOGUE: Analogue cassette and reel-to-reel represent old technology as digital strengthens its hold on the market. Reel-to-reel recorders are virtually extinct, while cassette still offers a cheap way into recording with Portastudios.

DIGITAL TAPE: The Alesis ADAT popularised the high-end consumer video format of S-VHS. It records 40 minutes of audio on a two-hour tape. Up to 16 ADAT machines can be synced together to provide 128 audio tracks. Hi-8 cassettes are used by Tascam's rival DTRS modular eight-track system, which can deliver 128

tracks in a multi-machine set-up. The cost of tape for DTRS is much cheaper than with the ADAT system.

MINIDISC: MD exists in two formats: Audio and Data. Audio discs are used on MD hi-fi systems, while Data discs are used by computers and MD four-tracks. Most MD systems will only work at 44.1kHz and few have digital outputs.

HARD DISK RECORDING: Whether it's a computer system or a dedicated hard-disk recorder, the exponential rise in storage capacity and drive efficiency has taken hard-disk recording into a new era, with dozens of tracks and software controlled mixers and effects available. You'll eventually have to back-up your data when the drive gets full.

MAGNETO-OPTICAL: MO is a removable format able to store large amounts of data. The cost of multitrack recording on this convenient format is cost-effective too.

ANALOGUE CASSETTE

MANUFACTURER	MODEL	PRICE	TRACKS	DESCRIPTION	REVIEW
Fostex	X-14	£149	4	1 input, built-in mic	
Fostex	XR-3	£249	4	2 inputs, Dolby B NR, 2-track simultaneous record, high speed	
Fostex	XR-5	£379	4	4 inputs, Dolby C NR, high speed	
Fostex	XR-7	£499	4	6 inputs, 3-band EQ, Dolby C NR, 2 speeds	
Peavey	MCR-4A	£919	4	2-speed	
Peavey	MCR-4S	£1012	4	2-speed, sync	
Tascam	134	£1190	4	2-speed, rackmount machine for AV work	
Tascam	414	£349	4	4 inputs, 2-band EQ, dbx NR, 2 aux, high speed, 4-track simultaneous record	Spr 97
Tascam	424MkII	£499	4	8 inputs, 3-band EQ, dbx NR, 2 aux, 2 speeds, MIDI sync, auto punch in/out	
Tascam	488MkII	£1299	8	12 inputs, 3-band EQ, dbx NR, 2 aux, high speed, MIDI sync, phantom power, inserts	
Tascam	Porta03MkII	£169	4	2 inputs, Dolby B NR, 2-track simultaneous record	
Yamaha	MT4X	£559	4	4 inputs, 3-band EQ, dbx NR, 2 aux, 2 speeds, MIDI sync	Aug 96
Yamaha	MT50	£399	4	4 inputs, EQ, dbx NR, 1 aux, 4-track simultaneous record	
Yamaha	MT8X II	£999	8	14 inputs, 3-band EQ, dbx NR, 2 aux, high speed, MIDI sync, phantom power, inserts	

ANALOGUE REEL-TO-REEL

MANUFACTURER	MODEL	PRICE	TRACKS	DESCRIPTION	REVIEW
Tascam	TSR-8	£2299	8	High-quality, flexible 8-track half-inch tape recorder	

DIGITAL TAPE

MANUFACTURER	MODEL	PRICE	TRACKS	DESCRIPTION	REVIEW
Alesis	ADAT XT20	£2299	8	New ADAT with 20-bit recording, wider dynamic range, lower quantisation noise	May 98
Alesis	ADAT M20	£tbc	8	Professional digital audio recorder	
Fostex	RD8	£3999	8	ADAT compatible recorder with lots of control; S-VHS format	July 94
Rane	RC24A	£1087	-	Converts ADAT into 24-bit 4-track machine	
Rane	RC24T	£1028	-	Converts DA-88 into 24-bit 4-track machine	
Tascam	DA-38	£2099	8	Entry-level version of the DA-88 with internal patch bay and shuttle control	Oct 96
Tascam	DA-88	£2799	8	ADAT-rival digital multitrack tape; uses cheaper Hi-8 tape	
Tascam	DA-98	£3999	8	Timecode, MIDI, video, digital interfacing, scrub wheel, large LCD read-out	Nov 97

MINIDISC

MANUFACTURER	MODEL	PRICE	TRACKS	DESCRIPTION	REVIEW
Sony	MDM-X4	£799	4	10 inputs, 3-band EQ, 2 aux, MMC sync, MTC/MIDI Clock out	Mar 97
Tascam	564	£1099	4	12 inputs, 3-band EQ, 2 aux, MMC sync, MTC/MIDI Clock out, S/PDIF out	Sep 96
Yamaha	MD4	£699	4	8 inputs, 3-band EQ, 1 aux, MTC/MIDI Clock out	Sep 96
Yamaha	MD8	£999	8	12 inputs, 3-band EQ with sweepable mid, 2 aux, MTC/MIDI Clock	May 98

HARD DISC

MANUFACTURER	MODEL	PRICE	TRACKS	DESCRIPTION	REVIEW
Akai	DPS12	£1299	12	6 inputs, 3-band EQ, 2 sends, 20 track mixer, integral Jaz drive, optional effects	
Akai	DR4d	£1499	4	16-bit, 32-48kHz sample rate, AES/EBU inputs, SMPTE board	
Akai	DR8	£2799	8	As DR4d, but with enhanced editing and mixing controls	May 95
Akai	DR16	£3999	16	As DR8, but with 128-track operation possible with 8xDR16	Oct 97
E-mu	Darwin	£2879	8	Easy-to-use unit with 8:2 digital mixer, interface options and improved OS	
E-mu	Darwin	£2999	8	As above, but with hard disc	Mar 96
Ensoniq	PARIS	£2499	16	4 inputs, 4 outputs, 4-band EQ, 16 sends, 8 returns	Jan 98
Fostex	D-80	£1299	8	8 inputs, 8 outputs, MIDI and digital I/O in rack-mounted caddy-loading IDE unit	May 96
Fostex	D-90	£1499	8	As D-80, but with ADAT interface	Jul 97
Fostex	D-160	£2931	16	8 inputs, 16 outputs, memory management and a wide variety of interface options	Dec 97
Fostex	DMT-8 VL	£999	8	8 inputs, 2-band EQ, 2 sends, 2 stereo returns, 2-track simult. record, S/PDIF I/O	Mar 97
Fostex	FD-4	£tbc	4	4 inputs, 3-band EQ, 2 aux, S/PDIF I/O and media-independent	
Korg	D8	£849	8	2 inputs, 2 outputs, 2-band EQ, 2 sends, 2 stereo returns	Mar 98
Otari	RADAR	£8813	8	48 minutes of audio per track, 16-bit sampling, 32-48kHz, analogue/digital I/O	May 97
Otari	RADAR	£13278	16	48 minutes of audio per track, 16-bit sampling, 32-48kHz, analogue/digital I/O	May 97
Otari	RADAR	£18213	24	48 minutes of audio per track, 16-bit sampling, 32-48kHz, analogue/digital I/O	May 97
Roland	DM-800	£3975	4	Digital mixer/recorder, supports 8 tracks with external drive	
Roland	VS-840	£949	8	Digital multitracker, with 12-channel mixer, built-in effects and Zip drive	
Roland	VS-1680	£2199	16	Digital multitracker, with 24-bit sampling and optional CD recorder and effects units	
Soundscape	SSHDR1-Plus	£3200	12	10 in, 12 out, PC-based system with 24-bit processing, 48kHz sampling	Mar 98
Vestax	HDR-6	£2349	6	MIDI-controllable recorder with sophisticated built-in digital mixer	

MAGNETO-OPTICAL DISC

MANUFACTURER	MODEL	PRICE	TRACKS	DESCRIPTION	REVIEW
Akai	DD1500	£tbc	tbc	Digital audio workstation	
Genex	GX8000	£6456	8	24-bit digital audio workstation	Feb 97



CONTROLLERS & INTERFACES

CONTROLLERS: These include master keyboards, guitar controllers, wind controllers, breath controllers, trigger interfaces and drum pads.

MIDI/CV CONVERTERS: For hooking up your pre-MIDI synths to your system, a MIDI/CV converter is needed. These offer a varying number of channels (one for each synth) and may also offer other interfacing options.

INTERFACES: MIDI interfaces can be either universal or platform specific (i.e. just for Mac, PC or Atari). Interfaces for the Atari usually offer multiple MIDI connections. Some interfaces combine several other functions, such as a MIDI patchbay along with timecode options.



MIDI CONTROLLERS MANUFACTURER	MODEL	PRICE	TYPE	DESCRIPTION	REVIEW
Akai	EW3020	£349	Wind	Sax-like controller	Feb 95
Akai	ME 35T	£299	Trigger	Takes drum pad or mic triggers and converts to MIDI	
Akai	MX1000	£1299	Keyboard	Full-spec controller; the PM76 Piano Card turns it into a digital piano	
Blue Chip Music Technology	Axon AX 100	£700	Module	Pitch-to-MIDI guitar interface for use with the Roland GK-2A	
Blue Chip Music Technology	Axon AX 100SB	£800	Module	Pitch-to-MIDI guitar interface with synth board for use with the Roland GK-2A	
Casio	GZ-5	£65	Keyboard	32 mini keys, velocity slider, pitchbend, mod wheels plus a few built-in sounds	
Doepfer	LMK1+	£699	Keyboard	88-note hammer action master keyboard with 4 zones	
Doepfer	LMK2+	£799	Keyboard	88-note hammer action master keyboard with 4 zones	
Doepfer	LMK4+	£1099	Keyboard	88-note hammer action master keyboard with 8 zones	
Doepfer	MAQ 16/3	£595	Sequencer	Analogue-style sequencer for MIDI	
Doepfer	Regelwerk	£449	Table unit	Hardware sequencer and MIDI fader unit	
Doepfer	Schaltwerk	£999	Table unit	Hardware sequencer with CV option	
E-mu	Launch Pad	£429	Table unit	Central control panel for an entire MIDI system	
evolution uk	Music Creator	£50	Keyboard	49 full-sized keys, supplied with cables, Key West software	
evolution uk	Music Creator Pro	£120	Keyboard	49 full-sized keys, includes pitch/mod wheels, cables, Audio Pro software	
Fatar	CMS 61	£280	Keyboard	61-note unweighted keyboard with recesses for computer keyboard, mouse	
Fatar	MP1	£250	Bass pedals	Single octave bass pedal controller aimed at organists	
Fatar	Studio 1100	£900	Keyboard	88-note, aftertouch-sensitive keyboard, 4 zones, memories	Apr 95
Fatar	Studio 1100FC	£1100	Keyboard	Flightcased version of Studio 1100	
Fatar	Studio 1176	£750	Keyboard	76-note version of Studio 1100	
Fatar	Studio 2001	£1250	Keyboard	88 weighted keys and pro controller features	
Fatar	Studio 2001FC	£1450	Keyboard	Flightcased version of the 2001	
Fatar	Studio 49	£120	Keyboard	49-note velocity-sensitive keyboard	
Fatar	Studio 610	£230	Keyboard	61-note velocity-sensitive keyboard	
Fatar	Studio 610+	£300	Keyboard	Studio 610 with aftertouch-sensitive, weighted keys	
Fatar	Studio 900	£650	Keyboard	88-note keyboard aimed at live musicians	
Fatar	Studio 900FC	£849	Keyboard	Flightcased version of Studio 900	
Goldstar	GMK49	£169	Keyboard	49-key master keyboard	Mar 95
Kawai	Datacat	£149	Keyboard	37-note keyboard with transpose, pitch-bend, assignable mod wheel	
Kawai	MDK61II	£409	Keyboard	61-note, velocity-sensitive keyboard with pitchbend, mod wheel, bank select	
Midiiman	Keyman 49	£89	Keyboard	49 mini-key controller keyboard	
Novation	MM10-X	£160	Keyboard	2-octave, velocity sensitive, with assignable mod wheel, pitchbend, transpose	
Peavey	DPM C8	£1799	Keyboard	88 keys, 3 controller wheels, 3.5-inch disk drive, 8 zones, 2 MIDI Ins, 4 MIDI Outs	
Peavey	DPM C8p	£1469	Keyboard	More affordable version of the DPM-C8	Mar 97
Peavey	PC1600x	£349	Table unit	Programmable, with buttons, sliders, data wheel, 50 presets, 100 scenes	
Q-Logic	Mac K..AT	£110	Table unit	21-function remote controller for Apple Mac	
Quasimidi	Cyber 6	£999	Keyboard	61-key controller with special techno effects alongside the usual controls	Mar 96
Roland	A-33	£399	Keyboard	76-note controller	
Roland	A-90	£1699	Keyboard	Hugely programmable expandable 88-note weighted keyboard	May 96
Roland	AT-30	£5999	Keyboard	Smaller AT keyboard	
Roland	AT-50	£7749	Keyboard	Smaller version of AT-70	
Roland	AT-70	£9795	Keyboard	AT-90 with fewer pedals	
Roland	GI-10	£469	Module	Pitch-to-MIDI guitar interface for use with the GK-2A	
Roland	GK-2A	£136	Pick-up	Guitar pick-up for Roland guitar synths	
Roland	KP-24	£335	Piano mount	Sensor for acoustic keyboards for use with RA95	
Roland	MC-303 Groovebox	£499	Table unit	Techno module/sequencer in the vein of the TB-303 and MC-202	Aug 96
Roland	MC-505 Groovebox	£949	Table unit	More powerful techno module/sequencer with D-Beam controller	
Roland	MC-50 MkII	£780	Sequencer	Near industry-standard hardware MIDI sequencer	
Roland	PC160	£135	Keyboard	Simple, no-frills controller	
Roland	PC-200 Mk II	£165	Keyboard	Updated version of PC-150 with modulation, pitchbend and data entry slider	
Roland	PK-5	£299	Pedal board	MIDI bass pedal controller	
Roland	PMA-5	£445	Hand-held	Handy portable sequencer and sound source in one	Jul 96
Roland	RA-30	£499	Table unit	Auto-arranger	
Roland	RA-800	£1599	Table unit	Real-time arranger and sound module combined	
Roland	RA-95	£799	Table unit	Auto-arranger with built-in sounds	
Samick	KK1	£599	Keyboard	88-note, weighted controller keyboard	
Samick	KK1L	£399	Keyboard	76-note version of KK1	
Sunihama	Jamma	£599	Guitar	Guitar-like MIDI controller	Dec 94
Wersi	MBP1	£349	Pedal board	13-note MIDI pedal board	
Yamaha	BC2	£39	Breath	Breath controller headset for use with VL synths	
Yamaha	CBX-K1	£99	Keyboard	Mini, velocity-sensitive keyboard with assignable mod wheel	Sep 95
Yamaha	KX88	£1649	Keyboard	88 weighted keys, four control sliders and pitch-bend and mod wheels	
Yamaha	MDF3	£379	Table unit	MIDI data filer, uses 3.5-inch disks	
Yamaha	OY22	£299	Portable	Walkman-style sequencer with built-in sounds	
Yamaha	OY70	£449	Portable	Silvery compact music sequencer with slick and up to date styles	
Yamaha	OY300	£599	Table unit	GM sound module, sequencer & auto-accompaniment player in one	Sep 94
Yamaha	OY700	£999	Table unit	48 tracks, sequencer, XG sound generator, 3 effects processors, MIDI In/Out x2	
Yamaha	WX11	£359	Wind	MIDI wind controller, updates old WX7	



MANUFACTURER	MODEL	PRICE	TYPE	DESCRIPTION	REVIEW
Zildjian	Kat dk10	£549	Drum pads	10-pad unit with lots of programmability	

MIDI/CV CONVERTERS

MANUFACTURER	MODEL	PRICE	CHANNELS	DESCRIPTION	REVIEW
Doepfer	MAUS1	£99	tbc	MIDI-to-CV/sync interface	
Doepfer	MCV4	£69	tbc	MIDI-to-CV interface	
Doepfer	MSY2	£59	tbc	MIDI-to-Sync 24 interface	
EES	MIDI-CV7	£449	7	CV and gate outs, 1V/octave and Hz/V options, DIN Sync	
Kenton	Pro-2	£190	2	MIDI-to-CV converter	
Kenton	Pro-2 Hz	£220	2	Pro-2 for synths running on Hz sync (such as Korgs and Moogs)	
Kenton	Pro-2000	£230	5	CV and gate outs, 1V/octave and Hz/V options, DIN Sync, DCB, MIDI filter	Jun 97
Kenton	Pro-4	£500	10	Multi-channel MIDI-to-CV converter with 4 channel Hz/V card	Oct 94
Kenton	Pro-DCB	£125	1	MIDI-to-DCB converter	Mar 97
Kenton	Pro-Kadi	£125	1	MIDI trigger unit, 13 configurations, DIN Sync 24 socket	
Kenton	Pro-Solo	£100	1	MIDI-to-CV converter	Oct 95
Philip Rees	Little MCV	£77	1	MIDI-to-CV converter	Feb 97

MIDI GENERAL

MANUFACTURER	MODEL	PRICE	FORMAT	DESCRIPTION	REVIEW
Doepfer	MMR4/4	£99		MIDI merge/Thru	
JL Cooper	MSB V2	£399	8 In, 8 Out	MIDI patch bay and processor	
JL Cooper	Nexus	£169	2 In, 8 Out	Programmable MIDI patch bay with transpose and mergable ins	
JL Cooper	Nexus	£109	3 In, 8 Out	MIDI patch bay	
JL Cooper	Synapse	£1199	16 In, 20 Out	MIDI patch bay with 3-way merge	
MIDI Solutions	2-Way Merge	£59		2-way MIDI merge unit	
MIDI Solutions	Footswitch	£54		Converts footswitch actions to MIDI messages	
MIDI Solutions	Mapper	£69		Remaps MIDI messages	
MIDI Solutions	Quad Merge	£99		4-into-1 MIDI merge	
MIDI Solutions	Relay	£69		MIDI-to-audio switch	
Midiman	MidMerge6	£9	2 In, 2 Out	Self-powered MIDI merge box	
Midiman	MidThru	£29	1 In, 4 Out	MIDI splitter and Thru box	
Midiman	SmartSync	£89		Smart Song Pointer/FSK/MIDI sync-box	
Midiman	Syncman	£169		SMPTE-to-DTL/MTC synchroniser	
Midiman	Syncman Plus	£169		SMPTE/SPP/DTL/MTC sync-box	
Midiman	Syncman Pro	£299		Rackmount SMPTE box with LED	
Midiman	Trans MIDI	£399		Wireless MIDI system; piggy-backs onto wireless mic systems	
Midiman	Video Syncman	£449		VITC/LTC/MTC sync box and code translator	
Nobels	MV-C	£121		MIDI volume controller hardware	
PC Services	Micro-merge	£82	2 In, 2 Out	Self-powered MIDI merge	
PC Services	Micro-thru	£23	1 In, 3 Out	Self-powered MIDI Thru box	
PC Services	MIDI Switch	£34		4-way MIDI switch box	
PC Services	MIDI Thru	£34		6-way MIDI Thru box	

MAC

MANUFACTURER	MODEL	PRICE	FORMAT	DESCRIPTION	REVIEW
Altech	MIDIface LX	£50	1 In, 3 Out	Serial port interface	
JL Cooper	Mac Nexus	£75	1 In, 3 Out		
JL Cooper	Sync Link	£219	2 In, 2 Out		
KCCM	MIDIEdge	£45	1 In, 1 Out		
MacMIDI	MacMIDI 2s	£420	2 In, 6 Out	32 MIDI channels, SMPTE, MTC	
MacMIDI	MacMIDI 1	£89	1 In, 3 Out		
Midiman	Mac Syncman	£169	2 In, 6 Out	32 channels, SMPTE; stand-alone SMPTE box	
Midiman	MacMan	£45	1 In, 3 Out	Pass-Thru	
Midiman	MiniMacMan	£35	1 In, 3 Out	Compact interface needing no power supply	
MotU	FastLane	£59	1 In, 3 Out	Thru switch for working without Mac	
MotU	MIDI Timepiece AV	£649	8 In, 8 Out	8x8 interface with SMPTE, LTC video, ADAT Digidesign Superclock sync	Apr 97
MotU	Pocket Express	£219	2 In, 4 Out	32-channel interface with SMPTE	
MusicQuest	2 Port SE	£200	2 In, 4 Out	Filters message	
MusicQuest	2 Port SX	£400	8 In, 8 Out	MIDI interface with SMPTE	
MusicQuest	MIDIstrip	£49	1 In, 3 Out	Includes 5-foot serial cable	
MusicQuest	MQX-32 M	£230	2 In, 2 Out	32 MIDI channels and SMPTE/MTC facility	
Opcode	MIDI Translator II	£70	1 In, 3 Out	Switchable Thru	
Opcode	MIDI Translator Pro	£130	2 In, 6 Out	Switchable Thru	
Opcode	MIDI Translator Pro Sync	£230	2 In, 6 Out	32 channels, switchable Thru, SMPTE support	
Opcode	Studio 64X	£269	4 In, 4 Out	MIDI interface, patchbay, SMPTE	Dec 97
Opcode	Studio 3	£300	2 In, 6 Out	19-inch rackmount, SMPTE support	
Opcode	Studio 4	£550	8 In, 8 Out	19-inch rackmount, SMPTE support	
Opcode	Studio 5 LX	£1100	15 In, 15 Out	19-inch rackmount, SMPTE support	
Steinberg	Micro Mac	£55	1 In, 1 Out	Basic MIDI interface	

PRICES

Unless otherwise stated, prices in the *Buyer's Guide* include VAT. Occasionally, an item's price will be displayed without VAT included. This is because the item is aimed at professional studios and engineers who are VAT-registered, and can therefore claim back VAT on equipment purchases.

PC					REVIEW
MANUFACTURER	MODEL	PRICE	FORMAT	DESCRIPTION	
Creative Labs	MIDI Adapter	£22	1 In, 1 Out	Adapter for SoundBlaster cards	
EES	PC-MIDI 1/4	£99	1 in, 4 out	Parallel port interface, 64 MIDI channels	
KCCM	MIDIEdge	£59	1 In, 1 Out	Expandable MIDI interface card	
KCCM	MIDIEdge	£129	2 In, 4 Out	Expandable MIDI interface card	
KCCM	MIDILink	£69	1 In, 1 Out	Serial port interface	
Midiman	MM401	£59		Full MPU-401 interface card	
Midiman	PortMan 2x4	£129	2 In, 4 Out	Parallel port interface	
Midiman	PortMan PC/P	£89		MIDI parallel port interface for laptops and portables; includes driver	
Midiman	PortMan PC/S	£89		Serial port interface for laptop and portable computers, PS/2-compatible	
Midiman	Soundcard Cable/Module	£25		Soundcard MIDI adapter (4-foot male or 1-foot female)	
Midiman	Video Producer	£249		VITC sync reader/writer, syncs to PC via MTC	
Midiman	Video Studio	£279		Video Producer packaged with Samplitude software	
Midiman	WinMan 1x1	£49	1 In, 1 Out	Includes Windows drivers	
Midiman	WinMan 2x2	£79	2 In, 2 Out	Internal interface with Windows drivers	
Midiman	WinMan 4x4S	£219	4 In, 4 Out	SMPTE, Windows drivers	
MotU	MIDI Timepiece AV	£649	8 In, 8 Out	8x8 interface with SMPTE, LTC video, ADAT Digidesign Superclock sync	Apr 97
MotU	PC-MIDI Flyer	£99	2 In, 2 Out	32-channel parallel port interface	
MotU	Pocket Express	£219	2 In, 4 Out	Parallel port interface with SMPTE	
Music PC	MPC401MkII	£65	1 In, 1 Out	Basic MPU-401-type MIDI interface, with WaveBlaster socket	
MusicQuest	MIDI Engine Note/1	£100	1 In, 1 Out	Parallel port MIDI interface	
MusicQuest	PC MIDI card	£80		MPU-401 card	
Opcode	Studio 64X	£269	4 In, 4 Out	MIDI interface/patchbay/SMPTE	Dec 97
PC Services	MPC16	£53	1 In, 1 Out	Interface card with Windows drivers	
PC Services	SC16	£30	1 In, 3 Out	Plug-in MIDI expander for SoundBlaster-compatible PCs	
PC Services	SP16	£58	1 In, 3 Out	Serial port interface with Windows drivers	
Steinberg	SMPII	£799		SMPTE/MIDI interface; requires DC/PC PC drive card	

ATARI					REVIEW
MANUFACTURER	MODEL	PRICE	FORMAT	DESCRIPTION	
Cimple Solutions	Extraports	£70	1 In, 3 Out	48 more MIDI channels via modem port (ST only)	
Heavenly Music	STM	£13		Extra MIDI Out for modem port	
Steinberg	Midex+	£475	2 In, 4 Out	Interface cartridge with SMPTE and 4 key slots	
Steinberg	SMPII	£799		Rackmount interface and SMPTE processor	
Steinberg	Studio Module	£159	1 In, 3 Out	For ST or Falcon	



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KEYBOARDS

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ARP Solina String Ensemble with Kenton MIDI kit installed, original manual, mint condition £600 ono. Tel 0151 691 2823

Bohm FM synth 12-part multitimbral, includes editing software £120. Tel 0116 243 4338

Casio CZ-1000 polysynth, good condition with user manual, MIDI, great for 80s' style retro sounds and big fat basses £95. Tel Steve on 0191 240 1004 (Newcastle)

Casio CZ-1000 with manuals £120 or will consider swaps. Tel Leroy on 01283 564888

Casio VZ-1 iPD synthesizer, experimenters' dream, perfect master keyboard, card, manual, immaculate £220. Tel 01702 312748

Commodore four-octave MIDI master keyboard, same as Evolution MK149, full-size keys, pitch and modulation wheels £55. Tel 01933 678608

Crumar Spirit synth, mint condition £250. Tel 01785 607440 (Staffordshire)

Ensoniq ASR88 keyboard sampling workstation, 88 fully weighted keys, 16Mb RAM, SCSI interface, 16-track sequencer, superb 24-bit effects, disks and manuals, very good condition £1,300. Tel James on 0181 767 0638 or 0976 525 494

Ensoniq ESQ1 digital wave synth, great sounds, easy to program, on-board eight-track sequencer and sustain pedal £300 ono. Tel Simon on 0181 541 3598

Ensoniq TS12 great 76-key piano-weighted keyboard, synth and sequencer, 600 sounds ready, also plays samples, giveaway £695 ono. Tel Paul on 0181 788 5687

Farfisa VIP500 portable organ, dual manual, lots of drawbars, weird pitch and beat effects, super shrill sounds that really cut through, earth-moving bass pedals £80. Tel Tim on 0161 652 0499 (Manchester)

Hammond organ, tonewheel B3 type on four legs, rebuilt, repolished, suit home or studio, PR40 cabinet, offers invited for this classic. Tel 01367 252568 (Gloucestershire)

Kawai K4R synth module, 16-voice, eight-part, two separate resonant filters, eight outs £220 ono. Call Jez on 01705 821696 (Plymouth) or e-mail: cokerj@sis.port.ac.uk

Korg 01/WFD home use only, latest ROM version, complete with dance cards and general MIDI disks, boxed with all manuals £675 ono. Tel 01934 413330

Korg 01/WFD never gigged, new condition, manuals, leads, etc £850 ono. Also full aluminium five-star flightcase for 01/WFD £150. Tel 01628 478686

Korg DW8000 plus MEX8000 expansions unit, very good condition, private use only £275. Tel 0118 932 0429

Korg i3 good working order, offers around £700. Tel 0116 244 0023 evenings

Korg i3 immaculate condition, never gigged, style disks £725. Tel Howard on 01923 246276 (Watford) or 0802 275970

Korg i3 workstation, with software and ROM upgrade, home use only £750!! Tel 01384 236360

Korg M1 boxed, manual, excellent

condition £520. Tel 01892 740938 (West Kent)

Korg M1 huge library, thousands of sounds £550. Tel Simon on 0181 541 3598

Korg M1 keyboard, two ROM cards, one RAM card, heavy-duty flightcase, Atari sound editors and thousands of sounds £550 ono. Tel 0181 985 3264

Korg N364 workstation, 16-track sequencer, over 500 sounds, arpeggiator, extra sounds on disk, with Quiklok double-braced stand, as new, boxed, manuals, leads, pedal £625 ono. Tel 01273 241878 (Brighton)

Korg Prophecy three months old, excellent condition, home use only £475. Tel Andy on 0161 224 3944 (Manchester) or e-mail: 66803217@mmu.ac.uk

Korg Trinity Plus nine months old, excellent condition with manuals, disks, video £1,300 (will accept offers). Call Matt on 01932 888813

Korg Trinity Plus workstation synth, packaged with manuals, mint condition, unwanted gift, 12 months old, extended warranty available £1,375 ono. Tel 01620 894295 or fax 01620 895925

Korg Wavestation amazing sounds with real-time controller and on-board effects £500 or swap for Roland JV-80. Tel Lewis on 0116 291 3995 (Leicester) or 0956 841299

Kurzweil K2000S keyboard, V3 software, P-RAM fan kit, 64Mb RAM, mint condition, sampler, synthesizer, sequencer, includes invisible two-tier stand, SKB flightcase £2,050 ono. Tel Robert on 00 31 20 612 8667 (Amsterdam) or e-mail: all@i-and-i.nl

Moog Prodigy MkII 32-voice, two-VCO

monosynth, switchable sync, unusual inputs and outputs for S-trigger and CV, manual and circuit drawings, original packing, immaculate £350 ono. Tel Chas on 01932 348051 (Surrey)

OSCar MIDI synths, excellent condition, one owner, home use only, box, manuals and original factory sounds saved on data cassette £850. Tel 0161 861 7261 (Manchester)

Roland A-50 mother keyboard, rare and sought after, 76-voice, velocity and aftertouch sensitivity, assignable zones, stores SysEx, manuals, used by professionals, recently serviced, reluctant sale, offers invited. Tel Martin on 01443 404405

Roland D-10 multitimbral synth with modulation and pitchbend, never abused £250. Tel Marty on 01232 611705 after 6pm

Roland D-20 sequencer, disk drive, workstation synth, excellent condition, recently serviced, boxed with manual £380 ono. Call 01225 732368 or 01225 466933 evenings

Roland G-800 keyboard, good working order, offers around £650. Tel 0116 244 0023 evenings

Roland JD-800 boxed with manuals, three sound cards, mint condition £1,100 ono. Tel 01703 551533

Roland JD-800 classic multitimbral MIDI synth, perfect working order with manuals and flightcase £1,000. Tel 0117 951 1809 (Bristol)

Roland JD-800 classic programmable synthesizer, with manuals, as new £1,050 ono. Also Roland D-5 £100. Tel 0118 952 5599 or 01426 109487 (pager)

Roland JD-800 good condition with manuals £1,000 ono. Tel Chris on 01702 344054 or 01702 219964

Roland JD-800 home use only, manuals £800. Tel Jim on 0141 353 0168

Roland JD-800 one owner, mint condition, full real-time fader action complete with many sounds, classic synth £1,000. Call Julian on 01625 266236 after 5.30pm

Roland JP-8000 new, unused, boxed, manual, best offer. Tel 0118 954 2273 now! (Berks)

Roland JP-8000 two weeks old, used once, stand, MIDI cable, SoundBlaster Vibrat16S with wavetable add-on card Included £875 no offers. Tel Dave Brown on 01235 763540 or 0467 458151. Can deliver within 40-mile radius of Oxford

Roland JP-8000 synth, fantastic techno/dance sounds, excellent condition, manuals included but box is in bad shape £850. Tel Nick on 0131 449 8235 (Edinburgh)

Roland Juno 2 exchange for Kawai K4, or with Korg Poly 800 for Korg M1. Both are immaculate with manuals, courier delivery. Tel Phil on 01639 768103 (South Wales)

Roland Juno 6 with flightcase, manual, excellent condition, swap for Roland SH-1000 in same condition. Phone Andi on 0961 839060 (Hull)

Roland Juno 106 mint condition £425 ono. Tel 0118 941 1133 (Reading) evenings

Roland JV-35 61-voice, 226 GM/GS presets, nine drumkits, real-time controllers and VE-JV1 card with 512 presets from JV-80/100, excellent condition, includes hard case £600. Tel Dave on 01434 602957

Roland JV-1080 with techno board £800. Tel Ric on 01457 872301 (Manchester)

Roland JV-1080 with techno board, mint condition with manual £950. Tel 0118 941 1133 (Reading) after 6pm

Roland SH-2 analogue monosynth with external CV input and output, bender, very

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good condition £300. Tel 01785 227096

Roland TR-77 early analogue product £110. Tel Chris on 01232 236093 after 6pm

Roland W-30 sampling, sequencing workstation, complete, home use only, stand, carry case, all disks, manuals, excellent condition £650 ono. Tel Ross on 01782 628471 or 0370 315214

Roland W-30 sampling workstation, 16 tracks, 16-voice polyphony, 61-key keyboard £580 ono. Tel Max on 0191 230 5844 (Newcastle)

Roland W-30 sampling workstation, immaculate with W-30 upgrade chip, includes hard case, two sections of the Roland library and lots of disks of samples and manuals £575. Tel Paul on 0411 342227 (Portsmouth)

Roland W-30 workstation, sampling keyboard with on-board sequencer, 16-track, eight outputs, excellent condition, boxed with manuals, stand and disks £585 ono. Tel 0117 914 7122

Roland XP-80 keyboard, sequencer workstation, expanded and in mint condition, amazing sounds, open to offers. Call 01273 440240 (Brighton)

Roland XP-80 workstation, brand new, never used, unwanted gift with manuals and warranty, boxed £1,200 ono. Tel Dean on 0113 271 1221

Roland XP-80 workstation with fitted pop, orchestra and 'experience' expansion boards, boxed, manuals and disks, mint condition, not gigged £1,100. Tel Don on 01905 797419 or 0850 162831

Sequential Circuit Pro 1 analogue keyboard, lots of controls, filter inputs, CVs, etc just been serviced, £350. Tel Scott on 01273 382810 (Brighton)

Technics KN3000 keyboard, as new, home use only, complete with video manual, cost £2,495, will accept £975. Tel 0181 399 4383 (Surrey)

Yamaha AN1x control synth, very good condition, boxed, manuals £675. Tel Paul on 0181 516 9018

Yamaha CS1x awesome dance techno production synth, boxed, brand new condition, plus six-month warranty and extra sound disk £400. Tel Russ on 01706 659877

Yamaha CS1x bought Jan 98, perfect condition, swap for Roland MC-303, Korg X3 or Yamaha SY85. Must be in good condition. Call Tim on 0181 692 0179 (SE London)

Yamaha CS1x control synth, great arpeggiator, real-time editing, fantastic sounds, great for dance music, mint condition, still has box and manuals £450. Tel Tim on 0114 222 9999 ext 52916

Yamaha CS1x control synth, perfect condition, boxed with manual £400 ono. Tel Russell on 0121 454 4367

Yamaha CS1x control synth, perfect condition, boxed with manuals £450. Tel Rupert on 0113 281 7263 (Leeds)

Yamaha CS1x control synth, wicked dance tool and great fun to use, immaculate, boxed, swap for multiple output sampler or synth module or offers. Tel Ian on 01524 732047 any time

Yamaha CS1x full MIDI control synthesizer, MIDI or real-time analogue style waveform modulation control, arpeggiator, on-board effects, six months old, mint condition with box, instruction manual £395 ono. Ring Paul on 01792 234940 (Swansea) evenings

Yamaha CS1x little use £360. Tel 01420 82215 (Alton area)

Yamaha PSR90 full-size MIDI keyboard, editable sounds, boxed, manual £90 ono. Tel Les on 0171 419 4285 (London W1)

Yamaha SY55 good condition £325 ono. Tel 0118 941 1133 (Reading) evenings

Yamaha SY85 synthesizer, expanded to 2.5Mb sample memory, full-size keyboard, sample disks, memory card,

sustain pedal, flightcase and stand £700. Tel Joe on 0113 217 9859

Yamaha SY85 workstation synth with sequencer and sample playback, disks with thousands of sounds/samples, luxury case, stand, A1 condition £550. Tel 01789 773247

SAMPLERS

Akai S20 sampler, 17Mb, mint condition, boxed with manual, six months old £325. Tel 0113 269 6386 (Leeds)

Akai S20 sampler, immaculate, fully expanded, comes with large Akai library, manuals, boxed £290. Tel 01992 501469 (Herts)

Akai S20 sampler, manual, disks, etc, brand new excellent condition but must sell £400 bargain. Tel 01222 874942 days and 01222 578917 evenings or e-mail: wares@cardiff.ac.uk

Akai S20 sampler, upgraded, immaculate condition, boxed, manuals, disks, only four months old £440 ono. Tel Paul on 01869 252576 days, 01295 254191 evenings

Akai S900 V2.2, and Akai VX90 MIDI sound module, analogue filters for processing sampler outputs, both good condition with manuals £500. Tel 01389 763147

Akai S950 classic sampler, fully expanded, eight outs, included is a huge collection of classic samples, 808 kits, great breakbeats and sweep £650. Tel James on 01202 240777 days, 01202 518835 evenings (Bournemouth)

Akai S950 expanded, excellent condition, boxed with manual, home use only, library to copy including original 808/909 samples and loads of classic breakbeats £550. Tel Rupert on 0113 281 7263 (Leeds)

Akai S950 sampler, mint condition, hardly used, boxed with manual and over 50 floppies full of samples £600 or offer. Phone Bryan on 0410 200571 or 01245 324126

Akai S950 with manual, never gigged, good condition £600 ono. Tel 0181 663 0935

Akai S1000 2Mb and large library on Atari SM205 hard disk, very good condition £550 bargain. Tel Johnny on 0171 402 2787 from 10am to 12noon

Akai S1000 6Mb, one owner from new, boxed with manuals, mint £750 ono. Tel Pete on 01268 757334

Akai S1000 digital sampler, 8Mb and also over 300-disk sound library £800. Tel Dave on 0181 374 0030 (North London)

Akai S1100EX expansion unit never used, near mint with original manuals, buyer pays shipping. E-mail: replikator@pacific.net.sg

Akai S2000 10Mb RAM, Internal FX board, SCSI Zip drive, six sample CDs, boxed £700 or offers. Tel Mike on 01372 450360 (Surrey)

Akai S2000 digital sampler, second filter upgrade, eight-output upgrade, mint condition with box, manuals, disks, etc £1,100 or reasonable offers. Tel 0370 601929 or 0161 456 9836

Akai S2000 fantastic professional sampler, mint condition, with FX board fitted, 2Mb of memory with various Akai sounds £500. Can't deliver but will knock £10 off price. Tel Neil on 0114 232 0733 (Sheffield area)

Akai S2000 sampler, excellent condition, 18Mb RAM, eight separate outputs, SCSI and Zip drive and over 200Mb of sounds, complete sampling system only £950 ono. Tel Clifford on 0181 951 0413

Akai S3000 memory board, 10Mb upgrade, quick sale £250 ono. Tel Lloyd on 0958 771887

Akai S3000XL sampler, 18Mb RAM, EB16 effects board, Mesa II for Mac or PC, little used, boxed, manuals £1,350. Tel Sam on 0802 895341 (London E8)

Akai S3000XL sampler, hardly used, boxed plus Mesa PC software. Tel George on 0181 991 9559 weekdays or 0370 564428

Casio FZ-1 sampler keyboard, 2Mb, eight outputs, boxed with manual £325. Tel 01483 423088 (Guildford)

Casio FZ-10M eight separate outputs, plus sample library and manuals £500. Tel Rob on 01206 825800 (Colchester area)

Emax SE sampler, rackmount, stereo plus eight separate outs, sequencer, arpeggiator, digital and analogue processing, real-time control, 200-disk library £300 ono. Tel 0131 447 5279

E-mu e64 10Mb RAM, 540Mb hard drive, E-mu library, mint condition, boxed £1,350 quick sale. Tel Alan on 01989 780382

E-mu ES132 sampler, excellent condition, boxed, manuals, V2 software £600. Tel 01235 764118 (near Oxford)

E-mu ES132 sampler with 32Mb RAM, 540Mb external hard drive and portable CD/CD-ROM player, hardly used, only £795 no offers. Tel Phil on 01395 514271

E-mu ES14000 three months old, mint condition, boxed with manual £950. Tel 0118 941 1133

Roland MS-1 stereo sampler, easy to use, great for loops £190. Also 4Mb flashRAM card (up to 12 minutes sampling time) £70. Both together for £245. Tel 01933 678608

Yamaha SU10 micro sampler, excellent condition, only £175 ono. Quick sale needed! Tel Lawrence on 01727 835493 (Herts) or 01227 457042 (Kent)

Yamaha SU10 sampler, as new, in box with CDs, power supply and manuals, quick sale hence £175 ono (I need monitors urgently!). Call Marc on 01763 775771 (Hertfordshire)

SEQUENCERS

Akai ASQ10 MIDI sequencer, 60,000-note sequencer capacity, seven sync modes, four independent MIDI outputs, two independent MIDI inputs, complete with manual, good condition £350 ono. Tel 0171 370 3605

Alesis MMT8 with manual, adaptor and all relevant cables, perfect condition £75 or will swap for something! Tel Nik on 0411 644124 (mobile)

Roland MC-50 eight-track sequencer, mint condition with manuals £280. Also Yamaha QY10 sequencer, boxed with manual £60. Tel Gavin on 0151 424 7649

Yamaha QY20 music sequencer, great for songwriting, outstanding keyboard and drum sounds £150 ono. Tel 01509 844000 (Loughborough, Leics) after 7pm

Yamaha QY20 sequencer, boxed, in mint condition £200 ono. Tel 01332 340544 (Derby)

Yamaha QY22 portable sequencer with general MIDI and built-in sounds, ideal for gigging or studio work, as new with warranty, cost £479, sell for £300 ono. Tel 01562 741592 (Worcs/Brum) or e-mail: arb669@yahoo.com

Yamaha QY700 unused with flightcase, demo disks and video £625. Tel 01343 890465

Yamaha PSRSQ16 16-track sequencer, 269 styles, 200 voices, disk drive, home use only, as new £450 ono. Tel 01642 877664 (Teesside)

DRUM MACHINES

Akai MPC3000 sequencer, sampler, rhythm machine, top condition, boxed with manual, lots of disks too £2,000 ono. Tel 01372 376574 evenings

Alesis D4 drum module, excellent condition, 500+ drum samples, 20 kits, fully programmable, external trigger, separate outs, manuals, boxed £190. Tel 01992 501469 (Herts)

Boss DR-330 GM- and GS-compatible £120 ono or swap for Alesis SR16, Yamaha RY10 or similar drum machine. Tel 01392 210867 (Exeter)

Boss DR-660 254 sounds, four outs, on-board effects, great 808 and 909 kits, with manual £195. Tel Andy on 01924 469002 after 6.30pm

Boss DR-660 drum machine, 255 sounds, reverb, chorus, fantastic condition, three months old, with PSU and manuals, only £225. Tel Gary on 0171 824 0026 days, 0181 808 4492 evenings

Boss DR rhythm drum machine, classic Roland sounds, 808, 909, MIDI, manual £220. Tel Dan on 01305 261057 (Dorset)

Novation DrumStation 808/909 in a box, with Arbiter 10U desk rack. Both in excellent condition £315. Tel 0181 769 4762

Novation DrumStation analogue sound modelling drum synth, all manuals included, excellent condition, classic 808/909 kits, need I say more? £300 ono. Tel Mark on 01937 582135 after 6pm

Novation DrumStation perfect emulation of 808 and 909, hands-on sound editing, built-in Din Sync, boxed, instruction £325 ono. Tel Nick on 0171 381 9793 (West London)

Roland R-5 drum machine £150. Tel Simon on 0181 541 3598

Roland TR-909 perfect condition £800. Tel Nick on 0171 381 9793 (West London)

Yamaha DD8 four-pad drum machine £30. Tel Dan on 01305 261057 (Dorset)

Yamaha RX7 rhythm programmer, drum machine, sequencer and accompaniment in one, 127 voices include usual drum sounds plus various bass and DX7 voices; all voices are programmable, full MIDI spec (In/Thru/Out), internal effects too, excellent unit, as new, in original box with manuals and power supply £175 or swap for good Telecaster copy. Tel David on 01847 896135 or e-mail: craigsrus@aol.com

COMPUTERS

Amiga 500+ second disk drive, colour monitor, sampler, MIDI interface, music software, loads of sample disks, plus TV adaptor and some games and utilities £100. Tel 01634 312131 (Medway)

Amiga A1200 6Mb RAM, 120Mb hard disk, Philips colour monitor, MIDI interface, Bars & Pipes Professional and loads of games, ideal for home-recording beginner, offers around £330. Tel Ken on 01344 365822

Apple Mac Power book 1400CS, 40Mb, 1.3Gb hard drive, with various software including ReBirth V2 and Cubase £890. Tel 0151 292 2592

Apple Mac Quadra 840AV, 32/500CD, 2.1Gb Quantum Atlas, A/V drive, Audiomedia II, Logic Audio V2.1, 14-inch A/V monitor, absolute mint £1,500 ono. Tel Julian on 01227 275120

Apple Mac Quadra 950, 32Mb, 1.6Gb hard drive, excellent condition with Pro Tools V2 hard-disk system and SampleCell 32-voice sampler £2,400 ono. Call Mick on 0181 743 7523 any time or e-mail: mlck@bigfoot.com

Atari 520 STE 2Mb with SM125 monitor, Cubase V2, Notator, sound editors, loads of games £185. Tel Simon on 0181 541 3598

Atari 520 STE upgraded, SM124 monitor, plus Creator and Cubase sequencer software, can be seen working £240 ono. Tel 01922 448329 (West Midlands)

Atari 1040 with rare hi-res monitor, Cubase V2, all leads and trackerball mouse £150, can deliver in Scotland. Tel 01592 593839

Atari 1040 STE 2.5Mb RAM, plus SM124 monitor £140. Tel 01246 291106 (Sheffield) or 0976 956055

Atari 1040 STE 4Mb RAM, 14-inch hi-res

monitor, *Cubase V2.0* with manual and dangle, *Avalon* sample editing package with manual, dangle and 16-bit D-to-A converter. Excellent condition £400. Tel Giles on 0181 488 3608

Atari 1040 STE 4Mb RAM, licensed copies of *Cubase V3*, band in a box V5, *Emagic Aura* with Atari 520 for spares/repairs, Star dot-matrix printer, excellent condition, Atari SM124 monitor included £375 ono. Tel 0370 785493

Atari 1040 STE 4Mb RAM with 125 hi-res monitor and *Cubase* £195. Tel 0151 292 2592

Atari 1040 STE 4Mb with Atari monitor, five sequencers including *Concerto* and *Sequencer One*, *MasterSound 2* sampling software, additional disk drive plus C-Lab *Creator SL*, with dangle and manuals £330 ono. Call Leon on 0121 426 4023

Atari 1040 STE 14-inch swivel base hi-res monitor, fully upgraded to 4Mb with *Cubase V3.24* £230. Also 1040 ST £160. Tel 0181 656 0291

Atari 1040 STE SM124 monitor, *MIDEX+*, original *Cubase V2* with manual and dangle £300 ono. Tel John on 01782 838745

Atari 1040 STE with *Cubase* and tone module £300 ono. Tel 01608 642682 (Oxford) or 0973 823989

Atari 1040 STFM with Atari SM125 hi-res monitor, mouse, *Cubase*, loads of disks, very good condition £140. Tel Luke on 01304 379198 after 6pm

Atari 1040 STFM with black-and-white hi-res monitor, good mouse, comes with *Cubase* and lots and lots of disks, mags and games, dust cover, absolutely mint condition, second disk drive, can be seen working £170. Tel 01225 852784 (Bath)

Atari Mega One with monitor, *Cubase* and 4Mb upgrade, very reliable, later model £150 no offers. Tel Steve on 01600 860047

Atari ST computer studio set-up, good condition, hi-res monitor, all leads, good software collection and accessories, used with *Cubase* sequencers, librarians and editors £190 ono. Tel 01884 257487

Atari STFM £50 and postage. Tel 0411 139220 or e-mail: gb@gobdoola.force9.co.uk

Atari STFM 1Mb, 32 MIDI channels, Philips colour monitor, all software, games, mouse, joystick, etc £140. Tel 0498 570517 days, 01375 401964 evenings (Grays, Essex)

Atari STFM 4Mb fitted with overscan, hi-res monitor, 270Mb hard drive with software £350 ono. Tel Richard on 01869 249995 after 6pm

P150 1Gb RAM, 12-speed CD-ROM, 32-bit soundcard, 14-inch monitor, Windows 95, *Cubase Lite* and *Cakewalk Home Studio* £600 ono. Tel Aaron on 0121 568 7598 (Wednesbury)

P166MMX 16Mb RAM, 1.2Gb hard drive, plus fax modem, MIDI soundcard and 14-inch SVGA monitor £700 or swap for Mac with similar spec with *Cubase* and MIDI soundcard. Tel Marcus on 0181 516 4734 evenings

Power Mac 7600/120, 1.2Gb disk, 32Mb memory, keyboard, mouse, CD-ROM £800. Tel Steven on 0181 905 5223

HARDWARE/SOFTWARE

Atari hi-res monitor, black and white, for *Cubase* and *Notator*, latest 14-inch model, with sound (metronome), very good condition, with carton so can despatch if required, two monitors for sale at £75 each. Tel 0181 668 6-077

AWE 64 Gold PC soundcard, features MIDI interface, boxed as new £100. Tel Steve on 01482 341626

Cakewalk Pro Audio Deluxe V6.0, PC CD-ROM, digital audio and MIDI workstation, was £379, selling for £199. Tel 01482 341626 after 6pm

Cubase VST V3.5 for PC £230 ono, open

to swaps. Tel 0181 560 5663

Cubase VST V3.55 for PC, bought in error, the latest and best, brand new, unopened, guaranteed £275 or possible swap for MS20, CS-15, CAT, etc. Call John on 01267 232858 or e-mail: johnf@easynet.co.uk

Cubase VST Score V3.5.2 with plug-ins for Mac. Also *ReBirth* and *ReCycle* all original, best offer. Tel 07771 728110

Digidesign Audiomedia two Nubuss card, new boxed, genuine registered owner, selling through PowerMac upgrade, includes *Sound Designer* software £495 ono. Tel Alan on 01564 774783

Motorola modem 28.8, Mac or PC, fax or Internet £19. Also original games: *Comanche 3*, *Flight Sim*, *Extreme Assault*, *G-Police*, *Worms 3* £9 each. Tel Tom on 01384 353695

Motu Micro Express MIDI interface, 96 MIDI channels with four independent outs, 16 presets with eight programmable, both Mac- and PC-compatible with battery-backed memory and internal power supply, unrequired gift, boxed as new, never used, RRP £299, yours for £250 ono. Tel Paul on 01638 612332 (Newmarket)

Performer V4.2 for Apple Mac, in original box with manuals £100 or swap for (offers?). Also Apple Mac SE/30 to run it on with internal hard disk, system and Apple MIDI interface. £350 for the lot, or swap for Fender Telecaster or reasonable master MIDI keyboard. Tel David on 01847 896135 or e-mail: craigsrus@aol.com

ReBirth RB-338 hardly used £110. Tel 01426 157014 (Southampton) leaving name and number or e-mail: m0317dm@solent.ac.uk

Roland colour monitor for sampler S-330, S-550, S-750, S-760, S-770 and W-30, 14-inch display complete with RGB connecting cable to sampler, good condition, perfect working order £85. Tel 0181 668 6077

SoundBlaster AWE64 Value, manuals, software, etc, incompatible with PC motherboard £50. Tel 01222 874942 days or 01222 578917 evenings or e-mail: wares@cardiff.ac.uk

Steinberg Cubase Score VST for Mac, V3.5, complete with installs, CD, manuals and registration form, as new £300. Tel 01993 812739

Syquest EZ135 removable hard drive £70 ono. Tel Max on 0191 230 5844 (Newcastle)

Turtle Beach Multisound classic soundcard for PC, features including MIDI In, Out and Thru and Proteus module £100. Tel Steve on 01482 341626

Yamaha MU10 external soundcard for PC or Mac, as new, boxed with leads and software £110. Tel Phil on 01223 571296 (Cams)

RECORDING

Akai MG1212 multitrack recorder, 12-channel, records on to half-inch tape cartidges, sync track for MIDI/video, dbx noise reduction, three-band parametric EQ £795. Tel 01253 838959 (Blackpool)

Allen & Heath 16:8:2 system 8 desk £450 ono. Tel 01608 642682 (Oxford) or 0973 823989

Allen & Heath GL2 14:4:2 multi-purpose mixer for sale, boxed and in very good condition, superb EQ and features for all jobs £500 ono. Must be sold. Tel 0191 414 2877 or e-mail: johannes@thenet.co.uk

Ampex 456 grand master two-inch tape on metal 10.5-inch reels, used once for safety copies only, boxed £45 each. Webber two-inch alignment test tape, hardly used, cost £250, bargain £85. Tel 01482 448767

Behringer Composer £100. Tel Mike on 01372 450360 (Surrey)

Fostex 2016 16-channel rack mixer, four

aux, front and rear inputs, 2U £130. Tel 01708 523469

Fostex DMT8 eight-track digital multitracker, original high-spec version, perfect condition, boxed with manual £700 ono. Tel David on 0966 712430 (Manchester)

Fostex DMT8 multitrack hard-disk recording, includes 6.4Gb hard drive (a lot of time), and V2 software, boxed and still under warranty £1,000. Tel Steve on 01482 341626 after 6pm. Can deliver

Fostex E16 multitracker, good condition £800. Tel 0181 905 5917

Fostex G24S with sync card, hardly used £3,500. Also Fostex G16 with remote extension, home use only £2,100. Tel 0171 916 2724

Fostex GT10 multitrack recorder, high-speed, Dolby S noise reduction, built-in MTC, five tracks of super quality, new, boxed, only £295. Tel 0976 693395 or 0860 951011 or e-mail: hypenuse@aol.co

Fostex R8 includes 15-foot remote, very good condition, home use only, also loom (phonos to jacks). Tel 0171 209 2548

Fostex R8 reel-to-reel, eight-track, MTC1, sync unit, manuals and three reels £600. Tel Mark on 0171 894 5579 days, 0171 359 5538 evenings (North London)

Fostex reel-to-reel Model 20, two-track pitch control, digit counter, two-memory edit control, auto play, two-speed, plus eight reels, good condition £300 ono. Tel John on 01954 789961 (Cams)

Fostex X26 portastudio, hardly been used, perfect condition £125. Also SmartSync MIDI-to-tape sync unit £50. Tel Richard on 01869 249995 after 6pm

Fostex XR7 four-track, boxed with manual, top condition, only £300. Tel Mat on 01703 320183 (Southampton area)

Mackie 1202VLZ boxed, manuals £120. Tel Paul on 0181 516 9018

Mackie CR1604 16-channel mixing desk, just serviced so good as new, with papers to prove it, don't hesitate to ring, guaranteed quality, will deliver £550 ono. Tel Will on 01223 771636

Maxell Platinum digital MiniDiscs (five), 74 minutes, in storage case, as new, unused £10. Phone 01594 530105

Peavey XRD680 plus eight-channel powered mixer, two Peavey HiSys 2XT 350W speakers, absolutely mint condition, rehearsal use only, cost £1,700 will accept £1,000 ono. Tel Mark on 01482 812557 (Yorkshire area)

Philips DCC730 digital recorder, good working order, offers around £160. Tel 0116 244 0023 evenings

Philips DCC730 with four tapes, head cleaner and remote, 18-bit CD-quality recorder, analogue and digital in/out and mic input, can play standard cassettes too, perfect alternative to DAT, as new, must sell, will demo £160 ono. Tel Allan on 01702 230835 (Essex)

Phonic BKX8800 eight-channel mixer, two-band EQ, two aux sends and returns per channel, scored 88% in *FM*, very good condition with manual £100. Phone Mark on 0114 272 2712

Phonic PCL3200 compressor limiter gate, boxed, manuals £120. Also LA 4x4 compressor limiter gate £275. Tel Paul on 0181 516 9018

Phonic PL2404 24:2 mixer, three-band EQ, four aux, 4U rackmount £410. Tel Paul on 0181 516 9018

Radio Shack four-channel stereo mixer, perfect condition, good budget unit £20 ono. Also PC World voucher worth £120. Bargain deal of £100 ono. Tel Will on 01562 884831 after 6pm

Roland VS-880 digital eight-track workstation, boxed as new £899 or buy with Akai S2800 sampler for £1,299. Tel Richard on 01330 824433 evenings

Roland VS-880 expanded effects, boxed, manuals, cost £2,000, as new £1,200. Tel Kevin on 0181 341 2310 evenings

Seck 122 MkII 12:2 studio mixer, four aux sends with swept mid EQ, excellent condition, home use only £180 ono. Tel Paul on 0113 266 5568 after 6pm

Soundtracs Solo MIDI 32, 72 inputs, six auxs, four-band EQ and MIDI muting on all inputs, excellent condition, bought new for £4,500, offers around £2,300. Tel Andy on 01633 613342

Spirit By Soundcraft 6000 mixing console, 16:12:2 in 24:16:2 chassis, with Bantam patchbay, too big for the new studio hence quick sale £1,800. Tel Steve on 01932 572362

Spirit By Soundcraft DC2000 24 inputs, in line console, moving fader automation, offers from £5,000-8,000. Also D-Series 16 input, eight-buss console, reflex automation, offers from £1,000-1,500. Call Adrian on 0976 938722

Spirit By Soundcraft Delta 23:4:2 mixer, eight deluxe, four stereo modules, EDAC conversion, stageboxes with multicores including flightcase, spare deluxe channel £1,900 ono. Tel Jools on 0181 964 4623 (London W10)

Studiomaster Diamond 16:2, 16-channel mixing desk, three-band EQ, two aux tape/mic inputs, 48V phantom power £220. Tel 01708 523469

Spirit By Soundcraft Folio Notepad, 10-input mixer, one month old, manual, boxed, mint £90. Tel 0113 269 6386 (Leeds)

Studiomaster Classic Mixdown 8 16:8:2 as new with meter bridge £950 no offer. Tel 01604 765064 (Northampton)

Studiomaster Club 2000 10:2 mixer, flightcased, still under guarantee £250ish. Tel 01843 822280 or 0402 434615

Studiomaster Diamond Pro 12:3, four auxs, three-band, good condition £200. Tel Andrew on 01733 253288

Studiomaster P7 expanded, 24:8:2 mixer, MIDI muting, mint condition, boxed £1,400 for quick sale. Tel Martin on 0117 942 8258 or 01275 854802 evenings

Studiomaster Series III modular mixing console, 37:8:2, six aux sends, flexible EQ with two sweepable bass/mid EQs, solid build, great quality, mint condition, quick sale for £800 (cost £5,000). Tel matt on 0966 268564

Tascam 488 MKI eight-track portastudio £400. Tel 01582 572161 (Luton)

Tascam 644 Midistudio, four-track, built-in MIDI sync, electronic patchbay, two auxs, 16 inputs, swept mid, dbx subgroups, eight outs, manuals, the lot, boxed, ten hours use only, bargain £450. Tel 01753 537206

Tascam 644 Midistudio, MIDI-equipped four-track, one owner from new, little use, hence sale, boxed, manuals £520 ono. Tel John on 01782 838745

Tascam 644 Midistudio, four-track cassette multitrack, 20 inputs, two aux sends, MIDI muting, internal tape, MIDI sync, excellent £395. Tel 01483 423088 (Guildford)

Tascam DA20 DAT machine, immaculate condition and still under guarantee £550 ono. Tel Adam on 01673 843210

Tascam DA20 rackmount DAT recorder, home use, boxed, remote, manuals, studio use only £560. Tel 01425 272875 (Bournemouth area) or e-mail: ken.freeman@ukonline.co.uk

Tascam DA20 MkII brand new, still nearly one year's warranty left from shop, with ten 92-minute DAT tapes, a professional DAT recorder for only £535. Tel Kevin on 01245 603198

Tascam Porta 07 four-track recorder, aux in, dbx, mint condition £200. Tel 01246 291106 (Sheffield) or 0976 956055 (mobile)

Tascam Porta 07 plus remote, punch-in hardly used £190. Tel Steve on 01902 342291 (Wolverhampton)

TEAC Tascam 16-track plus Soundtracs MIDI PC 24-channel mixer £1,500. Tel Colin on 01981 540167

MORE ADS OVER THE PAGE



Yamaha DMP7 fully automated eight-channel digital mixer, three internal digital effects, mint condition £450. Tel Anthony on 01784 481871

Yamaha MT3X multitrack recorder with two auxiliary sends £350. Tel Simon on 0181 541 3598

AMPS/PA

8810 Linear Phase studio monitors (USA-made), 12-inch woofer, five-inch midrange, three-inch tweeter, two frequency controls, circuit protection and two-year warranty, never used, still in original boxes and packaging as new, cost £1,700, selling at £1,200 ono. Call 0118 967 0211 or 0385 940669 (Reading)

Aiwa XA-003 stereo studio amp, includes manual, 4 x 5000RMS, little use £100 ono. Also budget four-channel stereo mixer £20. Tel Will on 01562 884831

Hill Chameleon power amp, 1400S, 650W per channel, 1U, lightweight £450. Tel 01327 340239

Linear Phase pair of studio monitor 8810 speakers, 12-inch bass drivers, two-year warranty, brand new, boxed, cost £1,700, asking £550 for quick genuine sale. Tel 0114 281 3425 (Sheffield)

Marshall 9100 brand new, dual mono bloc amplifier, swap for keyboard, sound module or similar. Tel 01344 891110

Omni speakers 200W, 12-inch woofers, asymmetrical, LCR crossover, great sound, only £600. Tel Rob on 01865 316798

Pete Cornish 12-channel custom DI unit, active, earth lift, sleeved, quality! Would suit PA company or live keyboard band or studio £1,100 ono. Tel 0171 275 9624

Two 100W Citronic speakers £100. Also Marshall 30W bass combo £80. Tel Marty on 01232 611705 after 6pm

Yamaha Club series monitors with Carisbro 600W stereo power amp, plus speaker cables (will separate) £600. Tel 01327 340329

EFFECTS

Alesis MidiVerb III needs repair, offers. Tel or fax 0115 966 4541 (Nottingham)

Boss BF-2 flanger £25. Tel 01702 312748

Boss SE-70 multi-effects processor £400. Tel Simon on 0181 541 3598

Lexicon LXP1 digital reverb EFX module, with power supply and manual £150. Also Lexicon MRC MIDI controller with power supply, manual £120. Tel 0116 243 4338

SOUND MODULES

Akai SG01V sound module, 256 sounds with editable parameters, great bass sounds, boxed £185 ono. Tel Les on 0171 419 4285 (London W1)

Akai SG01V vintage synths sound module, 16-channel, multitimbral, 32-voice polyphony, 256 sounds, 30 reverb settings, only £160. Tel Mat on 01703 320183 (Southampton area)

Alesis QSR sound module, excellent condition, includes flip flop expansion card software and manuals £700 ono. Tel 0117 902 0888 (Bristol)

Cheetah MS6 analogue multitimbral synth module, good condition, manual £80. Tel 01222 341597

E-mu Planet Phatt endless beats possibility, resonant filters, amazing sounds, the ultimate hip hop dance sound module, boxed as new £565. Tel Steve on 01732 872101 (Kent) days

Korg SR WaveStation rack, 550 sounds, incredible wave sequences £295 ono. Tel Paul on 0181 788 5687

Novation BassStation rack, perfect condition, with manual and PSU, in original box £200 ono. Tel Ed on 01597 840287 after 4pm

Quasimidi Rave-O-Lution 309 never used and as new, only four months old, need I say any more? Only £550. Tel Simon on 01703 231353

Quasimidi Rave-O-Lution 309 very good condition, PSU, flightcase, eight months old £400 or part exchange for Roland Juno 106, also in very good condition. Tel Mark on 01293 884144 (Crawley)

Quasimidi Technox lots of techno and dance sounds and drumkits, arpeggiator, boxed with manual, good condition £350 ono. Tel 01509 550074

Roland D-110 excellent condition with two sound cards, lots of sounds £200. Tel Chris on 0181 789 5868

Roland GM-70 MIDI guitar module, top-of-the-range, 19-inch rackmount, 128 memories, plus Roland MIDI pickup, fits any guitar, plays any synth/sound module, immaculate, manual £295. Tel 01482 448767

Roland MC-202 sequencer and synth, classic analogue sound, excellent condition with manual, home use only £250 ono. Tel Paul on 0113 266 5568 after 6pm

Roland MC-202 with external input to filter and CV sockets for every slider £200. Tel 01389 763147

Roland MC-303 £330. Tel 01539 822351

Roland MC-303 as new £350. Tel 0181 740 4821

Roland MC-303 boxed, perfect condition, only £385. Tel Colin on 0141 633 0171 any time

Roland MC-303 excellent condition, will include metal case and stand for only £400 ono. Tel Lawrence on 01727 835493 (Herts) or 01227 457042 (Kent)

Roland MC-303 for sale £400 or swap for Quasimidi Technox or Juno 106 or similar. Tel Mike on 0151 678 0607 leave message

Roland MC-303 good condition with box and manuals £375 or swap for Akai S01 and cash. Tel 01494 713073

Roland MC-303 Groovebox £340. Tel 01420 82215 (Alton area)

Roland MC-303 Groovebox, boxed with manuals and video £420. Tel 01224 590229 (Aberdeen)

Roland MC-303 Groovebox, dance music classic £375. Also Sony DTC-A6 DAT £500. Both unused with box and manual. Both for £800. Tel Met on 0966 403887 any time

Roland MC-303 Groovebox for sale, three months old, boxed with manuals and

Cubase 303 mixer software, quick sale hence £375. Tel Mark on 01245 441894 any time

Roland MC-303 Groovebox, six months old, still boxed, perfect condition £380. Tel 01290 422979 (Ayrshire, Scotland)

Roland MC-303 Groovebox, the ultimate dance machine for live performance, boxed with manuals, in mint condition £360. No timewasters please. Tel Elliot on 0973 509295 (East London)

Roland MC-303 mint, manual £375. Tel 01474 335746 (Gravesend, Kent)

Roland MC-303 only £330. Also Yamaha FB01 GM DX sound module £50. Tel 01539 822351

Roland MC-303 perfect condition, boxed, with manuals £350 and postage. Tel 0411 139220 or e-mail: gb@gobdoola.force9.co.uk

Roland MGS-64 sound module, perfect working order, with MIDI, power leads, etc £250 ono. Tel 01983 867377 or e-mail: david@dizzy.co.uk

Roland MKS-1 super quartet, the original super module, this babe houses a 707 drum machine, two Juno 106s and a similar sound engine to a 303 £300. Tel 01273 684069 (Brighton)

Roland MKS-70 with three M64C data cartridges £500. Tel Matt on 0181 940 6361

Roland MT-32 sound module, eight-part multitimbral, 128 sounds, 32-voice polyphony £90. Tel 01253 838959 (Blackpool)

Roland SC-55 GM/GS sound module, great for MIDI files, includes manual and remote, good condition £250 ono. Tel Dave on 01635 528905 (Newbury) after 7pm

Roland TB-303 Bassline in mint condition, manuals and carry case £650 ono. Tel Tich on 01224 642662 days, 01224 634830 evenings

Roland TB-303 retrofitted with filter, slide and accent control £650 ono. Tel 0113 275 1636

Yamaha MU100R sound module, 1,500+ voices, 46 drumkits, 32-part multitimbral, 64-voice polyphonic, 256 VL voices, vocal harmoniser, 70 effects, two analogue inputs for use with internal effects, one month old £575. Tel 0113 269 6386

Yamaha MU100 synth module over 1,500 (256 VL), vocal harmoniser, three months old, home use only £600. Also Yamaha WX11 wind controller for VL voices £200 or £750 for both. Tel 01384 294026 (West Midlands)

Yamaha TF812 two DX7s in a 4U rack £300. Tel Matt on 0181 940 6361

Yamaha TG100 tone module, immaculate, 128 sounds, 16-part multitimbral, different drumkits, GM, manuals, boxed £140. Tel 01992 501469 (Herts)

MISCELLANEOUS

256 Yamaha DX/TX sounds, analogue, digital, SFX and PPG emulation, brilliant sounds, new, never heard before, supplied on PC, Atari disk £20. Tel Duncan on 0121 444 2681

Akai sounds: S1000, S2000 and S3000

and compatibles, floppies or Zip disks, low-price, top quality. Tel Georg on 0370 422904

Beyer M88 classic limited edition with certificate, vocal/kickdrum mic, includes mahogany box, plush lined £249. Tel 01323 736017 or 0589 128346

Diggeridoo genuine Australian model, only £100. Phone Mark on 0114 272 2712

Future Music magazines 1-39 £50. Phone 0181 933 4134 or 0956 339068

J L Cooper PPS-100 SMPTE MTC sync unit, locks computers to tape machines, rackmount, as new, boxed, manual, cost £300, bargain at £140. Tel 01482 448767

Korg M1 sounds, 200 dance sounds on Atari- and PC-format, analogue synths, basses, kits, filter sweeps, organs. These are speaker shakers! £35. Tel 0121 443 2743. Don't miss out!

Korg M1/T3 memory card, 200 voices, brand new £40. Also many disks, piano cards, contents, etc. AKG mics offers. Yamaha MIDI foot controller £75. Call Ian on 01253 316981 evenings

Korg 01/WFD full aluminium five-star flightcase £150. Tel 01628 478686

PC World voucher worth £120, bargain at £100 ono. Also budget four-channel stereo mixer £20. Tel Will on 01562 884831

Phillip Rees sync unit, mint condition £40. Tel 01245 291106 (Sheffield) or 0976 956055

Roland JS-30 mint £295, open to offers. Tel 0181 560 5663

Sample CDs: Vince Clarke *Lucky Bastard* £25. *Dance/Industrial* £25. *Waveboy Transwave* library for any Ensoniq sampler, five disks, over 30 sounds, boxed with manual £30. *Cubasis Audio V1.6* for PC £50. Call Richard on 0171 288 0128

Technics SL-1200 MkII pair, plus Stanton 500AL cartridges, mint condition, one year old, boxed with manuals, act quickly £600. Tel 01225 313274 (Bath)

Studio clearout: PC, 90MHz with 16-bit sound £600. *ReCycle V1.6* boxed £250. *SoundForge V4.0* sample editor, compatible with almost any sampler, boxed £250. Reasonable offers considered. Tel Rich on 0421 906016 (Plymouth)

Various: 16-track analogue studio complete with looms and manual. Allen & Heath 24:8:2 desk, Fostex B16 tape outboards and DCC machine £2,700. Tel Simon on 01745 887091 after 6pm

Various: Akai AX73 analogue synth £275. Alesis NanoSynth module plus techno disk £199. Atari 1040 STE, 4Mb RAM, hi-res monitor, *Cubase V3* £225. Evolution MK149 master keyboard £65. All boxed, manuals, etc. Tel Stephen on 01553 674076

Various: Akai MIDI patchbay 4/8 £145. MXR dual 16-band graphic equaliser £125. Quality brass quarter-inch jack leads from £10. Tel 01865 776587 (Oxford)

Various: Akai S900, recently serviced, good condition £450. Two Akai S01s expanded £350 each. 16:2 mixing desk

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Various: Akai S950, 1.5Mb £450. Spirit Folio 12:2 mixer £140. 19-inch rack flightcase, will hold up to 6U only, three months old £80. Tel 0118 941 1133 (Reading) after 6pm

Various: Akai S1000, 12Mb, SCSI £950. Roland SH-2 analogue monosynth with case £150. Atari 1040 STE with SM124 monitor and C-Labs Creator £150. Tel 0121 440 0744

Various: Akai S1000, 26Mb, SCSI, V4.4 £1,000. Allen & Heath GS3, 16:8:16:2, four auxs, MIDI mutes, three-band swept EQ £600. Drawmer M500 multi dynamics processor £450. Syjet 1.5Gb SCSI drive £300. Tel Robert on 0956 302290

Various: Alesis ADAT £1,100. Alesis A1 ADAT to AES, EBU, SPDIF interface and sample rate converter £280. Rane FM114 modular rack mixer, offers. Fostex line amp 5030 £150. Korg M1 £500. Ashly PQ26 stereo six-band EQ. Tel 01733 770328

Various: Analogue gear: SH-101 £250. SH-09 £220. MC-202 £250. TB-303 £650. FR-660 £200. TR-606 £120. Kenton Pro-2 £120. Simmons 8:2 £50. Tel 01903 535117

Various: Analogue Systems TH-48 analogue sequencer. Analogue Systems FB-3 filter bank £900. Akai S01 fully expanded sampler £300. Tel 0116 236 6057 or 0850 740962

Various: Bellari sonic tube exciter £210. Alesis ADAT V4.03, 100+ hours £825. Both in good condition and for £1,000. Also Roland R-8M sound cards: dry, ethnic, power drums, all three for £60. Call Geoff on 0370 754814 evenings

Various: Boss digital pitchshifter/delay module PRS (mono) £40. Replay 16-bit sampling card for Atari, new, boxed £70. Akai SG01V vintage module, nice analogue basses, etc £190, boxed, spotless. Tel 01474 320154

Various: Boss DR-550 drum machine £50. Also two DCP3 mixing decks and made to fade mixer £300. Tel Ed on 01458 834142 any time

Various: Casio FK-1 bass pedals £50. Yamaha QX5 sequencer £50. Bass combo 50W £50. Fender Squier Stratocaster guitar with case £90. QuadVerb Plus £190. Tel 01342 323094

Various: Casio FZ-1, SY99. Novation BassStation. Roland MS-1. Korg KMX8 mixer. Tascam Porta 07 four-track effects unit. Atari STE, 4Mb, two hard disk, monitor, *Cubase V3.1*, leads, manuals £2,750 ono. Will not split. Tel Jon on 01524 304462 or 01529 413018 (Lincs)

Various: CR8000, rough but working £60. Analogue sequencer CSQ600 £120. Tel Chris on 01232 236093 after 6pm

Various: *Cubase VST V3.5* for PC, latest version, all documents £150 ono. Apricot computer, Pentium II 399MMX, cost new £2,500, sell for £1,800 ono. Genuine bargains. Tel 01462 684452

Various: EDP Wasp £399. Caterpillar £99. CAT and case £399. SH-101 £270. FreeBase 303 clone £129. VF11 vocoder £259. SCI DrumTraks £199. Tel Tom on 01384 353694

Various: Electro Harmonix Spacedrum £99. SR88 £65. Various analogue DVMX, Coren, TR-66, TR-606, Vermona, SD1, CR68, Drum Traks. Also some synths. Tel Tom on 01384 353694

Various: E-mu ES132 8Mb, SCSI £775. Zoom 1201 EFX £80. Iomega Zip drive £110. Pioneer CD-ROM player £125. Various sample CDs £30 each. The lot £1,200 no offers. Call Rob on 0191 421 5388 (Newcastle)

Various: Gem RealPiano £350. Korg M1 £530. Roland JD-800 £890. Korg Wavestation Ex £570. Roland W-30 £630. Roland D-110 £190. Roland U-220 £230. Roland R-8 £290. Korg M3R £290. Yamaha EMP100 £180. All perfect, cards, flightcases, manuals. Tel 0181 203 5960

Various: Hammond T series tonewheel. Roland SH-2000 monosynth. Bld me! Tel 01843 822280 or 0402 434615

Various: Home set-up - Korg X3, Roland MC-303, E-mu Orbit, E-mu Morpheus, E-mu Classic Keys, Novation BassStation, Spirit 12:2 mixing desk, Yamaha A100 amp, JBL Control One Speakers, Sony TCD D7 DAT recorder, pro cassette recorder, Mac MIDI-interface, patchbay, rack case, cables, power supplies, etc. All light use, excellent condition, £3,500. Call Alex on 01235 200727 or e-mail: alex@kalimat.demon.co.uk

Various: Korg 03R/W good condition £350. *That Jungle Flavour and Dance Megadrums*, brand new sample CDs £35 each. Boss DD-1 £30. Yamaha FB01 £60. Tel 0961 751805 (North London)

Various: Korg EX800, Yamaha DX100, both with manuals and extra sounds £125 no offers. Tel Steve on 01753 814230 evenings only

Various: Korg M1 £530. Roland JD-800 £890. Roland W-30 £630. Korg Wavestation Ex £570. Roland D-110 £220. Roland U-220 £230. Roland R-8 £290. Gem RealPiano £350. Korg M3R with flightcase and manuals £290. Tel 0181 203 5960

Various: Korg M1 perfect condition in box £500. SY77 excellent condition with aluminium flightcase £500. Roland D-500 good condition with PG-1000 programmer £500. Roland D-5 excellent condition £250. PRO E intelligent arranger, three-octave keyboard £300. ESI 32 with 32Mb RAM, still in box with manual and disks £800. JBL Controller 10s with AB200W amp, still with boxes, absolutely perfect condition, never gigged, hardly used £800. Tel Paul on 01621 840121 (Essex)

Various: Korg M1 plus sound card £600. Roland Juno 106 £450. Roland D-50 with two cards £400. MSR-700 £65. Sony DAT Walkman TCD100 £550. All mint condition. Tel 01873 335410 evenings

Various: Korg MS10 £100. Kenton Pro-2 £150. Sony HRMP5 FX £200. Roland DEP5 FX £150. Tel 01389 763147

Various: Korg Prophecy boxed as new £500. Korg Prophecy, two RAM cards, analogue sounds £250. Roland R-8, eight outs, two RAM cards (ethnic and 808) £350. Technics SL1200 MkII new £270. Studiomaster 32:8 mixing desk, 56 inputs on mixdown and new Studiomaster rack amp £1,100. Tel Vas on 0802 485724

Various: Korg Trinity+ £1,200. Roland JP-8000 £800. Roland Juno 2 £350. Akai S01 £300. Alesis S4 Plus £350. Call 0973 539370

Various: Lexicon LXP1 reverb delay £240. Drawmer DS201 dual gate (industry standard) £240. Drawmer LX20 £140. DBX163 compressor £80. Akai parametric EQ £80. Plus other items, all mint condition. Tel Matt on 0966 268564

Various: Mackie 1604 £400. Audloworks soundcard £300. Alesis MidiVerb £100. MidiFlex £100. MicroVerb £50. MicroEnhancer £50. No offers. Tel 01427 811434 (Lincs)

Various: Marlon mSR2 analogue module, multitimbral, eight parts £550 (new). Moog MiniMoog £750. E-mu ES132, 8Mb £750 (new). Swaps possible, other analogue. Tel Jean-Louis on 00 32 4368 7405 (Belgium)

Various: MicroMoog, Sequential Circuits, Prophet 600 with MIDI, Yamaha DX21, Yamaha RX15 drum machine, Yamaha QX7 sequencer. All with manuals. Also Fender Rhodes Stage 73 piano. Call Greg on 0171 434 9861 or e-mail: greg@thebridge.co.uk

Various: Midiman Syncman tape-to-MIDI sync unit £60. Boss stereo keyboard volume pedal £40. Roland RE-501 tape echo £325. Tel 01483 423088 (Guildford)

Various: Novation Super Bass Station £350. Midiman SyncMan SMPTE box £60. Yamaha DD14 electronic drumkit £60. All boxed with manuals. Tel Darryl

on 01932 340473 (Surrey)

Various: Numark 1100X mixer £90. Soundlab D/D turntable and Stanton £100. JVC D/D deck £20. Soundlab eight-second sampler £40. Kenwood KR-AS040 remote receiver £100 lot and tape leads, light cans £350. Tel Graeme on 01296 487881

Various: Oberheim XPander £750. Matrix 6R £330. Matrix 12 £1,150. E-mu SP1200 £600. Clavia Nord rack £550. Roland JP-8 (MIDI) £800. MKS80 £650. MPG80 £350. TR-909 £600. TB-303 £450. JV-1080, JD-990 £550. Lexicon PCM60 £400. Alex £100. Jam Man 32Mb £350. Delivery at cost. Tel 0181 771 4720

Various: Quasimidi Technox rack £400 or swap for TR-808, MC-202 £270 ono. Lexicon Vortex £200 or swap for Reflex. Tel Phil on 0113 263 1026

Various: Roland D-110 multitimbral synth, boxed, manual £180. Yamaha EMT10 sampled sounds module, user manual included £80. Steinberg *Synthworks* editor for D-110, D-10, D-20 and MT-32, dongle, boxed, manual £50. Tel 0116 243 4338

Various: Roland JX-8P analogue synth £295. Yamaha R1000 reverb £45. Laney Linebacker 65 (65W) £175. MC-500 performance package for MC300/500 sequencer, offers. All excellent condition, home use. Tel Chris on 01793 495551

Various: Roland MC-202 £250. SH-09 £150. RS-09 £75. Casio FZ-10m, eight-output sampler £400. All good condition, boxed with manuals. Tel Steve on 0181 806 9112 evenings

Various: Roland MC-303 £325. JV-2080 £850. Yamaha CS1x £350. A3000 £825. Akai S3000XL £995. S2000 £550. Nord Leads and others. All as new, open to swaps with analogue gear. Tel Kevin on 01353 663613

Various: Roland MC-303 Groovebox £375. Roland MDC-1 dance module, sounds, loops, effects £325. Roland PC-200 MkII keyboard £75. Yamaha SU10 portable sampler £175. All perfect for beginners. Accept offers around £800 for lot. Tel 01274 591329

Various: Roland MC-303 hardly used, cased, manuals, etc £400. Roland TR-505 boxed, manuals £100. Roland JS-30 sampler £400. Tel 7970 834351 (Brum/Mid Wales)

Various: Roland R-8 808 card £69. D-110 mint, manual, extra sounds £155. TR-727 drum machine £135. SY55 cards, SY77 disks, also JD-990. K2000. DX7/TX7. D-50. JV-880 card. X3 disks. K1/4. Tel 01708 250846

Various: Roland SH-09 synthesizer, excellent condition £200. Roland M-VS1 vintage sound module £250. Cheetah MS800 digital wave sound module £110. Studiomaster Diamond 16:2 desk £220. Fostex 2016 line mixer £130. Tel 01708 523469 (Essex)

Various: Roland SH-101 £200. Jen SX1000 £100. Korg 700S £80. Good condition or swap for MC-303 or Quasimidi Rave-O-Lution 309. Tel 01785 603290 (Stafford) after 6pm

Various: Roland TB-303 £550. TR-606 £100. KMS-30 £120. Cheetah MS800 £100. SH-09 £200. MVS1 £250. Fostex 2016 £130. Studiomaster Diamond 16:2 £220. Denon DRW580 £140. BassStation rack £250. Tel 01708 523459 (Essex)

Various: Roland TB-303 £650. Korg 01/WFD £750. Korg PolySix £250. Alesis QuadVerb GT £250. SPX90 £200. Tel 0181 905 5917

Various: Roland TB-303 with original carry case, very good condition £695. Yamaha RX7 drum machine, top condition £95. Digitech Vocalist Performer, three-part harmony, mint condition £255. Tel of fax Paul on 01257 426925

Various: Roland TR-707 £100. TR-626 £75. TR-505 £50. Korg M1 £400. Korg DDD1 £75. Tel Riggsie on 0171 352 1453

Various: SADIE DAW high-spec V2 and V3 £5,000 ono. Rolec PMX6-2 minimixer £100. Pair of Rogers Studio 1 monitors £150. Lyrec quarter-inch, three-speed master recorder. Drawmer DL221 stereo compressor/limiter £100 and some other accessories. Tel Steve on 01603 625980 (Norwich)

Various: SE rackmount MIDIMoog £950. TR-707 £125. TB-303 plus sync box £795. Oberheim Matrix 6 £395. Matrix 1000 £250. Sequential Pro One £250. All ono. Tel Paul on 01621 893076

Various: Sherman filterbank £350. Korg DVP1 £300. PAIA vocoder £200. Oberheim Cyclone £100. Yamaha TX7 £140. Alesis MicroVerb III £80. All prices include p+p. Contact Danny Budts, Pastorijveld 28, 2180 Ekeren, Belgium or tel 00 32 3542 0411

Various: Sony DAT 55-ES, sale due to upgrade £350 ono. Mackie 3204 line mixer £450. Alesis MidiVerb 4, very good condition £220. Yamaha DX27 £100. Peavey PVM30 dynamic mic with case £40. Tel 01865 437861 or 0468 410080

Various: Sony MDMX4 four-track, MiniDisc recorder, boxed £495 ono. Also Yamaha SU10 as new £185 ono. Both hardly used. Tel 01326 340231 (South West area)

Various: Studiomaster 16:4:2 with MIDI mute. Fostex R8 with sync box. Atari 4Mb with monitor, *Cubase*, MIDI splitter and looms £1,500 ono. Tel 01703 842696 (Southampton) or 0956 932446

Various: Technics KN800 keyboard £350. Roland U-110 module £170. Roland MS-1 sampler £180. Will swap for MC-303 or 309 with cash adjustment. Emagic *Notator Logic* for Atari, four extra ports £120. Double keyboard stand £75. 8U open desktop rack £30. Tel 0171 627 5474

Various: Technox dance module, good condition with manual and box £300. R-8 drum machine £200. CZ-101 boxed with manuals and 128 extra sound patches £120. No offers. Tel Matt on 01296 436486 or e-mail: mgilkes@lbn.net

Various: Technox rack £400 or swap for TR-808. MC-202 £270 ono. Lexicon Vortex £200 or swap for Reflex. Tel Phil on 0113 263 1026

Various: TL Audio C1 valve compressor £800. SPL Vitalizer £220. Alesis 3630 compressor £120. Tel Steven on 01429 880104

Various: Vox AC30 £390 ono. Seriously sweet valve sound. Yamaha RX8 drum machine £90 ono. Yamaha FB01 crazy FM synth in a box £100 ono. Tel Simon on 01904 647163 evenings

Various: Yamaha clearout. SU10 sampler £150. RY10 drum machine £100. PSS790 home keyboard £50 or £200 the lot. All in excellent condition, boxed with manuals, PSUs and CDs. Tel Paul on 0181 857 6432

Various: Yamaha CS1x £475. SU10 sampler £200. MC-303 Groovebox £375. Fostex DMT8VL digital multitracker £750. Complete set-up for £1,900 ono. Tel Philip on 01494 673137

Various: Yamaha DX100 synth, Korg EX800 module, both with manuals and extra sounds £125 no offers. Tel Steve on 01753 814230 evenings only

Various: Yamaha ProMix 01 digital mixer £900. Roland JV-1080 plus US dance card £700. Akai S2000 sampler with SCSI CD-ROM and ten-output expansion board, digital in/out £700. Tel Matt on 01993 812228 after 6pm or e-mail: mboffin@irdc.com

Various: Yamaha SY85 £400. Roland MKS-50 and editor £300. Tascam DA20 £500. Boss DR-5 £190. Kawai K1r £120. NanoSynth £265. Cheetah MS6 £160. Pro 1 £350. Bargains, home use only, all as new. Tel 01523 172676 (pager)

Various: Yamaha VL7. Yamaha VL1m. Roland D-550. Roland JX-8P Sensible prices please. Tel 0181 449 9698

Yamaha DX sounds 256, great pads, basses, FX, will load into any DX or TX six-operator synths. These are brand new. Available on Atari or PC disk £20. Call Duncan on 0121 444 2681

WANTED

Akai CD3000 sampler and S1000PB, Behringer eurodesk, Digitech Studio Quad, AKG C1000S mic, studio rack, Yamaha Pro Mix 01. Tel 0976 0976 693 395 or 0860 951 011 /or e-mail: hypenuse@aol.co

Any unwanted gear urgently needed for voluntary rock workshop helping to encourage young people to take up music. Send o Gateway to Music, The Junction, Cambridge or call Paul on 01487 842879 or 0468 00026

Broken Prophet 5 synths, collector requires spares for large collection, Rev 2 or 3, cash waiting. Call 0836 667799

DX7 cartridges especially and desperately a RAM cartridge. Also any books of patches, etc. Tel Chas Ambler on 01524 848593

Effects units wanted: Ensoniq DP2, DP4(+) or Boss SE-70. I also want a rackmount attachment for an SE-70. Must be good condition and reasonably priced and that. Phone Gordon on 0141 636 6589

FM mags issues 45 and 46, without CDs, cash waiting. Contact David Fairfield, Trellech Road, Llandogo, Gwent NP5 4TL or call 01594 530105

I need a copy of the manual for Music-X for the Amiga urgently. Would buy complete software, will pay your price, postage, etc. If you can help call Bill on 01564 782747

Korg Prophecy, Akai S20, Wavestation SR. Tel 01523 172676 (pager)

Korg SM20 Doncamatic Stageman or Korg MiniPops 7. Tel Chris on 01232 236093 after 6pm

Motherboard for Korg Poly 6 or scrap keyboard complete. Ring Ed on 01270 624080

Multi-effects unit with reverb and delay and programmable to swap for 1978 monosynth (100F), see keyboards section. Tel Sam on 01225 483808

Music-X for Amiga wanted or copy of manual for same, would pay p+p. If you can help, call Bill on 01564 782747 (Solihull)

Novation Bass Station. Tel 01483 423088 (Guildford)

Oberheim Prommer wanted, cash waiting. Tel 0498 676601

Quasimidi Rave-O-Lution 309 demo CD wanted or to borrow. Write to Nigel Bradder, 15 Scafell Drive, Heron Hill, Kendal, Cumbria LA9 7PE

Roland JS-30 sampling workstation wanted. Will pay £300 cash. Tel Pwyll on 01267 211459

Roland TD-7 percussion sound module £3500-400. Tel David on 0141 332 1471 (Glasgow)

Roland TR-606 or 707, will pay around £70. Also wanted, old cheap analogue synths and other fun toys. Tel 0956 869156

S01 memory upgrade, S950 memory and SCSI upgrade. E-mail: replikator@pacific.net.sg

Sample editing software, original or copy with some sort of instructions, will pay good price. Write to SC, 26a Dovedale Road, Wallasey, Merseyside L45 0LP

Sound cards for the Roland R-8 drum machine. Also Roland TB-303. Phone 01392 499115 or 04325 114497

TB-303, TR-909, Trinity, AN1x, Nord, Akai S3000, E-mu Orbit, Phatt, ESI, JD-800, W-30, eurodesk, ProMix, JP-8000, FX, Korg, TR-808, etc or similar for home project. Anything considered. Please

phone 01252 371699

W-30 owners! Are you interested in swapping, selling samples, loops on disk into hip hop, dance, indie, drum n' bass, etc? Contact Keith Salmon, Flat 1 (GFF), 26 Nightingale Road, Southsea, Hampshire, PO5 3JL

Yamaha SU10 sampler, must be mint, boxed with instructions and power supply £150 cash waiting, no transport so seller delivers. Tel Mitch on 01274 569853 (Bradford) after 7pm

Yamaha SY22 memory cards wanted. Also Korg DDD1 ROM and RAM cards need too. Call Dave on 01633 420413 (Newport, Gwent)

PERSONNEL

24-year-old producer/composer into beats, atmosphere and emotion seeks charismatic vocalist for songwriting and formation of two-piece band, preferably female. No soul divas please. Tel Nick on 01332 385421

Artists wanted for new labels, hip hop, soul, deep house, techno, jungle, drum n' bass, house, garage, breakbeat. Send to Marcel Gonsalves, Kingsway House, 278 Moseley Road, Manchester M19 2LH. Tel 0161 224 3057 or 0370 791180

Attention! Club promoters need a hard act to follow, like The Prodigy and Eat Static. We are available for gigs now, for more info call Zi or Marve on 0181 560 6688

Beatyfik Records independent label, seeks brilliant original artists, all freaks considered, nothing boring or over-polished. Send your demos and biog to Voltion Partnership, PO Box 775, Wallington SM5 2ZP

Collaborator required to work on experimental and dance-influenced electronic music, E-mu sampler-based set-up, previous studio experience and music training not necessary. Phone Pete on 01536 410690 (Northants)

Club PAs wanted in London or anywhere by Prodigy/Chemicals-orientated live act, also looking for a manager or promoter and a label. For a tape, picture, biog call Graham on 01223 564577

Croatian techno, house, drum n' bass, ambient music and multimedia producer is looking for people interested in art production. Is there any? If so call (++) 01 23 33 306 (Zagreb, Croatia)

Established happy hardcore label requires fresh new artists for possible future releases. Send your demos to 28 Felbridge Close, East Grinstead, West Sussex RM19 2BN. No timewasters please!

Evil - DJ group looking for music outlets, clubs, bars, radio, anything. Information: 54 Elton Avenue, Greenford, Middlesex UB6 0PP or tel 01523 133020 (pager). New members also needed

Excellent male singer available for season work, have good range and loads of experience, demo available if requested. Tel Mark on 01509 218392 (Leicester). Can travel

Experienced keyboardist/programmer, producing release-quality trip hop, dance and other experimental material, own gear and studio, seeking female vocalist or writer for professional and/or personal relationship. Contact Vince, 58 Crooksbury Road, Farnham, Surrey GU10 1QD

Female vocalists required to front a six-piece dance funk band, recording, gigs and the chance to join a band on the move. Contact Dave on 01933 270 930 for more info

Football, curry, Seinfeld, Photoshop, punk rock, beer and fags-based label seeks fun-loving happy hardcore/slipmatt style demos. Send to Andy, c/o Dragonfly, Box 17850, London E17 9NL

Fresh new underground record label requires quality demo tapes of deep

house and funky techno for 12-inch release. Write to Wayne Blackshire, 2 Loughton Road, Hexthorpe, Doncaster DN4 0BT

Garage tracks wanted for imminent release, studio time available for the right tracks. Send cassettes and CDs to Unit 18, Croydon House, 1 Peall Road, Croydon, Surrey CR0 3EX, or call 0181 287 8585 or 0902 813008/813009

Independent record label requires business manager with sound knowledge of licensing and label deals, industry contacts a must. Contact Dara on 07050 134895

Indie/rock dance act à la Chemical Brothers, Primal Scream, Propellerheads, looking for club promoters, clubs interested in putting on live acts in your club to help launch/promote storming new single. Tel 01483 578240

Intelligent electronic pop songwriting duo, Eikon, seek female singer, future Number 1s waiting for a voice. Tel Scott on 01902 721977 (West Midlands area)

Keyboardist wanted by rock band. Influences: 80s music, Duran Duran, Japan, etc. Must be 16-19 years old and ambitious. Call John on 0961 974529 (Wolverhampton)

Keyboardist wanted by signed artist recording first single, must be open-minded, good basic ability and personality will get you in. Tel Stef on 01932 881302

Keyboard player/programmer (age 23) looking for band. Any style of music, preferably in South London or Bromley area. Have full-time job so evenings or weekends only. Call Greg on 0181 466 7784

Keyboard player required for Heart tribute band, from Stoke area. Tel Sam on 01782 370209

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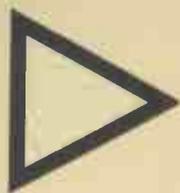
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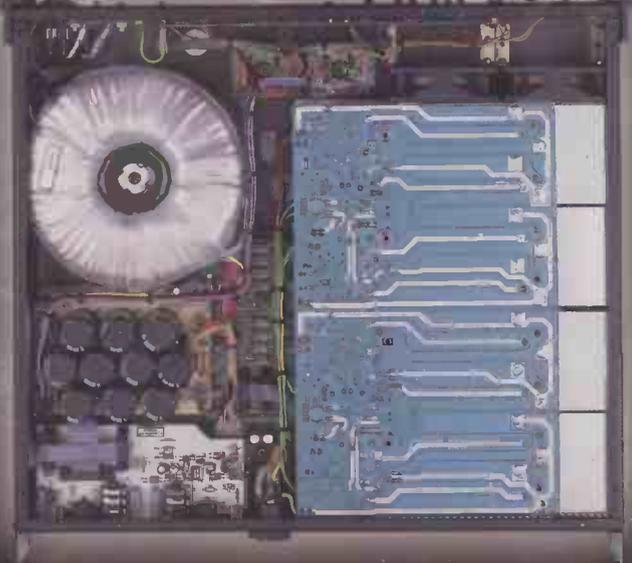
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Depth	414mm (16.3")	414mm (16.3")	434mm (17.1")
Rack size	2U	2U	2U
Weights (Net/Shipping)	13kg/16kg	16kg/19kg	18kg/21kg



WHEN YOU NEED TO GET SERIOUS....

Studiomaster